

SENATE CONSULTATIVE
COMMITTEE

PLAN FOR FOCUS

**University of Minnesota
Twin Cities Campus**

**Report of the Advisory Task Force on Planning
June, 1987**



UNIVERSITY OF MINNESOTA
TWIN CITIES

School of Physics and Astronomy
Tate Laboratory of Physics
116 Church Street S.E.
Minneapolis, Minnesota 55455
June 30, 1987

Roger Benjamin, Provost
Office of the Provost
213 Morrill Hall
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Dear Roger:

We are hereby submitting to you the Final Report of the Advisory Task Force on Planning, which we have entitled "Plan for Focus." The process used by the Task Force in developing the recommendations and the report is summarized in the report. I would like to add several comments.

The members of the Task Force were constantly aware that our deliberations and recommendations are the first response to the planning documents submitted by academic and support units. We expect that the Academic Affairs Planning Committee will scrutinize the recommendations and the forthcoming responses from interested parties. In a report of this length and complexity, based upon such a massive amount of information, there are bound to be errors of fact and of judgement. The complete process which you devised appears to be well designed to provide a fair hearing and to modify the recommendations when appropriate.

The Task Force developed a grave concern about the drift toward mediocrity in many of the academic programs on the Twin Cities Campus, particularly within the traditional arts and sciences core. This concern was unanimous; the recommendations developed to reverse this trend represent a consensus without dissent. The truly difficult challenge was to see how to fund this action within an overall constant budget. The inevitable conclusion was that, in order to do some things better, in order to assure that the undergraduate education on this campus will be at an acceptable standard as we move into the next century, it will be necessary to close some programs unless some substantial increase in funding is coming from the State. In the face of repeated retrenchments in the last decade, we thought it ill-advised to make partial reductions which would result in further lowering of quality.

To arrive at recommendations to close valued programs was painful. We would of course prefer to find other sources of funds. There are few, if any, programs which we would recommend cutting if other funds were available. However, the discipline imposed by the requirement that the total budget be held constant was exceedingly important. The seriousness of our concern and the importance of our positive recommendations can best be signaled by the gravity of the recommended closings.

Members of the Task Force are excited about the vision of the University which emerged with our positive recommendations. We see the increased attention to the quality of undergraduate education and its articulation with the unique research environment of the University as a most appropriate development which serves all of the people of the State; every undergraduate, regardless of major, should receive a significantly better education if our positive recommendations are accepted. We also see the rationalization of the biological sciences, with the broadening of their application to agriculture and the health sciences and

the sharpening of the basic focus on the biosphere, as key developments which enhance the land grant mission of the University.

Members of the Task Force also recognize that valued education, research and service would be lost to the University if units are closed to accomplish our goals. The question of the balance was a matter of judgement.

We have no doubt that the major units which would be closed will have articulate spokesmen and substantial constituencies which rally to their support, as should be the case. Many of us are concerned, however, that the positive vision and goals which are contained within our report, particularly with respect to undergraduate education and the basic arts and sciences core of the University, have no well organized constituency. Very few students recognize the slow erosion of educational quality; their time here is too brief, and their experiences with other universities and colleges are too limited. These concerns are heightened by the initial response to the Summary of the Task Force Report, during which there has been overwhelming concentration on the negative recommendation without adequate attention to, or even clear descriptions of, the positive potential. It now appears as if there is mounting pressure to rush to judgement on the recommendations to close units before there is a thorough discussion of the positive recommendations. Of course there is an inclination to minimize damages in case the units aren't closed, but decisions which are made without a full study of the report are likely to defeat the purpose of the report, limiting the possibility of positive outcomes. My hope is that the recommendations and decisions which emerge from the remainder of the process abide by a budgetary discipline similar to that of the Task Force. If, for example, it is decided not to close program A, at the same time the specific budgetary consequences must be decided; specifically, it should be established which of the positive recommendations will be eliminated or reduced, and by how much.

In order to give the proper level of attention to the academic programs of the Twin Cities Campus, it was necessary to give little attention to the many support services required for such a large organization to function well. We regret this, and include recommendations which would lead to further study of these services, a task which must be attended to as part of this planning process.

Ours has been a remarkable experience. Only time will tell its value. I remain optimistic that, under your leadership and that of President Keller, the University will be well prepared to move into the 21st century as one of the great public universities, serving the State with the quality of education, research and service which it deserves.

Sincerely,



Charles E. Campbell
Chair, Advisory Task Force on Planning

cc: Advisory Task Force on Planning

PLAN FOR FOCUS

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PART ONE: PRELIMINARIES

INTRODUCTION

For most of the 40 years since the end of World War II, the University of Minnesota has faced continuing pressure to accept more students, more programs, and more distinct missions. Generally, the press of number of students has overwhelmed the accompanying increase in resources, causing the quality of education to suffer as numbers grew. Over the same period, too, other public higher education systems have grown in Minnesota and neighboring states, and a vigorous private higher education system has continued its growth parallel with ours.

Now, over the next several years, demographic changes signal a decline in the number of students seeking higher education. The University has adopted Commitment to Focus as a way to take advantage of this period of expected lower pressure from student numbers, when other systems should be able to absorb a larger share of the total student body without taxing their capacity. The University proposes to reduce the breadth of its activities in view of the growth of other higher education systems and to improve the quality of its education as student numbers decline. The role of the Twin Cities campus of the University under Commitment to Focus is to provide those educational programs that are most appropriate to its position as the state's major research university, with a land-grant mission, international stature and involvement, and a metropolitan location.

Strategy for Focus is the University's internal response to the challenge posed by Commitment to Focus. Starting in fall 1986, each college began to re-examine its priorities in light of new planning assumptions. Each college was asked to establish internal priorities, identifying new programs that should be undertaken and existing programs that should receive increased or decreased funding, or be eliminated, all under the strict discipline of a constant budget. Each college also was asked to identify priorities for new funds that might come to it, either through reallocation from other units or from external sources.

Meanwhile, in preparation for review of Twin Cities college plans, Provost Roger Benjamin and the Consultative Committee of the Faculty Assembly jointly agreed on the composition of this Advisory Task Force on Planning to review the college documents. The plans for Twin Cities colleges were submitted on March 31, 1987. The Advisory Task Force was constituted in time to begin reviewing plans as soon as they were submitted.

A. THE CHARGE TO THE TASK FORCE

Here is our charge:

"Make recommendations on campus-wide program priorities to the Office of the Provost. Colleges, academic support units, and service units have each been asked to construct their own priorities. The Task Force is asked to provide recommendations for campus-wide priorities; recommendations may include reorganization of the priorities within colleges and service units, as well as the setting of relative priorities across units. In order to do this, you will probably want to review some details of changes in individual programs and departments; but it is not intended that the Task Force become deeply involved in the details of each unit plan; rather you are asked to form a perspective on broad issues of academic policy.

"The most important issue in formulating priorities is to form a judgment as to whether or not the University is moving toward a significant improvement in the quality of its programs, with each unit judged in terms of its own mission. Priorities should be formulated in light of Commitment to Focus and the principles enunciated in the instructions to colleges, academic support units, and service units summarized in the Strategy for Focus documents."

The charge to the Task Force goes on to specify that it should consider the same five alternatives as the colleges were asked to consider, ranging from creation of new programs to elimination of old ones. Criteria to be used by the colleges in setting priorities were: quality, centrality, comparative advantage, demand, and efficiency and effectiveness. The Task Force was charged to use improvement of quality as the most important of these. This means, inevitably, that we had to consider difficult choices. Programs of high quality that are also high on all of the other criteria make for easy choices: They must be protected, and where possible enhanced. If there were any, programs ranked low on all criteria also would be easy to deal with. It is the programs of high quality, which do not rank high on the other criteria, and those of low quality, which do rank high on the other criteria, that make for agonizing choices. **It is not possible to meet the main charge, to improve the quality of the overall institution, while continuing all such programs at current levels.** If the University is to improve its overall quality, some programs that rank high on one or more of the five criteria will need to be reduced or eliminated to provide increased funding for others.

B. THE SCOPE OF THE RECOMMENDED REALLOCATION

In its review of the present state of the University, the Task Force

identified crucial shortcomings that are linked to shortages of funds, both in the arts and sciences core of the University and in many of the professional schools. By "crucial" shortcomings, we mean programmatic deficiencies that keep the University as a whole and its separate colleges from making a noticeable improvement in its contribution to the education and well-being of Minnesota's residents and to the economy of the state. To remedy all of these shortcomings within a relatively short period would not be feasible. Instead, the Task Force identified those remedies that in its judgment would provide the necessary first steps, to be carried out over the next five to ten years. These changes would cost approximately \$25 million.

The Task Force painstakingly searched for savings that could be accomplished without such dramatic changes as elimination of a college; initially it restricted its recommendations to more modest changes such as severe reductions in the size of some colleges that are not central to the University's mission, and elimination or reduction in size of some subcollegiate departments and programs. This effort freed resources that would eventually yield an estimated \$13 million in savings (apart from transfers that simply involve moving a program and its staff from one college to another).

Reluctantly, the Task Force came to the conclusion that the only way to release funds sufficient to remedy crucial shortcomings was to close down entirely one or more major functions so that the University could focus resources and provide high quality for the rest. The Task Force looked particularly for units with relatively low demand, for which substitutes would be available to Minnesota students in neighboring states. On the basis of these considerations, the current level of state funding, the additional investment needed to meet the University's standard for quality, and the extent to which these colleges provide central and unique contributions to the educational programs of the rest of the University, we have recommended closure of the College of Veterinary Medicine and the School of Dentistry. To demonstrate the extent to which reallocations fall short of the need without these major reductions in the University's programmatic scope, the Task Force recommendations without those closures are indicated in the following discussion of each college.

C. PROCESS

The time available dictated Task Force procedures: Over a period of two and a half months, we were to review all of the college and support unit plans, obtain the information we needed that was not included in the documents, identify and make judgments about global issues that reach beyond individual colleges, and formulate budgetary and other programmatic recommendations. The scope of the job and the brevity of time called for division into subcommittees and an intensive schedule. The Task Force spent the first month divided into four subcommittees to evaluate the state of broad program areas across the campus: physical and mathematical sciences, biological sciences, social sciences, and arts and humanities. This way of viewing the campus allowed us to identify issues that go beyond individual colleges. These may be similar issues that recur in various parts of the

campus (e.g., a perennial starvation of supply and expense budgets), or situations where the administrative division of colleges gets in the way of academic programs (e.g., as has happened in the biological sciences).

At the beginning of May, the Task Force started its review of colleges, again divided into subcommittees (one for biology-based programs, one for all other parts of the campus), defined issues, met with deans, and drafted recommendations. A week of intensive meetings by the full Task Force at the end of May led to revised perspectives and new issues. The Task Force met almost daily from then to the middle of June to debate recommendations on global issues, to review the revised recommendations on colleges, and to write this report.

A process carried out under such time pressure will be flawed. Each Task Force recommendation requires scrutiny and debate, and wrong assumptions require correction. The Task Force ended its work on June 15, so another body must coordinate the discussion and review of its recommendations. That body is the Academic Affairs Planning Committee¹, which has scheduled meetings with deans and directors and intends to produce its preliminary report by the end of the summer. Then a further process of discussion and review will continue until late in the fall quarter, when recommendations will finally be submitted to the Regents (See Appendix 2 for the tentative detailed schedule).

¹Call Carol Balthazor at 612-624-8333 for more information.

OVERVIEW OF THE CAMPUS

A. INSTITUTIONAL CHARACTERISTICS

The Twin Cities campus of the University of Minnesota is unique within the state and among major research universities. No other single campus in the country offers a comparably broad range of programs. As the only comprehensive Ph.D.-granting institution in the state, the University is in the vanguard of research in agriculture, engineering, the health sciences, the social and behavioral sciences, and some areas of the humanities and arts.

Four fifths of the physical facilities on the Twin Cities campus are in Minneapolis and another fifth is four miles away in St. Paul. This location in a major metropolitan area is unusual among land-grant universities. The Twin Cities campus, with a 1986 enrollment of 45,000 (out of 56,000 for all campuses of the University), may be the nation's largest single institution of higher education. The metropolitan setting provides many opportunities for students to combine education with work, but as a consequence, the University has one of the largest part-time student enrollments in the country: one fourth of the total. Many other working students manage to enroll full time; one third of full-time students work 20 hours per week or more. Through its Minnesota Extension Service, the University also is present in each of Minnesota's 87 counties and reaches almost one third of the people in Minnesota each year through some 22,000 educational programs in agriculture and many other fields.

The Twin Cities campus provides undergraduate education to students through majors in 18 separate colleges. It offers bachelor's, master's, and doctoral degrees in more than 250 fields of study. In addition, professional post-baccalaureate degrees are available in agriculture, education, law, and in several health sciences. In the 1985-86 academic year, the University awarded 8,905 diplomas, of which 556 went to doctoral students.

The University is the primary educational choice of high school graduates in the Twin Cities metropolitan area. Sixty percent of students come from the Twin Cities area and 15 percent from other parts of the state. As the North Central Association of Colleges and Schools noted in three separate reviews (1966, 1976, 1986), the University is less diverse in its student and faculty populations than other large research universities; the 1966 review suggested that students would benefit from association with students of high ability from out-of-state. One fifth of doctorates awarded from 1978 to 1984 went to students born in Minnesota. Almost 30 percent of Twin Cities faculty received their doctorates here.

The Twin Cities campus is predominantly a commuter campus; 35 percent of students live within three miles of the campus; about 13 percent live in University residence halls. For the past five years, the ratio of women to

men students (46 percent to 54 percent) has remained steady and the average age of students has increased only negligibly. About half of all Twin Cities campus students receive some financial aid.

With other Minnesota colleges and universities, the Twin Cities campus reflects the state's low national standing in enrolling minority students. In 1984 Minnesota's minority enrollment was 3.9 percent of the state's higher education enrollment, placing it fourth lowest nationally. In 1986 the total minority enrollment on the Twin Cities campus was 6.6 percent, 82 percent of whom were enrolled as undergraduates. Foreign students have attended the University almost since its establishment. The University calendar of 1874-75, which contains a listing of all students in attendance, named two students with home addresses in Canada and Denmark. The first Ph.D. granted to a foreign student was awarded in 1915 to a student from Japan. By 1920, Minnesota had 45 foreign students and ranked 20th nationally in this respect. In 1945, 97 foreign students, staff, faculty, and trainees were affiliated with the University of Minnesota. By 1981, the number of foreign students across all campuses of the University had grown to more than 3,000.

But in 1985, for the third consecutive year, the number of foreign students at American colleges and universities rose less than one percent. Although the Twin Cities campus ranks ninth nationally in the number of foreign students it enrolls (2,624), this figure represents only 6.3 percent of its enrollment. To rank nationally among the top 20 institutions with the highest foreign student proportions, it would need to attain a level of at least 10 percent. Although more than 116 countries are represented among foreign students, the University's geographic mix reflects national enrollment patterns. Currently at the University, China (255 students), Korea (244), and Taiwan (218) account for almost 30 percent of foreign student enrollment. About 25 percent of the foreign students are government-sponsored (predominantly non-U.S.); 75 percent rely on personal or family resources. Seventy percent are male. In 1986-87, engineering is by far the most popular field of study (425 foreign students), followed by the health sciences (221), computer and information sciences (210), business and management (178), and the social sciences (159).

Undergraduate Student Characteristics

New undergraduates on the Twin Cities campus include freshmen and transfer students in about equal numbers. In fall 1986 half the new freshmen came from the top quarter of their high school class. Sixty percent of freshmen received advanced standing.

The 1986 undergraduate student enrollment was 31,000, down from 33,000 in 1981. Slightly more than half the undergraduates are male; the average age is 22.4 years, unchanged from 1981.

The 1986 composition of the undergraduate population was 32.8 percent freshman, 21.7 percent sophomore, 20.7 percent junior, and 24.9 percent senior. The College of Liberal Arts (CLA), with a 1986 fall quarter

enrollment of 16,829, is the largest undergraduate college (37 percent). Just under 10 percent of the total CLA-enrolled students currently register for their college courses through the honors division, representing a 65 percent increase over spring 1982. The other large undergraduate colleges are: Institute of Technology (5,668), General College (2,988), College of Education (2,353), and the School of Management (1,536). Among the colleges there are some noteworthy changes in enrollment that in some cases reflect shifting vocational interests among students and in other cases represent admissions policies. For example, enrollment in the College of Agriculture declined 13 percent between 1985 (1,075) and 1986 (932) and has dropped 45 percent since 1981. Enrollments in the Biological Sciences have also declined by about 25 percent in the 1980s, from 437 in 1981 to 332 in 1986. General College's enrollments were down by eight percent from 1985 and down 13 percent from 1981. More than 28 percent of the University's minority undergraduates are enrolled in General College. IT's enrollment was down in 1986 by 1.3 percent compared to 1985, and the College of Education was up by 1.8 percent.

A 1986 study of a large sample of students suggests that graduation rates (after eight years) differ by college: 15 percent for those starting in General College, 44 percent for the College of Home Economics, 46 percent for the College of Liberal Arts, 64 percent for the Institute of Technology, and 69 percent for the College of Agriculture. These rates are lower than for other Big Ten schools, but the high proportion of part-time students helps explain them.

In 1985, minority students constituted 8.0 percent of the total undergraduate student population, but only 3.3 percent of the baccalaureate degrees awarded. Asian-Americans represented 4.2 percent of undergraduates and 1.8 percent of baccalaureate degrees; American Indians, 0.5 percent of undergraduates and 0.3 percent of baccalaureates; Black Americans, 2.2 percent of undergraduates and 0.9 percent of baccalaureates; and Hispanics, 1.0 percent of undergraduates and 0.3 percent of baccalaureates.

Between 1980-81 and 1985-86, there has been some change in the popularity of the leading majors. The most highly subscribed fields continue to include business administration, mechanical engineering, psychology, electrical engineering, elementary education, speech communication, and political science. But nursing, journalism, and civil engineering have been overtaken on the list of the 10 leading majors by computer science, English, and history.

Graduate Student Characteristics

For 1985-86, 8,928 applications to the Graduate School were received; the total was up by 13 percent over 1984-85, but below the 1982 peak (9,381).

Across all colleges, somewhat over half who apply for graduate study are admitted, and of those admitted, slightly over half actually enroll. Throughout the 1980s, about one fourth of students have been enrolled in the

graduate and post baccalaureate professional schools. During this period the Graduate School's enrollments have increased slightly while the professional schools' enrollments have declined. The current percentage of females in the Graduate School remains at 45 percent, below the national average of 51 percent. In the professional programs, the percentage of females has risen from 31 to 40 percent. Between 1981 and 1986, the proportion of graduate students from the Twin Cities dropped from 52 to 46 percent. In this period, the main increase in Graduate School enrollment came from the foreign student population, which rose from 12.5 to 20.5 percent. Reflecting a national trend, the enrollment of minority graduate students has declined recently: 3.2 percent in 1984 compared to 4.4 percent in 1975.

Over the past decade the number of master's degrees awarded ranged from 1,231 in 1979-80 to 1,834 in 1985-86, the number of doctorates from 513 in 1980-81 to 556 in 1985-86. Paralleling national figures, about one third of the doctoral degrees at the University are awarded currently to women. The data for degrees awarded to minorities are disappointing: in 1980-81, 4.3 percent of the master's degrees and 7.4 percent of the doctorates were awarded to minorities; in 1985-86 only 4.4 percent of both.

Faculty Characteristics

In 1985, there were 3,910 faculty on the Twin Cities campus. Almost half were tenured, 8.5 percent were in tenure-track appointments, and 41.5 percent were on temporary academic appointments. The percentage of tenured faculty varied from a low of 33 percent for the Health Sciences to a high of 86 percent for the College of Education. For the College of Liberal Arts, the largest of the colleges, two thirds of the faculty are tenured. Across all colleges on the Twin Cities campus, 37 percent of the faculty are professors, 23 percent associate professors, 29 percent assistant professors, and 11 percent instructors.

Minnesota ranks third among Committee on Institutional Cooperation (Big Ten plus Chicago) institutions in its percentage of women (18 percent). The percentage of regular female faculty hired as assistant professors in the past few years has risen considerably, demonstrating a concerted effort at the University to attract female faculty. However, because of retirements and resignations, the total percentage of regular female faculty has increased only slightly. Nationally, females make up 27.5 percent of the full-time faculty and only 11.4 percent of the full professors. At the University only 7 percent of the appointments as professor were female in 1985.

Like other universities, Minnesota has difficulty attracting and retaining minority faculty. Nationally, the number of minority faculty and administrators has declined since 1976. Recent analysis shows that the number of minority faculty at Minnesota has declined by one third since 1980. Now, 152 (3.7 percent) are Asian, 20 (0.5 percent) are Black, three (0.07 percent) are American Indian, and 31 (0.7%) are Hispanic. Collectively, minorities constitute less than five percent of the current

academic personnel, and less than 10 percent of those who received and accepted offers during the past five years. Many academic units of the University have no Blacks, American Indians, or Hispanics among the faculty ranks.

One University task force recently reported that approximately one tenth of the faculty are actively involved in international research and related activities, and another one tenth occasionally travel abroad to conferences. That task force recommended that international scholars be brought to the University more frequently as one way to strengthen the international component of faculty members' research. With improved recruiting, the number of foreign staff and faculty has risen dramatically in recent years. In 1985-86 there were an estimated 460 foreign staff and faculty and 146 honorary fellows.

Most faculty teaching and research experience abroad is individual, outside of formal agreements. Faculty members acquire grants on their own and use sabbatical or single-quarter leaves for foreign travel. Some colleges encourage faculty travel more than others, but there is general agreement that international experiences of faculty members enhance a department. In many fields, however, the leading-edge research is being done in the United States, and junior faculty may jeopardize their careers by spending time in a foreign institution, away from their home department. The 1986 appointment of an assistant vice president for international education is strengthening the planning, management, and integration of international education into the research, service, and teaching missions of the University.

The past decade has seen numerous University initiatives to reward and facilitate faculty research: the Bush Sabbatical Program (begun in 1981), which funds faculty sabbatical projects linking faculty research with undergraduate education; special retention funds, beginning in 1983, to prevent the loss of the University's best faculty; the use of the University permanent endowment fund, together with funds from the Capital Campaign, to increase the number of endowed chairs; and the increased use of indirect cost recovery funds from sponsored research to facilitate faculty research (e.g., more funds to help with equipment needs).

Budget Overview

The University's budget for 1986-87 is more than \$1 billion, of which \$369 million (36 percent) was derived from state appropriations through general operations and maintenance funds (\$288 million), state specials (\$73 million), and contracts and grants (\$8 million). The second largest source of University income is derived through service fees and sales from the hospitals, auxiliary services, and other self-balancing activities, which total an estimated \$320 million or 30 percent of the University's budget. The federal government through contracts, grants, student aid, and direct appropriations accounts for almost \$150 million or 15 percent. Tuition and instructional fees make up 11 percent of all University income. Foundations and endowments income (\$26 million) plus private income from business,

industry, individuals, and other sources (\$42 million) make up about seven percent of the total budget. Finally, the smallest portion, an estimated \$12 million (1 percent) comes from general income through indirect cost recoveries, temporary investments, and dedicated receipts.

University expenditures by function are grouped into three large components. The largest component, amounting to \$412 million or 40 percent of the budget, is spent on collegiate units' instruction, departmental research, and supporting activities (\$265 million); research, public service, and student aid (\$7 million); academic support (\$19 million); student services (\$14 million); administration and general services (\$42 million); and the physical plant (\$64 million). The second component, amounting to \$337 million or 33 percent of the budget, is spent on hospitals, intercollegiate athletics, auxiliary services, and self-balancing activities. Finally, \$281 million or 27 percent, is spent on separately budgeted research, public service, and student aid.

The 1984 Legislature required that 33 percent of direct instructional costs be supported by tuition for all higher education systems. This requirement resulted in a 38 percent increase in the student's share of instructional costs from FY76. Comparing the 1985 tuition rate schedule with FY76, full-time students carrying 16 credits per quarter have experienced the following increases after removing the effect of inflation: CLA lower division (27 percent), CLA upper division (40 percent), management (49 percent), and medicine (78 percent). The distribution of the changes, specifically designed by the implementation of the Cost-Related Tuition Policy, were first widely used by the Board of Regents in 1981 tuition discussions.

During the past decade, expenditures per full-year equivalent (FYE) student on the Twin Cities campus fell nearly every year from \$4,344 in 1976-77 to \$3,769 in 1983-84 in constant 1984 dollars, a decline of 13 percent. Comparisons with the other Big Ten public institutions indicate that the University of Minnesota's support per ranked faculty was seventh out of eight; the amount the University spends is \$7,651 compared to \$18,368 and \$13,379 for the top two schools. The University of Minnesota ranks at the bottom of the list of such institutions in expenditures for instructional equipment, with \$11.67 per FYE student compared to \$30.93 for the next-to-bottom university. In the category of direct costs in instructional departments, there is persistent evidence that the University of Minnesota is rather thinly funded. In fiscal year 1984-85, for example, Minnesota ranked ninth of 16 schools reporting and sixth of eight in the Big Ten.

A 1987 internal document, "University of Minnesota Comparison of Indirect or Support Expenditures With Other Research Universities Fiscal Year 1984-85," explores whether the low funding of direct instruction is coupled with unduly high funding for indirect or support expenditures. Total support expenditures in five major categories were examined: academic support (other than libraries), libraries, student services, institutional support, and plant operation and maintenance. Minnesota ranks above average only in student services. It would require an infusion of \$32 million to

bring support costs to the desired level (that is, a tie for third and fourth place among the public institutions of the Big Ten). The libraries, academic support, and institutional support would each need about \$5.4 million to achieve the targeted ranking, while physical plant operation and maintenance would require \$15.6 million. In research expenditures, Minnesota ranks 15th of 29 major research universities which share statistical information, and fifth of 10 in the Big Ten, whereas in public services it ranks second only to North Carolina in absolute terms among 29 schools. If the University of Minnesota were at the Big Ten mean, nearly \$23 million would be released for other purposes.

The Office of Research and Technology Transfer Administration (ORTTA) reports annually on externally supported research, training, and public service programs in a report entitled, "Levels and Trends in Sponsored Programs at the University of Minnesota." In FY86, ORTTA administered more than \$150 million in sponsored research, training, and public service expenditures, a 14 percent increase over FY85 funding of \$133 million. Three quarters of these expenditures were from federal funds; funding for the health sciences, which account for 53 percent of the University's sponsored programs, increased 17 percent.

Federal support continued to grow in FY86, increasing 14 percent, to \$115 million.

Total externally supported expenditures, including special appropriations for research, have increased from \$67 million in FY71 to \$254 million in FY86, an 8.6 percent average annual increase. Adjusted for inflation, however, the average annual increase is two percent.

The University of Minnesota is one of the leading recipients of federal research, training, and public service support. From FY71 to FY82 it ranked among the top 10 universities. It then dropped, due mainly to a change in classification. For FY85 the University ranking again has moved from 12th to 10th, with obligated funds totaling \$142 million for FY85. Compared to similarly sized state institutions, Minnesota placed behind the University of Washington (4th), the University of Wisconsin (9th), and ahead of the University of Michigan (12th).

Launched in 1986, the Minnesota Campaign is a three-year fund drive to raise \$300 million. As of June 1987, it has already raised \$275.5 million. The state is contributing to this effort by the decision of the 1985 Minnesota Legislature to release the \$65 million Permanent University Fund to increase the number of endowed chairs and other endowed faculty positions from 17 to 100. As of June 1987, 92 new endowed academic positions have been created. The University of Minnesota ranked 36th among 260 colleges and universities in the value of its endowments (\$224.3 million) on June 30, 1986. Among peer institutions, it ranks behind the University of Michigan (30th place with \$252.5) and ahead of Ohio State University (41st place with \$207.1 million). The value of Minnesota's endowments increased about 20 percent over the preceding year whereas the national average increase is estimated at 26.9 percent.

The University of Minnesota ranks seventh nationally, and first among public universities, in funds raised through voluntary support in 1985-86, (\$94 million). In the past three years, the University's rank has improved considerably from 16th place in 1983-84 with \$47 million and 9th place in 1984-85 with \$66 million (second among public institutions). For the first time, corporations gave more money to public institutions than they did to private colleges and universities. The University of Minnesota, with \$36 million from corporate support, ranked second only to Stanford University (\$39 million).

The Minnesota Alumni Association, established in 1904, is the organization representing the University's more than 200,000-plus alumni. It provides people with a lifelong connection to the University, offering opportunities for involvement in programs on campus or in many cities throughout the country. Its membership has increased by 11,200 since 1980 to its current 34,300 members. The number of donors contributing gifts under \$1,000 in 1985-86 also increased to 46,000, up from 38,000 donors in 1984-85. The total annual giving support increased over the previous year by \$600,000.

B. QUALITY

From its founding the University has shared a tension familiar to all state universities, that between quality and number of students and programs. The decision to combine the state university and the land-grant mission in a single institution, while clearly sound for the state in view of its resource base, made the University the institution of first resort by the state, its Legislature, and numerous groups of citizens. The result is a spectrum of programs that is probably unmatched, spanning the disciplines. The willingness of the University to respond to these many requests has, however, not been balanced with a determination to steadily prune the less important. The result has been a slow drift away from excellence as available resources were more thinly spread.

There are several dimensions to quality: The faculty, students, program of study, library resources, facilities, academic leadership, and the setting are the most important. These can be assessed and assigned values, from which rankings emerge, inevitably subjective because they are based on the perception of the program evaluator. Another shortcoming of program ratings is that major elements of the University are not included. The most recent (1982) American Council on Education (ACE) Rankings of Graduate Programs considered only 34 of the University's 170 graduate programs. While these are programs most commonly found in public and private U.S. universities, not included were most of the agricultural disciplines, forestry, home economics, law, management, most of medicine, and public health, among others. The attempt to use such ratings to obtain an overall institutional ranking is thus an uncertain exercise.

While intrinsic quality and perceived quality may not be the same, perception must be taken into account. Perception determines whether the new faculty candidate or top graduate student decides to come to Minnesota;

perception also partly determines the location of sponsored research centers and the granting of competitive research funding.

The earliest assessment of graduate programs appeared in 1928; subsequent studies were done in 1957, 1964, 1969, and 1982. Over that period the methodology has improved, and the number of fields covered increased from 20 to 34. The overall decline of graduate programs at the University since the 1957 study is most troublesome. Of 21 disciplines, 14 declined, most of them markedly, four remained essentially unchanged, and three advanced. The decline occurred especially in the core arts and sciences, came during the period of substantial growth in the undergraduate student population, and coincided with the rise of the professional schools. Notwithstanding these losses, the fact that some programs in mathematics, social sciences, and engineering disciplines held their high rankings or improved them is reassuring, for this affirms that the aspirations and environment for excellence continue on this campus. The promise of Commitment to Focus is that the concentration of state resources on fewer programs will enable more of those that remain to respond to the challenges of new and rapidly evolving fields of research and thereby improve the overall quality of the University.

While graduate program rankings provide some evidence of quality in the University's research productivity and scholarly accomplishments, it is somewhat more difficult to obtain measures of quality in two other primary missions, teaching and service. Greater relative emphasis upon research and graduate study does not lessen the importance of undergraduate education. It does impose the responsibility upon the colleges to develop undergraduate curricula that fully recognize the new context in which undergraduate education occurs. The Task Force was encouraged by some of the college plans for undergraduate study that reflected this understanding, as well as the all-University efforts to improve undergraduate education generally. As additional responsibility for undergraduate education shifts to other state higher education systems, improved communication between the respective faculties will be necessary to maintain the currency of undergraduate courses.

Increasing the ease and speed with which University knowledge and discoveries can be brought to serve the state and its citizens is a matter of current concern. In the area of agriculture this has been done with great success. In other areas the challenge remains, but has been accepted by the University and increasingly involves the active participation of the faculty. As in the instance of undergraduate education, the evaluation of quality of service will require instruments of assessment, and the findings will serve as a basis for improving the service rendered. The overall effectiveness of the University's service, however, will continue to be measured, as in the past, by the quality of life enjoyed by the citizens it serves.

PART TWO: CAMPUS-WIDE ISSUES

COLLEGIATE ORGANIZATION

I. OVERVIEW

There are 20 colleges on the Twin Cities campus; seven serve as freshmen admission points. A number of these colleges report to one of the two disciplinary vice presidents (vice president for health sciences and vice president for the Institute of Agriculture, Forestry, and Home Economics) who also serve as vice provosts, while the remaining colleges report to the vice president for academic affairs and provost.

II. OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

A central purpose of the recommendations that follow is to raise the quality of the basic arts and sciences core of the University to match the high standard set by the strongest of its professional schools; to improve the quality of undergraduate, graduate, and professional education; and to enhance research and scholarship throughout the University. Discussion of these issues by the Task Force led inevitably to a consideration of the collegiate organization of the University.

It was pointed out in the overview that several "reputational" surveys indicate that the arts and sciences core of the University has declined in quality over the past 25 years. Stringent budgets and burgeoning enrollments have been important factors in this decline, but failure to solve organization problems has played an important part. Much of the analysis is given in the individual college sections later in the report.

At one time, the College of Science, Letters, and the Arts housed most of the arts and sciences core of the University. It included most of the basic physical sciences and mathematics (now found in the Institute of Technology), much of the basic biological sciences (now included in the College of Biological Sciences and in several professional colleges), as well as the basic social sciences, humanities, and arts in the present College of Liberal Arts. Now many of the basic physical and biological sciences are joined with corresponding professional schools, which undoubtedly fosters collaboration and communication between basic and applied sciences. The situation in biology has been uniquely complicated by the "two-campus" problem, with the health sciences located in Minneapolis and agriculture located in St. Paul.

The high quality of the applied physical and biological sciences has been supported by their integration with the basic sciences. And yet, the

quality of the arts and sciences core has eroded since its components were dispersed. Clearly the University would benefit from a structure that preserves the easy communication and collaboration between the basic and the applied sciences while restoring coherence to the arts and sciences core. It is toward this goal that the Task Force proposes some reorganization of the University's collegiate structure.

Equally compelling arguments for collegiate reorganization arise out of concerns about undergraduate, and especially lower division education. Commitment to Focus has made major strides in this area by establishing uniform admissions standards, and the recommendations of the Implementation Task Force on Undergraduate Education point the way toward significant additional improvements. However, more needs to be done. The Task Force was drawn inexorably to the conclusion that there should be a single entry point for lower division (freshman and sophomore students), a careful coordination of lower division advising, and a set of carefully constructed lower division core curricula. This proposal is discussed in detail in the undergraduate education section.

A. THE ACADEMY OF LITERATURE, SCIENCES, AND ARTS

1. RECOMMENDATION: Establish an Academy of Literature, Sciences, and Arts (ALSA) to bring together the faculties of the Colleges of Biological Sciences (CBS) and Liberal Arts (CLA), General College (GC), and the Institute of Technology (IT) and the staff and functions of University College.

Two new colleges would be formed out of the present CLA: a College of Humanities and Arts and a College of Social and Behavioral Sciences. The four core colleges of ALSA would be:

Biological Sciences
Humanities and Arts
Institute of Technology
Social and Behavioral Sciences.

The academy would be a confederation of four colleges and also would contain several intracollege and intercollege programs. A council of deans from the four colleges would coordinate the arts and sciences core and provide guidance for campus-wide undergraduate education. This council should be chaired by a new vice president for arts and sciences, who would have central administration responsibility for the faculties and programs of the academy. The new vice president would also be a vice provost with a position corresponding to the other two existing disciplinary vice presidents/vice provosts, and would ensure that the basic arts and sciences were directly and effectively represented at the highest level of University administration, something that cannot always be accomplished currently given the provost's additional responsibilities as a campus-wide officer.

2. RECOMMENDATION: Establish the position of vice president and vice provost for arts and sciences, with responsibilities to administer the

Academy of Literature, Sciences, and Arts as well as to advise the president and the provost on matters concerning the arts and sciences core of the University.

All freshmen would enroll in the academy, with a single admission process and central advising, counselling, and other student services. All lower division education would be coordinated through the academy. The academy would include a preparatory program (for students currently admitted to General College), a regular program, an honors program, and, at the upper division level, an independent studies program (including the present University College programs). In addition to participating in each of these joint programs, the four colleges would have their own upper division and graduate programs (majors at the bachelor's, master's and doctoral levels.)

The faculty of the newly constituted academy, in consultation with faculties of the relevant professional schools, would oversee the design of distinct core curricula for each undergraduate college, consistent with the character of the University. Professional school faculty would participate in the core curricula, both by teaching courses in the academy and by teaching specialized courses in their own colleges that would satisfy core curricula requirements, thereby helping to introduce uncommitted students to the subject matter of their specialties. An expanded lower division advising program would include premajor advising for each professional school.

The preparatory program would help to integrate students admitted to that program into the mainstream programs of the academy. The faculty of General College would be integrated with faculties of other colleges according to their fields of specialization, which would increase opportunities for shared participation in a wider range of educational programs by the General College faculty and by other academy faculty.

B. ORGANIZATION OF THE BIOLOGICAL SCIENCES

For years the basic biological sciences at the University have been fragmented and thus weakened. Several recent task forces have offered recommendations on how the biological sciences can be strengthened. It is time for decisive action to be taken.

Our plan to rationalize and strengthen the biological sciences builds on those earlier recommendations. It is based on the following assumptions.

1. Biology programs can be divided into a discrete set of areas spanning the range from ecosystems to molecules.

Within the range of biology, which spans ecosystems to molecules, there are seven major areas (see below) that can be further divided on the basis of applied or basic, plant or animal. This scheme is appropriate in general, but the distinction between plants and animals becomes less clear as one approaches molecular levels. Thus, we have used the following taxonomy to ease our analysis of this complex system:

Ecosystems: biological systems comprised of animal and plant populations and their interactions with each other and with the environment.

Populations: groups of animals or plants.

Organisms: complete animals or plants.

Organs: parts of animals or plants comprising a structural and functional whole.

Cells: basic organizational units of living matter.

Microbes: organisms of cellular and subcellular dimensions.

Molecules: nucleic acids, proteins, carbohydrates, and other basic building blocks of cells.

2. The University must maintain expertise to teach basic biological facts and concepts, because maintaining a viable and enhanced biology curriculum for undergraduates is of high priority.

3. Areas of biological research that are important now must not be overemphasized to the exclusion of areas that will be important in the future.

The tremendous advances realized in cell and molecular biology over the past few decades have revolutionized biology in general and led to advances in technology and to our understanding of basic biological concepts. However, detailed understanding of cells and molecules is relatively simple as compared to understanding complex systems such as organs or organisms, let alone populations and ecosystems. There are at present a few nodes of excellence on the campus, and there are a reasonably large number of nodes of potential excellence. It is imperative that we not allow existing strengths, such as in the areas of ecosystems and populations (e.g., the Department of Ecology and Behavioral Biology) to decay through lack of attention. Similarly, areas of potential excellence and future importance must be examined closely to assure that we will be well positioned for a future leadership role. Stimulation of research can be aided by judicious use of flexible money to start new, opportunistic initiatives and maintain them until they either succeed or fail.

4. We must take as much advantage as possible of the uniqueness of the University of Minnesota.

This uniqueness is derived from the fact that the University has representation of all of the major basic and applied branches in biology on a "single" campus. At the same time, basic biology units are dispersed across the entire campus. The problem of the two campuses (Minneapolis and St. Paul) will not go away, and so some units will have to be on one campus

and others on the other. The task really is to optimize faculty and program groupings to provide the interactions necessary to stimulate research.

Some of the problems of the two campuses can be alleviated by development of easily used mass transit and by development of interactive television for transmittal of lectures and seminars. However, since laboratories must exist on both campuses, the University will have to recognize the absolute need for duplication of some resources.

Basic biologists can be divided roughly into two groups: model systems biologists, who use biological models to study fundamental biological processes, and systems biologists, who transfer the generalizable knowledge derived from model systems to the study of specific biological systems.

Applied and clinical biologists use knowledge of basic biology to enhance normal biological processes and to eliminate, improve, or palliate abnormal biological processes. Both basic and applied biologists play an important role in the teaching of undergraduate and graduate students. They represent a wide spectrum of interest and emphasis ranging from pure basic research to almost exclusively applied practice. Linkages currently exist between basic and applied biologists in research and education. There should be more linkages in the future.

There is unavoidable (and sometimes useful) overlap in the research interests of faculty representing the various levels of biology and among the various departments and programs in biology.

3. RECOMMENDATION: Establish core, all-university departments with the following designations:

<u>Biological System</u>	<u>Department</u>
Ecosystems & Populations:	Ecology, Evolution, and Behavior (formerly EBB)
Organs and Organisms:	Physiology
Cells:	Cell Biology
Microbes:	Microbiology
Molecules:	Genetics
Molecules:	Biochemistry

The six departments would be staffed by faculty from CBS, the Medical School, and other collegiate units. Each department would have one head reporting to two or more budgetary deans. The departments would be located on both campuses with the major interests of faculty on each campus consistent with the major biological thrust on each campus (e.g., plants on the St. Paul campus). The departments would assume responsibility for all basic teaching in their disciplines, whether undergraduate, graduate, or

professional school offerings.

In this scheme, the Institute for Human Genetics and the Plant Molecular Genetics Institute would report to the Department of Genetics. If and when other institutes are formed, they would report to the proper core department.

Three basic biology departments, not University-wide, would each report to a single dean: pharmacology, and laboratory medicine and pathology in the Medical School, and botany in CBS.

4. RECOMMENDATION: Resources should be provided to establish, maintain, and support centralized facilities equipped with "state-of-the-art" equipment for biological research. Duplication may be necessary in some cases.

C. ORGANIZATION OF ALLIED HEALTH SCIENCES UNITS

The colleges of Nursing, Pharmacy, and Public Health are small units with (in the cases of pharmacy and nursing) large administrative costs. Though there were not sufficient programmatic reasons to recommend their combination into a single college, the possibility of forming closer ties with other units should be studied (e.g., nursing with some unit(s) of applied social sciences), and the desirability of creating a College of Allied Health Sciences should be investigated in detail in the future.

5. RECOMMENDATION: Administrative costs in allied health units should be reduced.

Specific recommendations are included in the college section below.

6. RECOMMENDATION: The University should study ways to strengthen ties between allied health units and other University units.

D. OTHER COLLEGIATE REORGANIZATIONS

We summarize here several other collegiate reorganizations recommended by the Task Force and discussed in more detail below.

The Humphrey Institute for Public Affairs would become a unit in the College of Social and Behavioral Sciences.

The College of Forestry would become the School of Natural Resources within the College of Agriculture.

The Department of Mortuary Science (which reports directly to the vice president for health sciences) would be closed.

General College would be incorporated into the Academy of Literature, Science, and Arts; the admissions, counseling, and educational functions

would become the preparatory program of the academy, and GC faculty would be located in one of the successor colleges, depending on their disciplinary background. This change would bring students with special developmental needs, the faculty who teach them, and the staff who counsel them more into the mainstream of undergraduate education at the University, while continuing to provide for their special needs.

UNDERGRADUATE EDUCATION

I. OVERVIEW

The role of the Twin Cities campus of the University under Commitment to Focus is to provide "those educational programs that are most appropriate to its position as the state's major research university, with a land-grant mission, international stature, and a metropolitan location." Some have incorrectly interpreted that role to mean emphasis on graduate education and research at the expense of undergraduate education. Rather, it means revising undergraduate programs to make them consistent with the strengths of the University.

- The education is provided by a faculty engaged in research; it should emphasize active understanding of modes of inquiry, and participation in artistic expression, rather than the learning of facts or memorizing theories.
- The metropolitan area is a center of the arts, government, and business; the education should include opportunity for internships, field learning, and community service.
- The University is an international institution, with students of many different nationalities, research on international topics and global issues, and international research collaborations; the education should introduce the student to the international community, and make second language and cultural studies integral parts of the educational experience.
- Students of all ages and from all groups in the society come to the campus; the education and co-curricular communities should encourage student interactions that foster understanding of and respect for a broad range of backgrounds and viewpoints.

College plans, as summarized in Strategy for Focus, suggest that most of our undergraduate colleges have not understood this important part of Commitment to Focus. There is little sense of the possibility of exciting change, or vision of what undergraduate education could become in a research setting, in these documents.

II. OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

The organization of the Academy of Literature, Sciences, and Arts (ALSA) would provide the most direct vehicle for thorough revision of the undergraduate curriculum, particularly in the lower division. But changes discussed here do not depend on that structure.

A. FRESHMAN ADMISSIONS AND LOWER DIVISION STUDIES

Current practices allow freshman admissions through seven entry ports, often with different standards. The University is a huge and bewildering place; it is unreasonable to expect all high school seniors to make optimal decisions about a college of study. To change colleges under the current system involves unreasonable barriers.

Under the new organization, a student interested in biology could select from several colleges after several quarters of lower division studies. The competition by colleges for undergraduate majors would be directed to better informed students at the University and not dependent on poorly informed decisions at the high school level.

1. RECOMMENDATION: Freshman admissions and lower division studies should be rationalized and coordinated under the vice president of arts and sciences.

There is wide agreement that liberal education at the University is poorly articulated. A University-wide faculty council from the Academy of Literature, Sciences, and Arts (ALSA), with representation from other units, would oversee the content and implementation of core curricula. Individual courses and possible integrated "mini core" curricula developed by colleges and individual departments should be approved by the appropriate faculty in ALSA. Lower division core courses could be taught in all units of the University and would fulfill degree requirements for all undergraduates.

2. RECOMMENDATION: A faculty council drawn primarily from basic arts and sciences colleges should be empowered to oversee the content and implementation of core curricula for all undergraduates.

For recommendations on admission standards, see the Admission Standards section under Other Educational Policy, below.

B. ADVISING AND UNDERGRADUATE SERVICES

Units with relatively low student numbers tend to handle advising and student processing better than larger, crowded units. Without a significant increase in resources applied to these tasks--particularly pre-major advising--centralization would mean a marginal increase in the quality of services offered students in units such as College of Liberal Arts (CLA) and a dramatic erosion of quality for freshmen in units such as the College of Agriculture and University College.

The new academy would combine all lower division undergraduates and provide at least three levels of service. Beyond regular advising services, a new unit of preparatory studies (created out of General College) would provide advising, supplemental sections, tutoring, and other special services to its mainstreamed students. An academy-wide honors program would

also be centrally administered. The independent study programs of University College would be folded into the new academy.

3. RECOMMENDATION: All units providing specialized programs for lower division undergraduates would be coordinated by the new vice president for arts and sciences.

The movement that is already under way to consolidate the academic support services from student affairs (offices for prospective students, admissions, orientation, financial aid, and student employment) into the office of the provost (or new vice president for arts and sciences) should continue.

4. RECOMMENDATION: Responsibility for student service units that support directly the academic enterprise should be moved to the office of the provost (or vice president of arts and sciences).

C. PROFESSIONAL SCHOOLS AND LIBERAL EDUCATION

Whatever the final administrative structure for undergraduate liberal education, the liberal education curriculum should take greater advantage than it has of the rich resources available on campus in the professional schools. Course work is possible in areas as diverse as food science and nutrition, the impact of technology on society, ecology, and policy issues regarding agriculture, education, science, or health care.

5. RECOMMENDATION: Administrative practices should be developed to encourage teaching by the faculty of professional schools in the liberal education curriculum. In addition, each undergraduate program should provide access to non-majors for a reasonable number of courses, with no restrictions on entrance beyond normal course prerequisites. If necessary other general restrictions to control number of registrants (e.g., GPA restrictions) that parallel the restrictions placed on the program's own majors may be appropriate. Arrangements for courses (in a program that imposes enrollment restrictions) needed by students in another major for graduation require special consideration.

D. IMPLEMENTATION TASK FORCE

The Implementation Task Force on Undergraduate Education has just completed the job of consolidating recommendations made in the recent past and setting them in priority order. While that task force did not envision any structure comparable to the ALSA, its recommendations are consistent with Commitment to Focus, and generally consistent with the administrative structure proposed in this report. We endorse the Implementation Task Force report, and incorporate its estimated budget needs into the budget priorities recommended below.

6. RECOMMENDATION: The provost should adopt the specific recommendations

of the Implementation Task Force (except its recommendation that freshman admission ports remain unchanged).

E. CENTER FOR RESEARCH ON UNDERGRADUATE EDUCATION

Research findings and theory regarding undergraduate education and the conduct of higher education are not disseminated rapidly to our faculty, nor are faculty who would like to conduct useful research in this area necessarily in touch with current work or methods in the field. Relevant expertise in this area is found in the College of Education as are links to national researchers and departments.

7. **RECOMMENDATION:** The University should establish the center recommended in February 1987 by the Special Committee to Study the Feasibility of a Centralized University Research Center on Undergraduate Education. Because of the University's limited success with independent units of this type and the danger that such a resource could become a data analysis center for central administration, the center should be housed in the College of Education. In addition to its own research programs, the center should be charged to provide faculty in other units information and consultation on improved pedagogy, and on educational research projects that might be initiated in other units.

F. BUDGET

8. **RECOMMENDATION:** The University should allocate \$250,000 to staff the Office of the Vice President for Arts and Science, \$577,000 to fund recommendations of the Implementation Task Force, and \$1,000,000 for advising and new course initiatives to be undertaken in the Academy of Literature, Sciences, and Arts.

Without the recommendation to close two colleges, \$1 million for the Academy's programs would not have been included.

RESEARCH AND SCHOLARSHIP

I. OVERVIEW

The University of Minnesota is the home of one of the largest and broadest assemblies of research and scholarship programs and projects in the country. The production of new knowledge is the distinguishing mission of the University relative to the other institutions of higher education in the state. This is accomplished by faculty, research staff, graduate students, and, in some cases, undergraduate students, housed in departments, institutes, and centers throughout the University. One measure of the variety of research is the fact that there are 170 different graduate programs in the University. Grant and contract administration is handled by the Office of Research and Technology Transfer Administration (ORTTA). The Graduate School administers a small-research-grant program to aid in the establishment of new research projects.

II. OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

Grant and contract administration is well handled by ORTTA. Grants-in-aid of research provided competitively by the Graduate School are important contributions to the scholarly vitality of the University. The Graduate School also provides some coordination of interdisciplinary research, particularly when it bridges colleges. It is difficult to separate research from graduate education; consequently, the section on the Graduate School elsewhere in this report should be consulted for additional observations and recommendations related to research.

The complexities of the Twin Cities campus programs, the division of the campus into three locations, and the location in a diverse metropolitan area make the broad guidance and coordination of research a complex and difficult task. The administration of the University is called upon to make many difficult decisions on questions of support and research directions. It is expected to be responsive to the needs of the state as perceived by the state government and by leaders of the private sector, sustain the land-grant mission of the University, speak for basic research and scholarship that may not appear to have an immediate impact upon the perceived needs of the state, and provide an environment in which researchers can compete for scarce federal research support and participate successfully in the national and international scholarly communities. Often quick decisions of major importance must be made by the administration. The Task Force is aware that the administration is committed to a high quality research program and works very hard to make it possible. However, it often appears that the decision-making process is chaotic and uncoordinated. There appears to be little concentration of responsibility for nurturing research. Although it is appropriate that much of this responsibility is dispersed to the colleges, articulation with the state and federal governments and the private sector on general issues of policy and funding would be helped markedly by central coordination.

A. VICE PRESIDENT FOR RESEARCH

If the University is to improve its status nationally as a research and graduate education university, a better coordination of the external funding and the internal research effort of the faculty must be achieved. A clearly defined focus for the University's academic research efforts must be established. Individuals, businesses, or federal agencies who are interested in research and scholarship at the University need a visible contact person who can direct them to the proper faculty member or group for information. The University also needs an authoritative representative who can present the academic research and scholarship efforts of its faculty to outside funding sources.

At the University, some of these functions fall to the dean of the Graduate School, some to the provost's office, and often these functions are informally directed to other deans. While in many cases this is appropriate, these individuals have numerous other responsibilities, which, by their own account, are often not met as well because of their heavy involvement in these external research affairs.

At many other large research universities the management and coordination of these functions are invested in a vice president for research. In some cases, this is a joint position with the dean of the graduate school. The Task Force does not consider this joint position wise because it invests too diverse a set of responsibilities in that office, and because, as a practical matter, this would lead inevitably to the need for the dean of the graduate school being drawn only from one of the sciences. It seems to the Task Force that the division of responsibilities should occur at the small grants-in-aid of research program and faculty summer research fellowship program, both of which should remain in the Graduate School.

1. RECOMMENDATION: A new position of vice president for research should be created. The vice president for research should report directly to the president and the provost of the Twin Cities campus on matters that relate to research.

B. A COUNCIL OF SCHOLARS

A council of distinguished scholars, drawn from the full range of scholarship of the University, should be established to advise central administration on scholarly issues. The council should be called upon to report on important scholarly trends and developments. It should be available on short notice to consult with the administration on major research initiatives that require central decisions on resource allocations. This is not to suggest that current administrators, such as deans, are not scholars, but rather to recognize the value of advice that comes from well-informed scholars who are not as burdened with administrative concerns as deans. One objective is to increase the information flow into the

administration (central and college) about important national and international scholarly developments and funding developments; scholars appropriate to this council would ordinarily have familiarity with these developments because of their positions in the fields and because of memberships on national panels. The level of distinction should be similar to regents' professors and members of national academies.

An important benefit of this council would be the increased understanding of and communication about scholarship throughout the campus that this would bring about, such as occurs in the General Research Advisory Committee of the Graduate School.

While it might be argued that the establishment of such a council represents an increase in faculty governance and a burden to the administration, we believe that neither should be true if the council is properly used. It is our impression that leading scholars at the University would welcome the opportunity to advise administrators on issues of scholarship. This would not be governance, but rather consultation. Although there are often complaints that faculty governance sometimes substitutes for administrative staff work (inefficiently so), this complaint is not heard about scholarly consultation because it is a rare and casual occurrence. With regard to the burden on the administration, it is our impression that the need for a quick response to large research opportunities often leads to ad hoc decision procedures within the administration, with little confidence in the quality of the decision. Consultation with a council of scholars and others (both internal and external) whom it recommends should ameliorate this situation and lead to higher quality decisions. We note that such a model reportedly works well at the University of Michigan.

We also note that such a council would work well with an administration that includes a research vice president.

2. RECOMMENDATION: The Senate Consultative Committee and the Senate Research Committee should examine the possibility of the establishment of a Council of Research Scholars to consult with central administrative officers on matters concerned with research.

C. RESEARCH COMMUNITIES

Closely related research programs are widely scattered on the Twin Cities campus, both geographically and administratively. The best known example is biochemistry, which exists as separate programs in many departments, in at least six different colleges, reporting to three different vice presidents. It appears to the members of the Task Force that the full strength of biochemistry on this campus is neither recognized nor well utilized to the benefit of the discipline or the University; the strength of the whole is not substantially better than the sum of its parts. Numerous attempts to rationalize this situation in recent years have failed for reasons that are not clear. The Task Force makes recommendations elsewhere in this document, which should dramatically improve the situation.

The Task Force found that research programs within many other disciplines on this campus are widely dispersed, so that natural colleagues may not even know one another. These include research on water, fluid dynamics, ethics, materials, toxicology, management, public policy, and probably others that did not come to the attention of the Task Force.

3. RECOMMENDATION: Effort must be made to maximize the utilization of these resources to increase the scholarly opportunities, enhance the impact, and advertise the full strength of individual disciplines.

We hasten to add that this is as much a faculty development and socialization issue as it is a management issue. When researchers in a given discipline encounter one another, e.g., at professional meetings, communication about common research interests proceeds naturally, and often leads to useful scholarly dialogue and even collaborations. This suggests that occasions should be created that draw University researchers together around common interests.

4. RECOMMENDATION: Planning in widely dispersed research disciplines must be coordinated. Scholarly communication within these disciplines must be fostered.

This coordination should be designed and monitored at the level of administration that includes the departmental homes of all of the participants.

Measures should be taken to insure that bridges are built to natural colleagues from the time of appointment, and that all members of a research discipline are aware of and have some influence on selection of new faculty members within a discipline.

5. RECOMMENDATION: Search committees in these and similar areas must include members in the field, but outside of the future home department. Search announcements, position descriptions, and the membership of a search committee must be distributed to all participants in a research area regardless of the departmental home. Information about the outcome of a search should also be distributed to the same people.

In many cases, this group of natural colleagues is identical to the members of the corresponding graduate program. Even in those cases, it is not unusual for developments in a discipline to occur without the knowledge of members of the graduate program with a different departmental home.

Elsewhere we recommend similar coordination in the educational aspects of the University. We recommend that both undergraduate and graduate education must be coordinated in these areas. For example, there should be only one biochemistry major.

Some of the widely dispersed disciplines, such as ethics, management, and public policy, are dispersed because the discipline is applied to other subject areas. For example, there are efforts in hospital management,

pharmacy management, and educational management that reside in colleges of Public Health, Pharmacy, and Education respectively. These might benefit from a structure similar to the highly successful Minnesota History of Science model, in which the faculty members are coordinated in a single program (e.g., the ethics program), but have their physical location and budgetary home in several different departments according to their subject matter focus.

The Task Force discovered that the University's research on water is much like its research on biochemistry, with faculty dispersed across the campus working on related topics. A report with recommendations was prepared for Task Force consideration, but time did not permit its discussion by the full committee. The report is included as Appendix I.

D. INTERDISCIPLINARY PROGRAMS

Knowledge available to today's students is vast, and the traditional disciplinary areas of study and scholarship have given rise to many new ones, which often combine the approaches of different disciplines into interdisciplinary areas. A few of today's interdisciplinary areas will emerge as tomorrow's disciplines, some will be incorporated into today's disciplines, while many will die. Research universities such as our University must provide appropriate mechanisms for supporting and encouraging these developments, which should also be carefully monitored to make sure that they are well conceived and executed or are disestablished when no longer vital.

The Task Force examined a number of interdisciplinary programs (most often referred to as centers), and noted several "rules of thumb," which we make here as recommendations.

6. RECOMMENDATION: Interdisciplinary programs, centers, and institutes should grow out of the interest and expertise of the faculty, who should provide the leadership. Interdisciplinary initiatives should not be used as a political solution or alternative to setting priorities.

7. RECOMMENDATION: Mechanisms should be established to review interdisciplinary centers and institutes on a fixed schedule, with disestablishment being the consequence when such centers are floundering or when their mission is completed, successfully or otherwise.

Finally, the Task Force wishes to enter a cautionary note on interdisciplinary studies. Basic disciplinary scholarship and training has not yet been superseded by interdisciplinary developments, and new approaches are often not fruitfully employed on areas of knowledge until or unless a researcher's knowledge of that area is expert. The second discipline is all too often brought into play at a far less expert level than is called for (the level of the dilettante rather than the level of a second rigorously trained expert). We have heard one dean refer to interdisciplinary work as the "kiss of death" for a younger appointee and another dean remark that the best such work almost always comes out of

single minds that have thought long about a subject and its interrelationships with other fields.

This is not to deny that fruitful collaboration between experts in different fields is often possible, or that conversation between experts in bordering areas of research is often essential, or that new legitimate fields of research sometimes spring up out of interdisciplinary initiatives, or even that some fields are by nature interdisciplinary or that all fields have some elements of interdisciplinary learning. But it does not follow that all learning is by nature interdisciplinary, or that scholars whose work is entirely comprehended within a single discipline are somehow less up to date than those who work across fields. Some departments need faculty whose basic mastery is of a single discipline, and it is a serious educational mistake to ignore this need and to try to make most appointments interdisciplinary.

Finally, it may be observed that "interdisciplinary" is often used when "interdepartmental" is intended. Studies of literature across language barriers are normally interdepartmental, not interdisciplinary.

E. EXTERNAL FUNDING OF CENTERS

Much of federal funding available now and in the future is aimed at centers of intermediate and large size (many of which are encouraged to be multidisciplinary or interdisciplinary). The University has had little success in attracting this funding in spite of numerous efforts. In some cases, this may be due to inadequate foreknowledge of a federal initiative. Improved monitoring by a vice president for research and a council of scholars should ameliorate this situation. In other cases, the proposals have been poorly prepared and presented. Policies and practices to avoid this have been employed by other universities of stature similar to the University of Minnesota.

8. RECOMMENDATION: Large proposals, particularly those aimed at national interdisciplinary initiatives for centers, must have administrative coordination. Such proposals should be reviewed informally by other experts both within and external to the University. Site visits by a team of external experts chosen by the University would be appropriate in those cases when agencies will have a site visit as part of the decision-making process. Since this mode of funding has become more prevalent, central strategies need to be developed to increase the chances for success. A research vice president, one of whose main responsibilities is to develop these strategies and to monitor national developments, would be of great value.

We emphasize again that it is unwise to attempt to develop center proposals that do not emerge naturally out of strong faculty interest, and without strong faculty leadership.

F. RESEARCH ACCOUNTING

It is increasingly common in the University for members of several different departments or colleges to be co-principal investigators on a research proposal. The accounting practice of the University assigns contracts and grants to a single department. Since total grants and contracts awarded (or corresponding research expenditures) are often used as an index of the activity and success of individual departments, this current accounting practice could lead to incorrect perceptions.

Because of the recent practice of returning a portion of the indirect cost recovery (ICR) funds to the college, department, and principal investigator, this accounting practice has a significant financial consequence. While this sometimes is solved by informal agreements, it is an awkward situation that has on occasion led to tensions and even slowed down or prevented collaborations.

9. RECOMMENDATION: ORTTA, in consultation with the Senate Research Committee, should be directed to develop an accounting mechanism that assures that appropriate "credit" and a proper portion of ICR return accrue to the college, department, and co-principal investigator responsible for the work.

G. RESEARCH SPACE

Faculty office and research space is an important University resource. Proper control by administrators of the distribution of University space among faculty is vital to the improvement of quality. At the present time, there are numerous examples of faculty with no graduate students and no source of external funding who are occupying laboratory space in excess of their current research needs.

A proper model of space usage is needed to assess the amount of space a researcher needs. Currently, the Minnesota Facilities Model is being used. This model has been widely criticized by faculty as being based on unrealistic assumptions about the needs of modern researchers for office and laboratory space.

10. RECOMMENDATION: The University should develop, in consultation with faculty, a realistic space usage model for use in determining the space needs of research programs.

11. RECOMMENDATION: Departments and colleges should assess space utilization on a regular schedule and then reallocate space to maximize its effective use.

H. BUDGET

12. RECOMMENDATION: The University should allocate \$250,000 to staff the office of the Vice President for Research, and \$500,000 to be allocated by

that Vice President to fund new research initiatives.

Without the proposal to close two colleges, the \$500,000 for new research initiatives would have been eliminated from the proposal.

FACULTY SELECTION AND DEVELOPMENT

I. OVERVIEW

The single most important element in determining the quality of education and research at any university is the quality of its faculty, and the quality of the faculty is determined in large measure by who is hired, who is granted tenure, and by adoption of excellent faculty development programs.

II. OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

A. TENURE

The fact that a department's advisory committee may be most able to provide a critical evaluation of a candidate's scholarly productivity and influence on his/her discipline should not diminish the paramount importance of higher levels of review. Tenure is conferred by the University, and the department's recommendation should only serve as input to the process, not a quasi-decision to be affirmed or reversed at a higher level. Further, each level of review -- department, college, and central administration -- should receive input from a faculty advisory committee.

1. RECOMMENDATION: A Twin Cities Campus Promotion and Tenure Committee should be established to advise the provost on tenure and promotion recommendations submitted from departments and colleges.

Some units recommend conferral of tenure, but vote to withhold judgment on promotion until additional evidence on quality and quantity of scholarship is forthcoming.

2. RECOMMENDATION: Because conferral of tenure amounts to the awarding of a nearly unbreakable contract, the provision for granting tenure without promotion to associate professor should be abolished.

3. RECOMMENDATION: At the mid-point of the probationary period there should be an especially thorough review, perhaps including outside reviews.

Problems have been raised regarding the six-year probationary term, particularly, for faculty in the biological and physical sciences, because of the time required to develop a laboratory and to secure external funding. The Task Force is divided on this issue, but agrees that it should be investigated further.

4. RECOMMENDATION: Some group, perhaps the Senate Tenure Committee, should explore the advantages of adopting a longer term for probationary appointments. The advantages are that probationary faculty could develop their careers in a more orderly way and that the University would have a longer period of observation on which to judge candidates. The disadvantage is that a longer probationary period might hamper recruitment of faculty.

Clinical faculties pose a special problem with regard to tenure because some members may not have been trained sufficiently for research and because the intense demands of clinical teaching/service may interfere with, indeed prevent, mounting a successful research program.

5. RECOMMENDATION: Professional and administrative (PA) classifications should be made flexible enough (including use of the term "clinical professor" when appropriate) to allow use of PA appointments for clinical instruction in the Medical School or other professional schools. This will avoid the need for separate tenure tracks for faculty involved in clinical instruction. We also urge that PA continuing appointments never be granted to individuals in positions that are funded by soft or non-recurring money.

Periodic review of all faculty members, including those holding tenure, would provide each member with an opportunity to review his/her work, receive informed feedback from others, set goals for ensuing years, and discuss with faculty colleagues, the chair, and the dean how the individual's plans fit departmental/college priorities.

6. RECOMMENDATION: Performance of tenured faculty should be reviewed on a regular five- or ten-year cycle.

B. MEMBERSHIP ON THE GRADUATE FACULTY

Newly appointed assistant professors should be eligible to participate fully in graduate education, including advising doctoral students.

7. RECOMMENDATION: All newly hired faculty with appropriate research qualifications shall receive full membership on the graduate faculty.

Tenure is held in a department, not in the Graduate School, and all graduate faculty appointments should be for fixed terms.

8. RECOMMENDATION: There shall be a mandatory five-year review of every graduate faculty appointment.

Criteria for reappointment to the graduate faculty should be established by each program and provided to the dean of the Graduate School. The criteria should include evidence of successful graduate education, productivity in research, and, where expected and possible, demonstrated success in receiving support for research. Faculty members should reapply for membership to the dean of the Graduate School each five years and should demonstrate that the criteria for graduate faculty membership are satisfied. If they are not, the graduate faculty in a program shall vote on continuation of graduate faculty membership for each person each five years in a manner similar to procedures employed for the initial appointment.

C. FACULTY DEVELOPMENT

Faculty are the primary source of quality research and graduate education. The continuing development of faculty, especially of tenured faculty, is essential if the University is to be a vital institution. The Task Force notes, with general approval, the Report of the Committee on Faculty Development (June 1987). Further, the members of the Task Force were impressed by the exemplary plan for faculty and curricular development prepared by the College of Agriculture and we urge other colleges to develop similar plans.

D. OVERLOAD TEACHING

Many faculty members damage themselves by voluntarily increasing their teaching load with summer and evening courses taught on an overload basis. The effect of this, in some instances, is to create de facto a teaching load appropriate to a more teaching-oriented college than to a university that emphasizes research and graduate education. This situation has been tolerated because many faculty members rely on overload teaching to supplement their incomes, especially if they hold 9-month appointments.

9. RECOMMENDATION: There should be a limit of two overload evening course per year for each faculty member (but with no restriction on teaching during the summer for 9-month appointees). This limit would leave a number of courses unfilled, and these should be inloaded. Faculty should not teach regular credit courses in CEE during Single Quarter or Sabbatical Leaves. Overload teaching should be included in the activities controlled by the University's policy on consultation, which limits such activities (including teaching in other institutions) to an average of one day per week, including preparation time. Implementation of this recommendation should be phased so as to soften the impact of reduced earnings for faculty members.

This policy would be unnecessary if CEE credit courses were fully inloaded. Care must be taken to insure that such changes do not reduce the quality of CEE instruction.

Probationary faculty are especially vulnerable to damage from overload teaching. They often feel a strong need to supplement their incomes, yet they also have an obligation to establish their research programs.

10. RECOMMENDATION: Probationary faculty should be barred from summer and evening teaching, but their salaries should be increased by one ninth for the first three years of their appointment. This should be made a standard part of set-up for all probationary faculty.

E. A- AND B- APPOINTMENTS

About half of the faculty hold nine-month appointments and are left to their own devices to secure income for the balance of the year. The

distinction between A- and B- based appointments is invidious and does not appear to be justified by quality of work or mission of the unit.

11. RECOMMENDATION: The distribution of A- and B-based appointments for faculty should be rationalized.

F. BUDGET

12. RECOMMENDATION: The University should allocate \$430,000 to fund initiatives recommended by the Committee on Faculty Development.

Without the proposal to close two colleges, this recommendation would have been unchanged.

EQUAL OPPORTUNITY AND AFFIRMATIVE ACTION

I. OVERVIEW

This is a subject about which the Task Force has relied primarily on the work of another University committee--the Special Committee on Minority Programs in Support of Commitment to Focus--for investigation, analysis, and formation of recommendations. The University's record in recruiting and retaining women and minorities as faculty members has not been distinguished. Neither has its record in recruiting, retaining, and graduating minority students. To supplement the special committee's investigations, Strategy for Focus asked each college what efforts they were making to improve performance in these areas. An analysis of their answers, summarized below, suggests that the University may be able to do better in the future. Unremarkable effort has produced undistinguished results. Greater effort may lead to better results. (Of course, this generalization does not apply to all units; a few have been vigorous and successful.) The University's effort to accommodate the handicapped has been equally unremarkable.

II. OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

A. REPORT OF THE SPECIAL COMMITTEE ON MINORITY PROGRAMS

1. **RECOMMENDATION:** The recommendations advanced in the report of the special committee should be implemented.

B. FACULTY RECRUITMENT, SUPPORT, AND RETENTION

Few units described vigorous, effective affirmative action recruitment programs; present practice appears from college documents to be closer to passive non-discrimination than to affirmative action. Some appear not to recognize the need for active recruitment at the college or department level. No college describes any special initiatives to provide special support to help assure the success of protected class employees once they are hired; most assert that such special support is inappropriate or unnecessary.

2. **RECOMMENDATION:** The provost should assure that explicit five-year goals for improvement in recruitment and retention of women and minorities are formulated for each college and for each department in which progress has been inadequate, and that administrators are made accountable for achievement of those goals, with annual review of accomplishments and recognition for successes.

3. **RECOMMENDATION:** The provost should provide education for deans and department chairs with respect to the range of successful affirmative action efforts that they might consider, special problems facing women and minority

faculty, and special assistance that might increase their chances for success. Progress in achieving affirmative action goals should be one criterion by which deans are judged in administrative reviews.

4. RECOMMENDATION: The provost should explore appropriate central initiatives to help deans meet their goals. Faculty exchange programs with colleges serving minority communities provide an example.

Evidence from the Office of Equal Opportunity and Affirmative Action suggests that current faculty search procedures do not ensure that minority applicants are accurately identified and evaluated, and that data on such applicants are effectively collected.

5. RECOMMENDATION: The Office of Equal Opportunity should give high priority to its plan for reviewing and revising search procedures to resolve difficulties in handling of minority applicants.

C. STUDENT RECRUITMENT, RETENTION, AND GRADUATION

Parts of the University have been more active with respect to minority students than with respect to faculty. The health sciences and the Institute of Technology are both reaching out to junior and senior high schools to attract talented minority youth. College responses to Strategy for Focus questions suggest, though, that no college has yet decided what actions to take to maintain minority enrollments as new enrollment limits and new preparation standards take effect. While plans need not yet be in place, the provost will need to monitor their development closely. The Special Committee on Minority Programs recommends, appropriately, that the program instituted by IT and the health sciences be extended to other freshman-admitting colleges. Centralized admission, under the reorganization recommended by this Task Force, would provide a natural administrative structure to coordinate this program, to monitor changes in minority applications and admission, and to take vigorous action if minority enrollment falls as enrollment limits are imposed.

6. RECOMMENDATION: The provost should assure that explicit 5-year goals for improvement in minority student recruitment and retention are formulated for each college and that administrators are held accountable for their achievement, with annual review of accomplishments and recognition for successes. The provost should also explore appropriate central initiatives, e.g., working through inner-city schools in Minneapolis and St. Paul to attract talented students in areas other than science to the campus starting in junior high school, to help colleges meet longer-term goals.

D. PERSONS WITH HANDICAPS

In spring 1983 the Senate Committee on Services to Persons with Handicaps produced two sets of recommendations. Eleven policy recommendations were unanimously approved by the Consultative Committee and the Senate. Twelve procedural recommendations for implementation of the

policies were unanimously approved by the Consultative Committee and accepted by the administration.

Minimal effort has been made to carry out these recommendations during the intervening four years. While some attention has been given to physical access, other barriers facing persons with handicaps have received little, if any, attention.

7. **RECOMMENDATION:** Implementation of the recommendations regarding persons with handicaps, adopted in spring 1983, should be accelerated.

E. BUDGET

8. **RECOMMENDATION:** The University should allocate \$500,000 of 0100 budget funds to begin to implement the recommendations of the Special Committee on Minority Programs. Further funds should be allocated when the program is prepared to use them. Priority for this allocation is high; the allocation should be made with funds first made available through reallocation.

Without the proposal to close two colleges, this recommendation would have been unchanged.

OTHER EDUCATIONAL POLICY

I. OVERVIEW

A. INTERNATIONAL EDUCATION

This University must be international in several distinct senses: It must introduce our students to the world outside U.S. borders, make them aware of our global interdependence, help them to appreciate the effect of national culture on one's understanding of reality, and equip them to function in other countries with different languages and cultures. It must accept its responsibility as a major national university to invite exchange, welcoming students from other countries, learning from them, and teaching them. And it must support our faculty's international interests by facilitating intellectual exchange with other countries and supporting and encouraging research about and within foreign countries. The need to undertake all of these activities is not absolute, of course, but must be weighed against other pressing needs. This University's planning statements, however, have placed a high priority on international education for several years, which should help to put these activities high on the University's current list.

The college planning documents, though, are uneven with respect to a strategy for realizing the above goals in international education. The Task Force did not have time to deal with this issue in an adequate way, and has formulated no recommendations. However, the primary task seems to be one of administrative coordination and encouragement for colleges to attend to these priorities; we hope that the Assistant Vice President for International Education will take advantage of the snapshot provided by the college documents to determine what action should be taken now to advance the international character of the University. The prospect for a thorough curricular revision of undergraduate programs, particularly under the structure of the proposed Academy of Literature, Sciences, and Arts, will provide a natural vehicle for a major portion of the task.

B. FRAGMENTATION OF CURRICULUM

The normal practice in Latin American universities is for each faculty to control the entire curriculum for its students. Rather than send its students to specialists in other areas, the engineering faculty hires its own mathematicians to teach mathematics, its own English teachers to teach English, and so on. The U.S. model, in which students are (generally) sent to learn from a single university-wide department of mathematics or of English has obvious advantages: It permits concentration of resources which prevents costly duplication of courses and helps to strengthen research and graduate education in the service field (mathematics or English, in this example). Perhaps more important, it means that quality control is exercised by the faculty who are most knowledgeable, in making decisions on hiring, promotion, and tenure.

II. OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

A. INTERNATIONAL EDUCATION

No recommendations: See Overview.

B. FRAGMENTATION OF CURRICULUM

The Task Force has noted numerous instances in this University in which there is a tendency to drift toward the Latin American model. We believe that the long-run strength of the University requires that the tendency be resisted, and that a single University-wide department for each discipline should be the norm. This principle should apply to mathematics, to statistics, to composition and technical writing, to management, to ethics (a sub-discipline of philosophy), and to humanities. This is not to say that the specialized branches of a discipline might not appropriately split off (econometrics or biometry from statistics, for example). But the University should protect the parent discipline by insisting on centralized provision of service courses in general, and should provide appropriate resources to the provider of those service courses so that it can also insist that the service courses be provided.

1. **RECOMMENDATION:** The University Senate and the Board of Regents should vote to endorse the principle enunciated here, and the office of the provost should be charged with enforcing it.

C. ADMISSION STANDARDS

As undergraduate enrollments decline throughout the University, especially at the lower division level, colleges may be tempted to lower entrance requirements to build enrollment. Similar temptation has been felt by graduate and professional programs as demands wax and wane as student interests shift with socio-economic climate. This is contrary to building the overall quality of the departments, colleges, and the University.

2. **RECOMMENDATION:** Colleges and departments should not reduce entrance requirements below their present levels. Freshman-admitting colleges may apply admissions criteria defined in terms of GPA, PAR scores, or other options or preparation standards above University-wide minima as a strategy of enrollment control. Minimum freshman entrance requirements should remain at CLA's present level, except for students meeting the criteria of the preparatory program (General College).

3. **RECOMMENDATION:** If an academy is established and admits all freshmen, its uniform admission standards should be no lower than present CLA requirements. Such standards should not limit the authority of upper

division colleges to establish their own admission requirements. Special admission requirements will continue to apply to students in the preparatory program in the academy.

An important part of the land-grant mission of the University is to educate professionals to serve the needs of the state. A natural impulse, in order to meet this mission, is to offer preferential admission to Minnesota residents. Such a policy does not serve the state well, however, if it means that more highly qualified non-resident applicants are rejected in favor of less qualified residents. High quality graduates, whatever their state of origin, frequently remain in Minnesota after completing their education; and high quality students raise the quality of discussion and performance in courses, to the benefit of all students.

4. RECOMMENDATION: Admission standards for non-residents and for residents should be identical for all programs on the Twin Cities campus.

D. INTERCOLLEGIATE ATHLETICS

The Task Force is distressed that the program for intercollegiate athletics failed to submit a planning document as part of the Strategy for Focus planning effort. The committee trusts that this is an unfortunate oversight and not an indication that intercollegiate athletics views itself as apart from University policy.

The athletic experience, both in individual competition and team efforts, is an important part of liberal education. Such endeavors focus the participant on the advantage and importance of a healthy, physically fit body and increase personal growth and self-confidence. Wide participation in athletic activity should be encouraged at the University of Minnesota.

While it is clear that neither the presence nor absence of intercollegiate athletics measures the quality of a great university, the Task Force holds that satisfactory progress toward a degree should be the major determinant of a student's standing in the University. The Task Force welcomes the assertion of the primacy of this principle and concurs that it offers the best guide in educating student athletes and maintaining the University's academic standards.

5. RECOMMENDATION: The University's academic standards of admission and progress toward degrees must be applied with an even hand to all groups of students. There is no justification for the prostitution of academic standards on the one hand or the exploitation of student athletes on the other.

In addition to state funds used by intercollegiate athletics, intercollegiate athletics place a tremendous drain on the time and energies of University administration and faculty. The negative impact of these hidden costs on the teaching and research mission, although difficult to quantify, is considered by the task force as substantial.

MANAGEMENT

I. OVERVIEW

Good administration of academic programs and support services is central to the success of the University. Observations and recommendations about the administrative structure of the University are included in the previous sections on Organization of the University and on Research and Scholarship. In particular we call attention in the latter to the recommendation to appoint a research vice president, and the discussion and recommendations about interdisciplinary programs. Here we discuss a collection of issues that are related to management in general, and to management of service units in particular, with particular emphasis on assuring the future of the physical plant and the campus environment.

A. MANAGEMENT TRAINING AND MANAGEMENT REVIEWS

It has become apparent that many of the deficiencies in the quality of programs and faculty reflect prior administrative deficiencies at the department, college, or higher levels. It has also become apparent that the success of the academic mission often depends, crucially on effective support by managers of key service units. In recent years, the University has had no systematic program to help managers to do their job by means of a management development program. Moreover, while the University has institutionalized a reasonably effective review process for programs and for individual faculty promotions, it has not invested the same energy in review of managers, though there have been ad hoc management reviews, often instituted during a period of crisis or major program change.

B. SUPPLY, EQUIPMENT, AND EXPENSE BUDGETS

A theme throughout the University is the starvation of support budgets relative to faculty positions; e.g., if the University's instructional equipment budget were nearly tripled it would still be the lowest in the Big 10. Faculty members in the humanities routinely do clerical work that is carried out by support staff in other parts of the University. Expense budgets for faculty attendance at professional meetings and other professional development are almost universally inadequate. The phenomenon is so widespread as to suggest a common cause, and policy change to address that cause.

C. MANAGEMENT OF SERVICE UNITS

The Advisory Task Force did not complete a careful review of all service units, so the following recommendations are partial.

The University exists in order to carry out its academic programs, yet

to carry them out effectively requires an astonishing range of support services, from the operation of book stores and parking lots to hazardous waste disposal and assurance of compliance with Occupational Safety and Health Administration and other federal employment regulations. There is a continuing issue of the extent to which faculty, and academic units in general, should be involved in oversight of these service units, and there is continuing ambivalence, on the part of both academic and service units, regarding the correct answer. Managers of service units act as agents for the academic units they serve, making expert decisions intended to be in their clients' best interests. Among continuing areas of conflict in such relationships are issues of understanding: Does the agent understand the client's goals and priorities and the effect of his actions on the client's operations? Does the client understand the constraints under which the agent must operate?

D. MANAGEMENT OF THE CAMPUS ENVIRONMENT

"St. Paul and Minneapolis extend from the Mississippi River like the legs on a pair of trousers. Where they join is the University of Minnesota."

Barefoot Boy With Cheek - Max Schulman

The Minneapolis campus is divided by one of the world's great rivers and again by U.S. Highway 12. It fails to benefit fully from the natural assets of the river and it fails to guard itself against the intrusions and disruptions of current urban life. The Task Force is concerned about the campus environment, since with classrooms, laboratories, and libraries, it contributes to the quality of research, scholarship, and intellectual discourse.

Until World War II the campus lay entirely east of the river, as it had from the time of its founding in what was then the village of St. Anthony. As Minneapolis absorbed its smaller neighbor east of the river, the campus became urban and remains so. Until the mid-1950s it was not a commuter campus but a part of southeast Minneapolis, the oldest section of the city, which was a community of grade and high schools, churches, commerce and industry, and an array of supporting services and community organizations. Large numbers of students and faculty members were residents of that community. The expansion of the campus to the West Bank, the building of the interstate highway system through the city, and the subsequent decline of the public transit system as the chief mode of urban transportation changed the character of southeast Minneapolis and the campus setting. The sense of community was significantly diminished. The immediate surroundings of the campus have come to consist of parking ramps and lots and streets clogged with motor vehicles. Students, faculty, and staff commute to the campus for the most part, for only a handful now live in the southeast community.

Earlier the campus was a cultural center for the Twin Cities. There

were weekly convocations at 11 a.m. each Thursday during which classes were not scheduled and the Minneapolis Symphony's regular concert season played in Northrop Auditorium, which also welcomed the Metropolitan Opera Company during its annual spring tour. These major cultural attractions are lost, and their passing without comparable replacements has left the campus poorer.

Once one of the best maintained urban campuses, the successive retrenchments of maintenance and campus grounds' budgets during the 1970s and 1980s, the steady pressure of over-capacity enrollments, and the indifference of a part of the student body to the requirements for preserving the amenity of landscaping have left the campus unkempt and exhausted. When some of the less attractive aspects of current urban life--vagrancy, sporadic vandalism, and ubiquitous graffiti--are added, the result is an environment which is almost always dirty, often dangerous, and increasingly unattractive as a place to carry on the University's work. With computers providing easy and frequent electronic contact with colleagues and graduate students, there is the prospect that some faculty will appear only for mandatory course lectures and department faculty meetings, thereby impoverishing the intellectual community if the campus does not provide congenial circumstances for research and scholarship.

The problem is more than dirty classrooms, offices, and laboratories and unattractive grounds. The Minneapolis campus has lost control of its environment by failing to establish planning principles that would allocate priorities to groups seeking access to the campus. The result is that classrooms and laboratories on either side of Church and Pleasant streets are entirely unsatisfactory for half of the academic year or more because of the noise, vehicle exhaust emissions, and vibrations associated with ordinary and heavy vehicle traffic on these streets through the heart of the campus. The accessibility of practically every part of the campus to the most casual motorist is the most pernicious influence on the campus environment.

The St. Paul campus of the University began as a consequence of the 1859 Morrill Act with the purchase of the Old Bass Farm, acquired to replace the previous experimental farm that lay in the path of the expanding Chicago, Milwaukee, and St. Paul Railroad, beautifully situated, overlooking the Como Road. Away from the city centers and the direct path between them, surrounded by what was then rural Ramsey County and its own experimental plots, the St. Paul campus has successfully avoided the urban fate decreed for Minneapolis. Landscaped long ago by an inspired forester, its serenity continues undisturbed.

While lacking the drama of a river bluff setting, the St. Paul campus has realized to a far greater degree the considerable potential of its site. Its growth has been more gradual than the Minneapolis campus, more thoughtful, more gracious. It continues to exist in harmony with its surroundings where many students, faculty, and staff make their homes. Most importantly, it has been guided in its development by a comprehensive plan of recent origin. Concerned that the amenities of an attractively landscaped campus be preserved, the members of the campus community have

generously contributed to a fund dedicated to that end. The overall result is most felicitous, for the St. Paul campus has preserved and enhanced an environment that encourages and sustains research, study, and scholarly discourse. It appears to have learned well the lessons of the Minneapolis campus experience.

E. MANAGEMENT OF PHYSICAL PLANT OPERATIONS

With the exception of Physical Planning, Physical Plant Operations has more effect on the campus environment than any other. It is charged with the following responsibilities on the Twin Cities Campus:

- A. Provide atmospheric control and electric distribution to campus buildings.
- B. Interior maintenance of buildings other than the Hospital and Coffman Union, and exterior maintenance of the campus grounds.
- C. Non-major remodeling of interior building space.
- D. Removal of hazardous and non-hazardous waste from the campus.

Most members of the academic staff of the Twin Cities Campus are all too familiar with the litany of complaints about Physical Plant services. Although this unit is clearly central to the functioning of the campus, it has for much too long been generally inefficient, ineffective, and of low quality. However, after a recent reorganization, new management appears to be moving deliberately toward solutions to these problems.

II. OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

A. MANAGEMENT TRAINING AND MANAGEMENT REVIEWS

The University Senate recently adopted a policy concerned with the appointment and review of administrative staff officers reporting to vice presidents and deans. Additional attention must be paid to policies directed at assuring quality academic leadership on the part of lead administrative officers, referred to here as departmental administrators (heads/chairs), but also including directors of institutes and centers.

The Task Force noted that the decay of stature and quality of some programs was caused by poor leadership on the part of the unit administrator. In some cases leadership that had been strong later weakened when a unit administrator stayed in place too long. In all of these cases, there was a failure of the next level of administration either to notice the problems or to take appropriate action when the problems were noticed.

1. RECOMMENDATION: To improve this situation, training programs should be established for academic administrators.

In some cases it was observed that egalitarian principles of departmental governance resulted in weak compromises instead of decisions that foster quality. The importance of consultation in decision making is too often replaced by an emphasis on democracy. This seems to happen more often with elected chairs than with chairs or heads recommended by search committees.

2. RECOMMENDATION: Deans should consider the appointment of search committees, consisting in part of members of the department, to develop recommendations for the choice of departmental administrator.

The Task Force noted that in some cases there is an absence of leadership in departments, or serious divisions, which make it difficult for leadership to emerge.

3. RECOMMENDATION: Serious consideration should be given to the possibility of selecting an external candidate for department administrator when such a selection would significantly strengthen a department.

A fixed-term appointment for unit administrators would ensure accountability of departmental leadership to both the faculty and the dean. The fixed-term appointment would provide a defined opportunity for the administrator's performance to be reviewed. Review could lead to reappointment of chairs/heads who have maintained the confidence of the faculty and the dean. Similarly, it would provide the chair/head with an opportunity to "step out gracefully" when it becomes apparent that the faculty's (or the dean's) confidence has been lost. It is inevitable that some long-serving chairs/heads run the risk of losing touch with teaching and research. That loss harms not only their administrative effectiveness, but also makes it more difficult for them to step down because they may no longer be capable of fulfilling their professorial responsibilities competently. Finally, the Task Force emphasizes that periodic reviews must be mandated; when they are ad hoc, they tend not to be done.

4. RECOMMENDATION: Departmental administrators (chairs/heads) should be appointed to a fixed initial term with provision for renewal terms.

5. RECOMMENDATION: The University should institute a program of regular management reviews that would evaluate the full range of academic, service, and administrative units of the University. Special attention should be given to staffing the reviews in a way that recognizes the unique characteristics of the management and support of an institution dedicated primarily to research and education. Reviews of academic department administrators should include significant evaluation by department faculty.

Several recommendations for programmatic reviews not presently held are included in the section on colleges below.

B. SUPPLY, EQUIPMENT, AND EXPENSE BUDGETS

One can point to specific explanations for budget imbalances in individual colleges: A dean who believed that all new funds should go to faculty positions, with the expectation that faculty would then generate their own external funding for support or a college budgetary allocation committee whose only currency is "positions," rather than budget. However, a phenomenon this widespread invites the hypothesis that there is a common cause. If so, we must address that cause, not simply urge a better balance of expenditures. It is plausible in this case that retrenchment, and the fear of future retrenchment, may be at fault. Except under financial exigency, dollars spent on tenured faculty cannot be retrenched, and even dollars spent on tenure-track faculty cannot be retrenched quickly, while support dollars can be.

7. RECOMMENDATION: Central administration should commit now, when no general retrenchment is at hand, to two features for any future retrenchment: the retrenchment target for any individual college will not be based on the liquidity of its budget (i.e., on how much money is immediately available for retrenchment), and any college will be permitted to borrow, at interest, from the University to pay its share of a retrenchment target, until flexible funds become available.

The second feature makes it possible to enforce the first and reduces the need to retrench support budgets. The recommendation is intended to apply to retrenchment for internal reallocation, as well as to any future general retrenchment. In addition, the provost should instruct deans to set targets for the proper balance of expenditures and to move toward those targets, as the reduced load of undergraduate instruction lowers the pressure to spend all available funds on faculty. The University's internal accounting reports should be modified to allow the provost to monitor the support per faculty member in each college's expenditures.

C. MANAGEMENT OF SERVICE UNITS

It is not efficient for academics to devote their time to learning the intricacies of the various specialties required to manage a major research university, except in rare cases. The major initiatives in communication should come from the service unit manager, not from the client. It is important that:

- service unit managers understand that their primary task is to support the academic mission;
- communication is adequate to assure that service unit managers understand both the priorities of the academic units and the impact that service unit decisions have on the academic units; and
- major changes in service unit operations or policies, and

irreversible changes with long-term consequences, receive special review by clients before implementation.

8. **RECOMMENDATION:** The review of managers of major service units recommended above (see Recommendation #6) should be carried out by academic clients, parallel to the five to seven year review of deans and academic unit directors. The review committee should be chosen with the concurrence of an assembly committee designated by the Faculty Consultative Committee. Each vice president with responsibility for service units should also incorporate "responsiveness to clients" (student, faculty, and administrators) as an important consideration in salary increase and promotion decisions and should make sure that all service units establish communication mechanisms (e.g. user committees) that will:

- Keep them informed on academic program priorities;
- Keep them informed on the potential impact of their decisions and actions on academic units; and
- Provide for careful review of major changes in service unit operations or policies, and irreversible changes with long-term consequences, proposed above.

9. **RECOMMENDATION:** The provost should refer all service unit planning documents to the Campus Assembly for review by appropriate committees in the fall.

D. MANAGEMENT OF THE CAMPUS ENVIRONMENT

The following recommendations pertain for the most part to the Minneapolis campus, but some apply equally to both. Skillful planning is a complex and difficult process, the impact of which cannot always be gauged. Physical planning in an academic setting is probably even more exacting. The holding of open hearings during which all interested parties may become familiar with proposed projects and voice their opinions can improve the final result.

10. **RECOMMENDATION:** The planning of major buildings and campus projects should be an open process.

The comprehensive plan for the Minneapolis campus dates to 1976; the number of variances and the impact of these departures on the campus development require that an update receive prompt attention. The plan should have, for our time, something of the sweep and vision that the Cass Gilbert Plan had in its day.

The plan should establish an associated priority ordering for use of the campus, with top priority given to those in the classrooms, laboratories and libraries, lower priority to pedestrian and bicycle traffic, lower still

to service vehicles, public transit, and private vehicles with the campus as destination, and lowest of all to vehicles passing through the campus for simple convenience.

11. RECOMMENDATION: The comprehensive plan for the Minneapolis campus should be brought up-to-date.

12. RECOMMENDATION: The street plan for the Minneapolis campus should be directed toward routing local vehicular traffic around the campus and its environs rather than through it.

This will require the cooperation and support of federal, state, and local officials. But given state and local expectations of the University, their active assistance in creating a hospitable climate is not unreasonable. Specifically, in the instance of Washington Avenue (U.S. 12), an earlier proposal to place it in a tunnel below the campus should be reactivated.

A goal should be to remove vehicular traffic from the campus, moving it to the periphery, including University service vehicles except in those instances where their presence is required in order to render service.

Specifically, Church, Pleasant, and Pillsbury Streets S.E. are early candidates for this plan. The provision of services to buildings along these streets can be accommodated by the judicious use of service/access paths, demonstrated a generation ago in the instance of Church Street.

13. RECOMMENDATION: Existing campus streets, where possible, should be closed to local traffic and converted to pedestrian malls.

The rigors of our climate preclude wide use of the campus grounds during 4-5 months of the year. But even during pleasant weather, the total campus character is not a particularly inviting one for conversation and socialization. The plaza between Nicholson and Williamson Halls is a notable and successful exception to the general state of affairs. The barren space on the West Bank between the Library, Management and Economics Building, and the Humphrey Institute demands early attention. There is also a need for a commons area in St. Paul to facilitate interaction among faculty from the St. Paul departments and visitors from the Minneapolis campus. A St. Paul branch of the Campus Club would further promote the quality of the intellectual community. In addition to large spaces of this kind, more intimate spaces should be created for smaller groups.

14. RECOMMENDATION: Campus planning on both campuses should create additional outside commons space in order to enhance the campus environment.

In clement weather, biking offers a healthy, energy-efficient means of travel. An adequate system of bike paths would attract a larger number of users and an improvement in the campus environment.

15. RECOMMENDATION: The campuses should have a well-planned, clearly marked, and carefully monitored system of bike paths.

Public transportation between the Twin Cities campuses is less satisfactory than a generation ago, and must be improved if the full academic potential of certain disciplines is to be realized. The reciprocal parking arrangements should be expanded and improved.

16. RECOMMENDATION: Transportation between the two campuses should be improved.

The Social Sciences Tower is considered to have failings of serious dimensions by its occupants; the Humphrey Institute, on the other hand, has spaces that appear to overcome the tendency toward isolation associated with tall, multi-storied buildings. The importance of the Recommendation #10 is hereby stressed.

17. RECOMMENDATION: Care should be taken in the design and execution of high-rise office towers.

Utilizing the St. Paul campus example, Minneapolis students, faculty, and staff should be challenged to do as much for their campus as the St. Paul campus community has done for theirs.

18. RECOMMENDATION: The Minneapolis campus community should undertake a campus landscaping program.

19. RECOMMENDATION: Future buildings on the Minneapolis campus should, where appropriate, be placed at the Washington Avenue bridgeheads. With proper design such buildings can take advantage of the natural beauty of the River gorge, shorten the distance between the East and West Bank campuses, and lower the psychological barrier posed by the River.

E. MANAGEMENT OF PHYSICAL PLANT OPERATIONS

It was encouraging to see that the problems of Physical Plant were clearly acknowledged in the Strategy for Focus planning document with a clearly stated plan for remedying the situation, some elements of which are already in place.

20. RECOMMENDATION: Physical Plant Operations is encouraged to move as quickly as possible with their plans for solving the problems which have been summarized so clearly. Clear communications with others in the University community about their plans should be encouraged.

A proposed reorganization of maintenance shops appears to the Task Force to be an important means to generate internal funds for meeting the overall priorities of the campus with respect to Physical Plant Operations, including freeing funds for maintenance of new space (estimated annual cost \$2,000,000 for the Twin Cities campus) for which the Legislature provided no funding in 1987. The reorganization has not yet been acted upon by the Board of Regents.

21. **RECOMMENDATION:** The president and provost should undertake every effort to obtain Regents' approval of the proposed reorganization of maintenance shops.

PART THREE: INDIVIDUAL UNITS

INSTITUTE OF AGRICULTURE, FORESTRY, AND HOME ECONOMICS

AGRICULTURAL EXPERIMENT STATION

I. OVERVIEW

A major source of funds that has enabled the departments in the Institute of Agriculture, Forestry and Home Economics (IAFHE) to maintain a high level of research support is the \$23 million from the Agricultural Experiment Station (AES). Approximately 40 percent of this covers parts of the salaries for faculty doing research and the remainder covers research expenses in the form of salaries for technical help and graduate students, equipment, and supplies. Eligibility for AES support is limited primarily to faculty in IAFHE. This large infusion of state funds is not matched by an equivalent amount for extramural research support. Modifications in the system for allocation of AES funds could be introduced to stimulate the generation of additional extramural support. Any proposal for alteration in the present policy should be consistent with the goals and mission of the AES and the specifications imposed by the Legislature. Changes should not have a negative impact on current AES-funded projects of high quality and high centrality to the people of Minnesota.

1. **RECOMMENDATION:** Given the above guidelines, the mechanisms whereby AES funds are allocated should be revised to accomplish the following goals:

Enlarge the pool of faculty eligible for receipt of AES funds to include more faculty in units outside IAFHE whose research is closely related to and in keeping with the mission and goals of AES. Eventually, approximately 10 percent of the AES funds currently allocated to faculty in IAFHE should be awarded to faculty in units outside of the institute.

Allocate some portion of the AES funds on a competitive basis in which scientific merit and potential importance of the research to the people of Minnesota would be factored into the scoring system.

Utilize some of the funds as incentives for obtaining increasing levels of extramural research funding.

Decrease the proportion of AES funds used for faculty salaries to allow increased flexibility in the overall allocation process.

COLLEGE OF AGRICULTURE

I. OVERVIEW

The College of Agriculture (COA) has 255 faculty FTE and is organized in 10 academic departments. One of these, food science and nutrition, is administered jointly by the College of Home Economics. A total of 938 undergraduate students and 596 graduate students were enrolled in fall 1986. In addition to undergraduate and graduate education to prepare students for careers in agriculture and agribusiness, there is a major expectation that the research and extension work of faculty in COA will be of significant benefit to the agricultural industry in Minnesota.

In an effort to improve efficiency and address changing needs, the COA has dropped several programs in the past five years and added others. Programs dropped are: agricultural journalism, fisheries and wildlife (transferred to Forestry), hospitality and food service management, plant health technology, agricultural engineering technology, food engineering, dietetic internship, and literature and listening courses in the rhetoric department. Programs added include integrated pest management, technology communication, and clinical nutrition. The COA has addressed new initiatives in agriculture and technology through participation in new centers and projects.

II. OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

There has been a decrease in the number of students seeking degrees from the COA, but the continued importance of agriculture to the state's economy indicates a need to maintain high quality programs in this area. The favorable ratios with respect to low numbers of students and high levels of state-funded research-per-FTE faculty generate expectations for high quality and productivity in both teaching and research.

Plans for faculty development indicate that the college is active in promoting and encouraging programs for restoring and maintaining faculty vitality. The COA has made extensive efforts to recruit minority students, and even though success has been limited, they have new plans for increasing the numbers of minority students.

Further efforts should be made to minimize duplication of disciplinary departments on the Minneapolis and St. Paul campuses. However, such efforts should not diminish either the quality of or access to courses for students on either campus. In some instances it will be advantageous to have faculty who are housed in the COA, but tenured within another college. Faculty with similar disciplinary expertise should have a common tenure home within a single department.

1. **RECOMMENDATION:** The tenure home of faculty in the rhetoric department should be moved to an appropriate department in what is currently the College of Liberal Arts.

Several of the applied plant departments in COA have identified the need for a graduate program in plant biochemistry.

2. **RECOMMENDATION:** Identify a mechanism (possibly a council of deans of biological sciences) whereby resources can be utilized to hire a plant biochemist to be housed on the St. Paul campus.

Graduate programs in agronomy and plant breeding, and in agricultural economics, are considered excellent, and those in horticulture and food science are rated as very good. Departments of animal science, entomology and plant pathology are improving under the direction of new department chairs. The program in agricultural engineering is small and not clearly defined.

Past concerns and problems regarding the status of the agricultural engineering program appear to have been addressed by improvement in quality through new faculty hires and pending appointment of a new head. The close collaboration and involvement in research between the agricultural engineering faculty and those of other departments, and the importance of the department's many extension and outreach activities to the people of the State, indicate that agricultural engineering should be maintained as a separate department in the College of Agriculture.

3. **RECOMMENDATION:** The research and graduate programs in agricultural engineering should be reviewed within three to five years to ensure that they are productive and of high quality. Within four years the numbers and quality of graduate students per faculty member and the ratio of extramural to state funding for research support should equal the average for other programs within COA. Failing this goal, the program should be phased out or distributed to other programs with which there are disciplinary overlaps.

Agribusiness is becoming an increasingly important component of COA undergraduate programs, and the curricula require that students have access to a number of courses offered by the Carlson School of Management (CSOM). Currently, students judged to be in good standing by the COA are denied access by the CSOM.

4. **RECOMMENDATION:** The deans of the CSOM and the COA should meet with the vice president for academic affairs to agree on a mechanism whereby the CSOM, given appropriate resources, will provide management courses for students in the COA.

The College of Agriculture continues to place a high priority on its undergraduate programs. Its current faculty development plan puts heavy emphasis on improving the faculty's teaching abilities, and the college is also in the process of a major revision of its undergraduate curricula. COA's relative ratio of bachelor's degrees awarded per FTE faculty is low with respect to CLA and IT (for 1986). With the establishment of the

Academy of Literature, Sciences, and Arts, COA would no longer admit freshmen, but could still offer lower division courses and a pre-major program through the academy.

5. **RECOMMENDATION:** Given the low undergraduate teaching load of the COA faculty relative to other major units on the Twin Cities campus, COA faculty who have been identified as good teachers should be encouraged to participate in teaching courses offered by other colleges and to offer courses within COA that have broad appeal and relevance for undergraduates from other units, such as the Academy of Literature, Sciences, and Arts.

A large component of COA research is supported on state and federal funds in the form of about \$12 million from the Agricultural Experiment Station (AES).

6. **RECOMMENDATION:** The mechanism for allocation of AES funds within the college should be revised in accordance with the suggestions in the Task Force's separate statement on AES funding. These revisions can be expected to move a significant fraction of the COA AES funds to units outside of IAFHE, under competitive grants for work related to the agricultural mission.

7. **RECOMMENDATION:** \$659,000 should be transferred from the Agriculture budget to implement transfer of the Department of Rhetoric from the COA (Recommendation #1). \$1,070,000 should be transferred into Agriculture to implement the transfer of the College of Forestry (renamed the School of Natural Resources) under the administrative umbrella of the COA. Finally, the COA budget should be reduced by \$650,000. The Task Force believes that the college should recover most, if not all, of the \$650,000 by mechanisms such as increasing the availability of AES funding to colleges outside the institute (Recommendation #6), coupled with an effort to increase the level of external funding to support research, and transfer of teaching effort to units outside of the COA (Recommendation #5).

Without the recommendations to close two colleges, the budget recommendations for the COA would have been the same.

COLLEGE OF FORESTRY

I. OVERVIEW

The College of Forestry has 39 faculty housed in three departments: fisheries and wildlife, forest products, and forest resources. In 1986 there were 314 undergraduate and 117 graduate students. They offer the B.S., master of forestry, M.S., and Ph.D. degrees. The programs in forest resources and forest products are professionally accredited. Total funds for FY86 were approximately \$5 million, of which about \$1.3 million came

from 0100, \$2 million from the Agricultural Experiment Station, and \$0.8 million from ORTTA grants and contracts. The COF is the 3rd most expensive program on the Twin Cities campus (after Veterinary Medicine and Dentistry) in terms of total state dollars per full-year equivalent. This figure has increased from \$8,502 in FY77 to \$12,605 in FY86.

II. OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

The college graduate programs appear to be of good quality. Both graduate and undergraduate student numbers have continued to drop over the past 9 years in spite of increased recruitment efforts and the addition of the students in the department of fisheries and wildlife, which was transferred from COA in 1983. Declining enrollment generates concern about maintaining student quality (NHS student average rank for fall 1986 was 70 percent) and increases in the average cost of educating a student.

Forest product industries represent an estimated \$4 billion annual economic activity in Minnesota. Recreational activities oriented around fish and wildlife are also estimated at several billion dollars. The University of Minnesota needs to continue to support the higher education programs related to this important renewable natural resource.

A major issue is that of separate collegiate status. The COF emphasizes that the University needs to continue to support fish, wildlife, and forests as Minnesota's most important renewable natural resources and that this is best done by focusing the University's efforts and maintaining a separate college, which they propose be named the College of Natural Resources. They also note that there is no cost savings by elimination of collegiate status unless programs of the COF are to be de-emphasized. Finally, the point is made that the trend in the United States is for forestry to have separate school or college status. However, the overall impression of the Task Force is that the University could improve its efficiency and effectiveness by consolidation of its programs into a smaller number of separated collegiate units.

1. RECOMMENDATION: The College of Forestry should be renamed the School of Natural Resources (SNR) and should be administered as a unit within the College of Agriculture. This move should generate a savings of approximately \$215,000 in administrative costs. The remainder of the COF budget should be moved to the College of Agriculture.

A second issue that has been raised in the past is that of geographical location. The COF notes that the advantages of moving to the Duluth campus to be closer to the forested areas of the state are far outweighed by the advantages of being close to the many disciplines on the Twin Cities campus essential to quality graduate and research programs.

2. RECOMMENDATION: The School of Natural Resources should remain on the Twin Cities campus and there should be no further initiatives regarding teaching or research in forestry at Duluth.

The Task Force supports the philosophy that freshman admissions to the University be channeled through a single, broadly based entry port.

3. RECOMMENDATION: The School of Natural Resources should not admit freshman students as proposed in their SFF document.

Both the undergraduate and graduate programs in paper science and engineering have been identified as having a high priority for increased support. Private support for research in the Department of Forest Products has progressively declined over the past 9 years. The proportion of the total departmental expenditures supported by funds from other than state and federal sources dropped from 25 percent in FY77 to 2 percent in FY86. Given that the forest products industry ranks third in economic worth to Minnesota, there would appear to be considerable opportunity to restore a higher level of support from private sources.

4. RECOMMENDATION: In concert with its focus on paper science and engineering, the School of Natural Resources should increase its efforts to obtain additional financial support from the numerous paper and paper products-related companies in Minnesota.

The interest of the COF faculty in providing courses with greater appeal for students with a general interest in biology and natural resources should be fostered and incorporated into the overall plan for improving the quality of undergraduate programs in biological sciences. Their expertise in the basic biology of plants and animals would allow them to participate in courses developed by other colleges or to design general courses of their own. Increased exposure of undergraduates to the better teachers in the COF, the challenges and opportunities in the fields encompassed by COF programs, and the future potential for jobs in Minnesota should increase the numbers of majors in COF fields.

5. RECOMMENDATION: Natural Resources faculty should become more involved in teaching undergraduate students who do not initially plan to major in one of the Forestry programs. Faculty members should be encouraged to participate in teaching courses offered in the Academy of Literature, Sciences, and Arts, and to develop courses within the school which have broad appeal and relevance for lower division students in the academy.

6. RECOMMENDATION: \$1,070,000 of the College of Forestry budget should be transferred to the College of Agriculture in accordance with Recommendation #1. The remaining \$215,000 should be retrenched to reflect reduced administrative costs occasioned by the move to the College of Agriculture.

Without the recommendations to close two colleges, the budget recommendations for the College of Forestry would have been the same.

COLLEGE OF HOME ECONOMICS

I. OVERVIEW

The College of Home Economics has 92 faculty in six units: family social science (13), design housing and apparel (19), social work (22), food science and nutrition (jointly with College of Agriculture) (32), division of home economics education, budgeted in the College of Education (5), and the Center for Youth Development and Research (0.9). In 1986, there were 1,320 undergraduates and 311 graduate/professional students; 210 bachelor's and 91 graduate/professional degrees were awarded in FY86. Total resources for FY86 were approximately \$6.6 million, of which \$4.1 million was 0100 funds, \$1.7 million was from the Minnesota Extension Service and Agricultural Experiment Station, \$0.6 million was from federal grants, and \$0.2 million was endowment. Thirteen interdisciplinary undergraduate degree programs are managed by faculty committees drawn from the above units. Graduate programs leading to the M.A., M.S., M.S.W., and Ph.D. degrees are administered through the Graduate School.

The college is committed to the study of the well-being of individuals and families, of elements of their near environments, and of their interaction. Students are prepared for professional careers in human service professions and industries. Research efforts contribute to the knowledge basic to these areas and support the educational programs, informal education, policy formulation, and community leadership and service. The ratio of expenditures from state funds to total expenditures is 0.88.

II. OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

The College plan identifies goals that focus on greater emphasis on research and graduate study, continuing the high quality of undergraduate programs, increasing the presence of minority students and faculty, and the support of student and faculty development to reach these goals. It does not address specific research opportunities, assess faculty capabilities for responding, or account for increased income from expanded research activity.

The "land-grant mission," redefined to include a metropolitan emphasis, justifies the concentration of research resources in the applied social sciences at one major institution in the state. The union of social work with elements of home economics allows University capabilities to be focused on important urban and rural social problems. The centrality of food science and nutrition, family social science, and social work is clearest; the several programmatic aspects to design, housing and apparel and the small size of home economics education cause their centrality to be less clear.

The college perceived a demand for increased doctoral study as home economics and social work nationally move toward graduate study and research. A 1986 survey finds the University programs in this area well-

positioned to meet this demand, showing a graduate student enrollment second among the 78 units surveyed.

Minority enrollment stands at 6.1 percent. The college sets a 1992 target of 7 percent minority students, and resolves to seek minority group faculty members despite the small pool.

The food science and nutrition and family social science programs appear to be the units of highest quality in the college. Research support comes mainly from Agricultural Experiment Station funds. Other support of research in the college has varied between \$90,000 and \$345,000 over a 9-year period with an average of \$230,000. Although the goals of the college plan indicate an increasing emphasis on research and graduate education, the 5-year projection shows an anticipated decline in income from grants and contracts administered by ORTTA from \$1.15 million (1986-87) to \$646,000 (1991-92). This appears to be inconsistent with the college's plans and aspirations. Additional research funds are obtained from the Agricultural Experiment Station (AES) and Minnesota Extension Service (9-year average: \$1.2 million; FY86: \$1.8 million).

1. **RECOMMENDATION:** With new leadership, the college should reaffirm the importance of graduate study and research and develop more detailed plans for supporting this effort by increased grant and contract activity.

2. **RECOMMENDATION:** The "seed" aspects of Agricultural Experiment Station grants should be stressed, with the goal of using such grants to obtain federal, foundation and private support.

Undergraduate education received major emphasis until 1982-83 when graduate enrollment began to grow. The college plan indicates that "walls between departments of the college are low" and that programs are managed by multidisciplinary faculty committees, yet there are discussions concerning a return of these programs to departments. High quality remains a goal.

3. **RECOMMENDATION:** The college should develop a common core or cluster of courses for undergraduates to identify interdependence of programs.

With the establishment of the Academy of Literature, Sciences, and Arts as the single freshman admissions point, the college would no longer admit freshmen. This fits well with the directions in which the college's education program has been moving.

4. **RECOMMENDATION:** The CHE budget should be reduced by \$250,000. The Task Force believes that the College should recover most, if not all, of the \$250,000 by increasing the availability of AES funding to colleges outside the institute by means of competitive research proposals, coupled with an effort to increase the level of external funding to support research.

Without the recommendations to close two colleges, the budget recommendations for the College of Home Economics would have been the same.

MINNESOTA EXTENSION SERVICE

I. OVERVIEW

The Minnesota Extension Service is a major functional unit of the Institute of Agriculture, Forestry, and Home Economics, together with the three colleges (Agriculture, Home Economics and Forestry) and the Agricultural Experiment Station. The Minnesota Extension Service is supported from federal, state, and county sources. Since the early 1960s federal funds have declined from about 50 percent to less than 30 percent of the total. In 1985 the budget for the Minnesota Extension Service was \$29.6 million, of which \$8.3 million was from federal funds, \$11.2 million from state funds, \$6.4 million from county funds, and \$3.9 million from other (non-tax) sources. During the period 1982-87, recurring retrenchments amounted to \$3.3 million and approximately 72 full-time equivalent faculty and civil service staff.

A. MISSION

The Minnesota Extension Service is the outreach arm of the University of Minnesota that offers research-based education throughout the state in cooperation with county, state, federal, and private agencies. It seeks to enable people to foster full development of youth, adults, families, and communities; to improve the economy, especially the food and fiber sectors; and to provide effective natural resource management. The University of Minnesota is the only institution in the state capable of providing such a research-based nonformal education program.

The Minnesota Extension Service activities are organized under 75 projects grouped into four central issue areas:

1. economic development
2. environment and natural resources
3. human development
4. community leadership

The programs are carried out by state, area, and county staffs. The state and area staffs are composed primarily of tenured or tenure-track staff who are also members of academic departments. The county staff are non-tenured.

The service views its mission as education rather than service.

B. PROGRAM CHANGES

During the last several years the Minnesota Extension Service has undertaken substantial restructuring and focusing of program activities both

in response to changing economic and social conditions and in response to retrenchments. In December 1985 the University of Minnesota Board of Regents approved a change in the name from the Agricultural Extension Service to the Minnesota Extension Service. This was followed by an external review of programs and a strategic planning exercise.

The name change and the planning exercises imply a broader mission for the extension service than in the past. In addition to the three colleges in the Institute of Agriculture, the extension service works cooperatively with staff in other units including the Law School, the Humphrey Institute, several units in Health Sciences, and Continuing Education and Extension. It is anticipated that in the future, arrangements will be made to locate state specialist faculty in additional departments as well as at Crookston, Waseca, Duluth, and the several branch experiment stations. Arrangements are also being made to develop multi-county "cluster" programs in order to achieve better cooperation among counties in relating the specialized skills of county staff to common problems in counties in the same geographic area.

II. OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

A. FUTURE DIRECTIONS

The direction of future program changes is not clear. Recent program changes have included increased emphasis on financial planning and management and a legislatively mandated financial mediation program. The extension service will probably be pressed to make further changes over the next decade. At the federal level there has been strong pressure to focus more strongly on technology transfer activities and to reduce family and community development activities. The budget growth at the state level has, in contrast, been supportive of the more socially oriented programs, including the area of financial stress. In view of the significance of commodity, resource, state, and community policy issues, the small allocation of extension resources to these areas appears somewhat surprising. Current planning now underway, to be completed in late 1987, may reflect new governmental priorities.

B. QUALITY CONSIDERATIONS

There are several dimensions to the issue of quality. One is the quality of the professional staff who are tenured members of disciplinary departments. In the past, extension appointments have tended to involve largely full-time nonformal educational activities. More recently, most state-level extension faculty have also been given part-time experiment station research appointments. Some also carry teaching appointments for formal courses in departments as well as their nonformal teaching responsibilities. It has been difficult, however, to achieve consistency between extension responsibilities and conventional promotion and tenure criteria.

A second major dimension of quality is program impact. The Minnesota Extension Service plays a central role in carrying out the University's responsibilities for state economic development, particularly with respect to the agricultural sector and rural communities. Organization of extension at the county level puts it in a position to deliver a broader range of educational activities than has generally been true in the past. Direct measures of economic development impact are exceedingly difficult to obtain.

C. TECHNOLOGY TRANSFER

The Minnesota Extension Service is the largest but not the only unit within the University engaged in nonformal educational programs. The Center for Urban and Regional Affairs represents another example. There has been continuing concern within the Institute of Technology with how to organize and support technology transfer activities. It is not possible within the time frame of the Task Force effort to assess the appropriate role of the University in nonformal educational programs or other programs designed to transfer research-based knowledge from the University to the state, counties, communities, and firms.

1. RECOMMENDATION: The University should undertake a thorough review of its nonformal education outreach activities. The major issue to consider is whether such responsibilities should be the function of each major administrative unit in the University.

In the future, counties are likely to seek a broader range of educational programs from the University. The regents' review suggested that a new form of agreement with the counties be worked out that would provide for "county governments to contract with the University for Extension Services consistent with the needs of the county" and that the agreement be subject to periodic review. The Task Force views this suggestion as a potentially creative way to approach the changing needs of counties and communities and the changing capacity of the University.

2. RECOMMENDATION: The Minnesota Extension Service should pursue the initiative to develop contracts with counties that accommodate their needs, given the constraints imposed by the University's resources.

The joint planning exercise in which the Minnesota Extension Service is engaged will be completed in the fall of 1987.

3. RECOMMENDATION: The University should review the priorities that are established to ensure that they are consistent with the plans of the colleges that are most clearly related to the work of the extension service and with the overall goals of the University as reflected in the Commitment to Focus exercise.

HEALTH SCIENCES

COLLEGE OF PHARMACY

I. OVERVIEW

The College of Pharmacy, which comprises about 50 FTE faculty and 100 volunteer clinical faculty, offers the only program in pharmacy in the state. It offers two professional degrees: a B.S. for community pharmacists and a Pharm.D. for the clinical practice of pharmacy. Each of these programs includes two years of general education and science prerequisites and two years of prescribed curriculum in pharmacy; the B.S. option requires an additional year of internship, and the Pharm.D. requires an additional year focusing on pathophysiology and clinical therapeutics and a second year of clinical practice of pharmacy. The Pharm.D. program is the only one in the four-state area including the Dakotas and Wisconsin.

The graduate program offers M.S. and Ph.D. degrees in medicinal chemistry, pharmaceuticals, and social and administrative pharmacy. The M.S. degree is also offered in hospital pharmacy.

II. OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

This is a strong program with a clear sense of direction. The college planning document establishes specific goals with clear implementation strategies and criteria for evaluation of outcomes. The high turnover of faculty in previous years has diminished markedly; faculty are committed to the achievement of excellence; and there is a good record of communication and collaboration with units and faculty who share common interests.

Federal research funding declined during the 1975-85 decade (from 5th to 17th out of 72). The college's top priority is faculty development in order to strengthen research productivity and regain a position in the top five. The graduate program in pharmacognosy will be phased out and merged with medicinal chemistry, a particularly strong program, to establish a single mission and clearer focus. Two other small programs, in social, administrative, and hospital pharmacy and in pharmacy practice, may be merged to form a critical mass for greater productivity.

As part of a plan to develop national recognition for research programs in geriatric pharmacy, pharmacy management, and industrial pharmacy, endowed chairs are being established in these areas. The college also is giving high priority to the development of a multidisciplinary center for drug research and a computer-assisted molecular modeling center. To provide leadership in the molecular modeling center, it has recruited a Presidential Fellow with expertise in molecular dynamics and modeling.

1. RECOMMENDATION: Support the plans of the college to strengthen faculty research productivity and to build national centers of excellence.

The administration of small colleges is often open to inefficiencies because of the lack of economies of scale. The Task Force considered a recommendation to combine the allied health sciences into a single college, but concluded that there was no compelling programmatic reason for this merger. Nevertheless, it appears that a pooling of some administrative services would result in some reduction of administrative costs, which seem excessive.

2. RECOMMENDATION: The administrative section of the budget of the College of Pharmacy should be reduced by \$200,000.

Without the recommendations to close two colleges, the budgetary recommendations would have been the same.

COLLEGE OF VETERINARY MEDICINE

I. OVERVIEW

The College of Veterinary Medicine is 1 of 3 regional veterinary schools; the Universities of Wisconsin and Iowa also train veterinarians. The college has 95 faculty FTE and is organized into 5 departments. For FY86-87, total resources for the college are \$15.5 million, with \$8.4 million from 0100 and \$1.1 million from the Agricultural Experiment Station. Income from sponsored grants totals \$2.1 million, including \$830,000 in federal research grants, with the balance from a state special (diagnostic lab), income from sales and services, and gifts. Federal funding available nationally in animal health sciences is approximately \$22 million annually, a decrease of one third in the last few years.

A recognized surplus of veterinarians has led to sharp reductions in the number of applications, especially from residents of Minnesota.

Income from contracts with North Dakota and Nebraska is decreasing rapidly, and is expected to be more than halved by 1991.

The school has a very heavy emphasis on clinical education, leaving very little time to do research.

II. OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

Decreasing student applications threatens the quality of students admitted to the program. It is also an expensive program; in 1986 it cost \$17,400 to teach each student. Because the college requires students to run its clinic, and believes that the clinic must be open 24 hours a day, it has

been difficult to decrease the scope of operations in response to decreased demand. The planned reduction in entering D.V.M.'s from 80 to 64 in 1986 made it essential to replace the loss of student nursing and technical assistance with civil service staff. This requires 12 additional FTE civil service, which is to be phased in through 1990. This decrease in enrollment should produce an improved educational experience, but it evidently increases the average cost of education by considerably more than might be expected by requiring an increase in civil service staff.

There is a paucity of faculty with strong basic research training or inclination. The fact that the program is clinic intensive makes this a difficult problem to solve. Proposed solutions in the college's plan are inadequate to move it into the ranks of top flight research veterinary schools in the country.

The Strategy for Focus document concurs with the goal of increasing research (it is its third highest priority), but goes to great length to demonstrate the impediments to this goal.

The document speaks of "impending crises" if there are not increased faculty resources to address the most glaring educational problems in the school. It describes some subfields as being "at the breaking point under current loads." If state (0100) funds were increased by 10 percent, approximately half would go to the professional education (D.V.M.) program, one quarter to graduate and postdoctoral training, and one ninth to research and research infrastructure. They articulate a goal to double the external research funding, a worthy goal indeed, but very difficult to accomplish in the face of current funding trends.

Veterinary medicine is an expensive field. While the college has a good reputation for clinical training, there is a surplus nationally of veterinarians, and this surplus is expected to increase in the 1990s. At present, three schools in the North Central region are chasing an insufficient number of applicants. The Task Force is impressed that considerable increases in funding are needed in the school to meet their educational and research objectives, and that an absence of such an increase will produce a declining program. In view of many other needs in the University, such increases should not have a high priority. Reluctantly, we conclude that Minnesota would be wise to discontinue this effort, and send our students instead to reciprocal states who would welcome them.

1. RECOMMENDATION: Close the School of Veterinary Medicine and reallocate resources to strengthen the rest of the University.

It would seem appropriate to devote the Veterinary Medicine share of the Agricultural Experiment Station funds in part to animal science research in the College of Agriculture.

Without the recommendations to close two colleges, the budgetary recommendations would have been to transfer the diagnostic clinic to administrative control of an appropriate state agency; recapture the \$76,000 of 0100 funds used to subsidize it; retrench the college budget by an

estimated \$250,000 to be saved as a result of reducing the clinical program by 20 percent; and, finally, transfer the college to the Institute of Agriculture for administrative control.

DEPARTMENT OF MORTUARY SCIENCE

I. OVERVIEW

The department of mortuary science is an undergraduate teaching program to prepare persons for a career in funeral service. It originated in 1908 as a six-week program and progressed in 1968 to a four-year program leading to a B.S. degree. It is one of three such collegiate programs in the country. The department is a free-standing unit of the Health Sciences and consists of three full-time faculty, one adjunct faculty, and a director, a position which is currently unfilled. There are approximately 48 graduates per year.

II. OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

This program is primarily a training program with little or no research component. The curriculum comprises two years of general education and two years of the major, which is taught entirely by the departmental faculty. The program's quality is high, and the program receives support from funeral directors in the state. The department provides an essential service to the cell biology and neuroanatomy department in the preparation of bodies to be used in the laboratory.

1. **RECOMMENDATION:** Eliminate the department as an academic unit and possibly transfer it to a local state or community college. Offer to provide arrangements to maintain the University as a practicum site for mortuary science students, if another institution accepts the program.

2. **RECOMMENDATION:** Transfer \$175,000 of the \$241,000 budget to the Medical School to provide for essential services to the department of cell biology and neuroanatomy that would otherwise be lost by the recommendation to eliminate the department.

Without the recommendations to close two colleges, the budgetary recommendations would have been the same.

MEDICAL SCHOOL

I. OVERVIEW

The Medical School has 901 full-time faculty members (FTE's), including 106 basic biological scientists on the Twin Cities campus, 457 clinical scientists at the University Hospital and Clinic, and 323 full-time faculty at affiliated hospitals. Of these, about 550 faculty (headcount) are located on the Minneapolis campus. The basic biological scientists are housed in the Human Genetics Institute and the departments of cell biology and neuroanatomy, biochemistry, microbiology, pharmacology, physiology, and laboratory medicine and pathology. The remaining 430 faculty on the Minneapolis campus are in the 18 departments of the clinical sciences.

There are 1,030 medical students and 200 allied health students in the Medical School, and 257 graduate students in the basic science departments, of whom 210 are studying for the Ph.D. The ratio of Ph.D. students to faculty is 1.75. The graduate medical education program consists of 947 medical residents and 166 fellows. A new M.D./Ph.D. program was started in 1986 with admission of 5 students. There are also 15 to 20 students not in the program, but simultaneously enrolled in a Ph.D. program and the M.D. program.

The Medical School proposes to decrease the number of residents in proportion to the reduction of medical school students by about 12 percent.

The total expenditures in 1985-86 were \$36 million from the state and \$90 million from federal grants and other funds. In FY85-86 the clinical departments had expenditures of \$18 million in 0100 funds (almost \$6.5 million in the department of family practice), \$1.6 million in state specials, \$22 million in federal sponsored research, \$10 million in non-federal sponsored research, and \$15.5 million in service-derived funds; the grand total for the clinical departments was \$67 million.

According to the planning document, the Medical School ranks 3rd among 122 U.S. medical schools in the total number of medical and graduate students, post-M.D. residents, and fellows (2,515), but only 48th in total full-time faculty in the basic sciences (121), 57th in student faculty ratio (2.84), and 98th in operating expenditures per student (\$26,540).

In FY85, the Medical School spent \$38 million of NIH monies. Among public universities, the departments of pediatrics and surgery rank 1st in total funding; pathology, orthopaedic surgery, and otolaryngology rank 2nd; and cell biology and neuroanatomy (anatomy) ranks 4th in NIH total cost awards.

II. OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

The Minneapolis campus of the Medical School is the major site for medical research and physician training in the state. The last two years of training for the medical students from Duluth takes place here.

The Medical School's location in a major metropolitan area in conjunction with a major international research university has several advantages. Patients are available for teaching purposes and the faculty can interact with industry and with engineering and basic science faculty.

But the demand for physicians has been declining. The number of Minnesotans applying to medical school fell 39 percent from 809 in 1981 to 494 in 1986. At present the Medical School class numbers 193, down 19 percent from 1984. The School of Medicine, Duluth, entering class remains at 48. The Mayo Medical School, Rochester, entering class remains at 40.

A. BIOLOGICAL SCIENCES

About a fifth of the Medical School faculty is engaged in basic biological research. They represent about half of the basic biological scientists on the Twin Cities campus. These faculty have a dual role. They are engaged in basic biological research, and most could just as well hold their appointments in CBS. In addition, the research of these faculty in basic biology supports the applied mission of the clinical departments.

Academic appointments in the biological sciences on the Twin Cities campus are in the main uncoordinated. The Medical School in its planning document states that it wants to make "the Basic Sciences its highest priority (1) for the development of contemporary biology in the University at large, and (2) for the applications to human diseases of revolutionary new technologies and insights that are emerging from the Basic Sciences." To this end resources have been committed to biochemistry, microbiology and the Institute of Human Genetics.

1. RECOMMENDATION: The Medical School's plan to invest resources in strengthening the basic biological sciences should be coordinated with other biological programs on the Twin Cities campus and with appropriate clinical departments. A council of deans (Agriculture, CBS, Medical School, and Graduate School) should be made responsible for this coordination. The Medical School should participate in restructuring basic biology along with CBS and other units with basic biology missions as described in the section entitled "Collegiate Organization."

B. INCREASE IN MEDICAL SCHOOL FACULTY

The Medical School proposes an increase in the number of FTE salaried faculty from 498 to 528 (1985-92), half in the clinical departments and half in the basic science departments, without an increase in O100 funding. But if the fraction of state support is to stay even (it has been low per faculty member over the last five years), it will cost about \$2.2 million

over the next five years. Furthermore, research space is already inadequate, and the ratio of graduate students to faculty members is low (210/120), as is the number of postdoctoral fellows (36). The number of graduate students and postdoctoral fellows is expected to increase as the quality of faculty improves, but this will place even more strain on the research space. Thus, any increase in the number of faculty will only add to existing problems of space and funding, reducing overall quality.

2. RECOMMENDATION: The Medical School should aim to increase the number of graduate students and postdoctoral fellows. Resources from within the Medical School and from outside training grants should be used to accomplish a 50 percent increase in these numbers over five years.

C. DEPARTMENT OF FAMILY PRACTICE

The department of family practice has a very large operations and maintenance budget (almost \$6.5 million), which represents 36 percent of the total 0100 budgets for all the clinical departments. The department's faculty, however, appear to have difficulties in competing for external federal support.

3. RECOMMENDATION: 0100 funding for the department of family practice should be gradually reduced by \$4 million, until it approaches that of the other major clinical departments (e.g. medicine, \$1.7 million; pediatrics, \$1.0 million). Training grant and research grant funds should be sought to replace these funds, or the number of faculty or residents should be reduced.

4. RECOMMENDATION: \$175,000 should be transferred into the Medical School budget to provide for essential services to the Department of Cell Biology and Neuroanatomy that would be lost by elimination of the department of mortuary science. The Medical School budget should be increased by an additional \$4,000,000 and those funds should be directed toward strengthening the basic biological sciences (in accordance with Recommendation #1) and supporting interdisciplinary programs in the neurosciences, human genetics, and biomedical ethics.

Without the recommendations to close two colleges, the amount recommended for reallocation to the Medical School would have been approximately \$2.5 million rather than \$4 million.

SCHOOL OF DENTISTRY

I. OVERVIEW

The School Of Dentistry has a good national reputation for training dentists, although in light of the probably permanent reduction in the

number of dentists needed in the state, the value of this function must be weighed against other responsibilities of the University. The school has a D.D.S. program and a dental hygiene program. It also has a graduate degree program for master of science in dentistry and a Ph.D. in oral biology. The number of applicants to dental schools nationally has fallen by 60 percent since the high in 1975, until it exceeds present capacity by only 30 percent. The 1983 Evaluation Report of the University of Minnesota School of Dentistry by the Commission on Dental Accreditation describes as "alarming" the fact that applicants from the state of Minnesota fell from 358 in 1976 to 130 in 1982. The table illustrates decline in students, relatively constant faculty, and increasing staff from 1979 to 1987.

TABLE 1
Students, Faculty, and Staff in the School of Dentistry

	<u>FY 1979</u>	<u>FY 1980</u>	<u>FY 1982</u>	<u>FY 1987</u>
Students (Head count)	<u>998</u>	<u>964</u>	<u>778</u>	<u>526</u>
Faculty (FTE)				
Full-Time	106.50	110.93	103.65	100.77
Part-Time	53.10	43.25	43.19	43.41
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Total	150.60	154.18	146.75	144.18
Staff (FTE)	168.54	177.64	182.13	186.81

The entering class of the D.D.S. program has decreased by approximately one third. The school's Strategy for Focus document states: "The current projection of entering class size for the DDS program is 104 for 1987 and the next four years. Declining applicants may well force this number much lower... It is difficult to determine the optimal class size, but a figure that has been suggested is 80." The school also raises concerns about decline in student quality, which they hope to address by an aggressive recruiting program. Nationally, standardized test scores have fallen during the past decade. The average GPA of an entering D.D.S. student has fallen from 3.3 in 1978 to 3.0 in 1985, a period during which GPA's have otherwise been inflating. Since the dental students contribute to the generation of clinic income, the decline of students has negative fiscal consequences.

The Dental School does not have any departments as such. Instead it is composed of a large number of clinics where students receive their training, often with one-on-one instruction. The basic science instruction is provided by the Medical School's basic science departments.

State funding for fiscal year 1986 was approximately \$8 million, and the state-to-total dollar ratio was 0.45. Federal research funds amounted to approximately \$1.6 million. The school describes the impact of the student reduction as creating "financial exigency ... upon our clinic income

(which) made it necessary to offset the loss of clinic revenue ..." They describe it as "clinical dependency syndrome," i.e., heavy dependence on clinic income to support programs, together with the need of senior D.D.S. students in the clinic to provide the services. In 1986, expenditures related to the clinic income fund exceeded current income by \$331,683.

A related budgetary concern is the loss of income from interstate contracts with North Dakota and Montana. In 1978, there were 42 students from these states and the school received \$432,000 under these contracts. In 1987 the numbers were 26 students and \$255,000. The school expects the University to pick up the loss in income. Moreover, it expects these contracts to vanish in the near future.

The research record of the school has been undistinguished, except for a few faculty members who will soon retire. For instance, 26 percent of all research support in 1986 was due to two faculty members who will retire within a few years.

With regard to the dental hygiene program, the highest number of dental hygiene students in the school was 356 in 1978. In 1986, the number fell to 49. The number of faculty fell from 22 to 6. However, the current plan is to begin a baccalaureate program. State-wide, there are dental hygiene associate programs at UMD, Mankato State, and Normandale Community College. In the face of a substantially declining applicant pool, the demand for this program at the University is very low.

II. OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

Decreasing student demand has in recent years lowered the quality of students admitted. It has also made this an excessively expensive program, which cost \$15,600 per student in 1986. The school points out that because students are needed to run the clinic, a partial reduction in the size of the program would not save much money.

Aside from a few very senior faculty, there is little evidence of distinguished scholarship. The "clinical dependency syndrome" has further weakened the school.

None of this is to argue that the school is irretrievable. Demand is probably permanently reduced, but the school might be reduced to fit a smaller student body if the "clinical dependency syndrome" can be overcome. The imminent retirement of distinguished faculty could be met by anticipatory replacements, if these could be found.

However, in the context of other demands being made on the University, the question must be asked: Is maintenance of this program the best use of our resources? Nationally, changing dental technology has led to a great reduction in the number of dentists required by society. At the same time, only a few dental schools have been closed, so all are limping along with insufficient numbers of students. Nationally and regionally, there are simply too many dental schools. Minnesota would be wise to discontinue this

effort, and send our students instead to other states in the region such as Iowa, Michigan, Nebraska, and Missouri.

1. RECOMMENDATION: Close the Dental School and reallocate resources to strengthen the rest of the University.

Without the recommendation to close two colleges, the recommendation would have been to reduce class size by 50 percent to achieve a saving of approximately \$2 million, with these resources reallocated to strengthen the rest of the University.

SCHOOL OF NURSING

I. OVERVIEW

Founded in 1909, the School of Nursing was the first University-based nursing program in the nation. Currently, it offers B.S., M.S., and Ph.D. degrees in nursing. In 1986 its faculty numbered 53; enrollment was 499 (346 undergraduate, 153 graduate); total expenditures were \$3.2 million, of which the state's share (0100 funds) was about \$2.8 million.

II. OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

The doctoral program, approved in 1981, has not yet awarded any degrees, but the field is a promising one for significant research. Graduate faculty in nursing sometimes hold Ph.D's in physiology and social sciences, as well as in nursing. With careful monitoring by the graduate faculty, periodic internal and external review, and more financial aid for high-quality students, the program should become a valuable one.

1. RECOMMENDATION: The Ph.D. program should be maintained and enhanced.

The master's degree program appears to be a professional enhancement program more than a research program. Master's degree graduates (677 from 1971 to 1985) hold positions in nursing administration, clinical specialty practice, nursing education, and in business and industry. This is the only nationally accredited program in the state, but Winona State and the College of St. Scholastica have received approval from the HECB to start master's degree programs.

2. RECOMMENDATION: The focus of the master's degree program should emphasize research.

Despite strong public demand for highly qualified nurses, the baccalaureate program at Minnesota (and in the nation generally) has a progressively declining applicant pool. In 1986, all qualified applicants (88) were admitted; recruiting has increased the 1987 applicant pool. A new

curricular program, authorized by the Board of Regents to begin in 1989, will raise the admission requirement from a GPA of 2.5 to 2.8 and enhance the quality of training.

3. RECOMMENDATION: The basic professional program as planned should be strengthened by requiring students to have completed a bachelor's degree in a field other than nursing; program size should be reduced.

Students would come to the School of Nursing with a B.S. or a B.A. degree with prerequisite or pre-nursing courses, would then complete the clinical component of nursing education in two years to obtain the credentials required for the R.N., and would be awarded a professional degree. Student class size would be smaller than it is in the current B.S.N. program, and the number of faculty would decrease proportionately. In order to build faculty research strength more rapidly, the long-term decline in number should be preceded by new hires mortgaged against future retirements on a 2-for-1 basis.

The size of the administrative staff appears to be unnecessarily high relative to the size of the faculty, which is a concern in several other Health Sciences colleges. It should be possible to share some administrative services among these allied Health Sciences with a considerable savings in administrative costs.

4. RECOMMENDATION: The administrative section of the budget of the School of Nursing should be reduced by \$200,000. The budget of the school should be further reduced by \$250,000 in relation to Recommendations #2 and 3 concerning the recommended changes in emphasis for the undergraduate and master's programs. Finally, \$120,000 should be added to the school's budget to support enhancement of the Ph.D. program as proposed in Recommendation #1.

Without the recommendations to close two colleges, the budget recommendations for the School of Nursing would have been the same.

SCHOOL OF PUBLIC HEALTH

I. OVERVIEW

The School of Public Health is a professional and graduate institution concerned with health promotion and disease prevention in populations. Four graduate degrees are offered: the professional M.P.H. and M.H.A., as well as the M.S. and Ph.D.

Considerable focusing and internal reallocation has occurred in this school since 1981-82, when the program for nurse practitioners was eliminated and some nonregular faculty were terminated. In 1985-86, a complete reorganization of the college uncoupled graduate student majors

from faculty units. The faculty assigned to 14 programs were reorganized into six units and a core curriculum was established for all students. These shifts involved almost \$1.1 million of internal reallocations and one third of the school's faculty.

The latest refocusing eliminated a program in dental public health and aimed at improving the research capacity of the school. New units place weaker programs and less experienced researchers into strong research environments. Areas of duplication have been eliminated and faculty with common intellectual interests combined into units of critical mass to attract research funding.

Public Health has a strong interest in working with other units of the University. Achieving preeminence on any health issue of public significance will require multidisciplinary and cross-college collaboration. By building on existing strengths in the college and collaborating with other University scholars, Public Health plans to focus on four new areas: health promotion and disease prevention; health care delivery; hazardous chemicals and health; and aging.

II. CONCLUSIONS AND RECOMMENDATIONS

The reorganization of this school into six divisions has focused resources, but further rationalization of the graduate program is needed. Specifically, the separate Organized Teaching Unit for Public Health Nursing raises questions. No nursing knowledge per se is taught in public health nursing, and its focus on administration and occupational health could be fulfilled in other majors.

1. RECOMMENDATION: Eliminate the Organized Teaching Unit and the graduate major in public health nursing.

Despite the recent retirement of two key biometry faculty, prospects for this program appear good with the hiring of a promising new chair. The department of statistics should continue to be involved in recruiting and evaluating new hires. Biostatistics does seem unique and of central importance to Public Health; it should retain its separate status from statistics.

2. RECOMMENDATION: Any faculty hired in biostatistics in units other than biometry should be hired as joint appointments with biometry.

Public Health's interest in the training of doctors in disease prevention requires an equivalent commitment from the Medical School.

3. RECOMMENDATION: Any appointments made for the purpose of training doctors in disease prevention should be joint appointments with the Medical School.

4. RECOMMENDATION: Reduce budget of school by \$300,000 as the Organized Teaching Unit and graduate major in public health nursing is eliminated.

However, the school should receive \$300,000 in reallocated funds to support its plans for program improvements.

Without the recommendations to close two colleges, the budget recommendations for the School of Public Health would have been the same.

OTHER UNITS

CARLSON SCHOOL OF MANAGEMENT

I. OVERVIEW

The Carlson School of Management (CSOM) is a two-year, upper-division college that awards a variety of undergraduate and graduate degrees through both day school and extension. It also provides a number of "external programs" designed for inservice and other forms of special training. The CSOM's "primary mission is to understand and improve the process of management." In addition to seeking "a national and international reputation through the preparation and placement of its graduates and the dissemination of its research," the school "recognizes a special relationship with and responsibility to the region's business firms, labor unions, governmental units and not-for-profit agencies in furthering improved management study and practice."

The CSOM's 104 FTE faculty are organized into six departments: accounting, finance and insurance, industrial relations, management sciences, marketing, and strategic management and organization. The school also houses seven research and service centers. The CSOM offers two programs of study leading to the bachelor of science in business: the "regular" and the accounting programs. In conjunction with the Graduate School, CSOM offers the master of business administration, master of business taxation, and doctor of philosophy. The Department of Industrial Relations, also in conjunction with the Graduate School, offers the master of arts and doctor of philosophy in industrial relations. The School also administers a variety of external, nondegree programs for business practitioners.

The CSOM's printed budget for FY86 was \$7.5 million, an increase over FY80 of 26 percent in dollars of constant purchasing power. Total expenditures in FY86 stood at \$16.3 million, up 81 percent from FY80 in constant dollars. The largest proportion of these increases is accounted for by growth in tuition, endowment, and other private contributions. Student enrollment for FY86 was 2,916 full-year equivalent (FYE), an increase of 31 percent over FY80. Student credit hours were up 29% over the same period. In FY86, the Carlson School awarded 642 bachelor's degrees (a decrease of 14% from six years before) and 496 graduate degrees (up 146% from FY80). The CSOM's student/faculty ratio is 30.4. Expenditures per FYE student are lower than for any other Twin Cities unit except CLA.

II. OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

The CSOM has experienced dramatic changes during the past decade. It has come under new administrative leadership, launched a vigorous system of budget and program planning, revised its undergraduate and graduate degree requirements and curricula, strengthened faculty recruitment, reduced undergraduate enrollment by about 25 percent, enhanced the faculty's research activities, and mounted a substantial fund-raising campaign. Its faculty, teaching, and research programs are well integrated. Special scholarly strength is to be found in the industrial relations program, the accounting program, and the management information systems group. Well-defined program priorities appear to guide budgetary decisions. An overarching issue, common to several professional schools, is how to ensure proper articulation between the CSOM faculty, students, and curriculum and other segments of the University. Several of the following recommendations touch on that issue.

1. **RECOMMENDATION:** The CSOM faculty should strengthen their scholarly ties with faculties in the social sciences and other professional schools. Descriptions of the CSOM curricula and research center activities suggest that those ties are not as extensive as they should be. Greater advantage should be taken by CSOM faculty and students of the school's location in the midst of a comprehensive research university. Selective joint faculty appointments with departments outside the CSOM should be explored.

2. **RECOMMENDATION:** The CSOM should develop the international dimensions of its undergraduate and MBA curricula, and of the faculty's research agendas. This may be one important area where CSOM faculty and students can draw on other resources of the University.

While undergraduate "service" teaching places a heavy demand on the school's resources, that demand, subject to certain limitations, must be met, especially as management offerings in other colleges are eliminated.

3. **RECOMMENDATION:** The CSOM should honor the demand for CSOM courses required for completion of University-approved undergraduate majors in other colleges, with no admission restrictions beyond (a) enrollment in the appropriate major, and (b) specific course prerequisites established by the faculty. Management courses in other colleges should be phased out. The resources thus freed up should be transferred to the CSOM.

4. **RECOMMENDATION:** Additional "service" access to CSOM courses should be maintained, but might properly be limited by appropriate prerequisite and GPA requirements.

5. **RECOMMENDATION:** CSOM should develop more explicit strategies for deploying and reallocating resources among its six departments. Such programmatic priorities may exist, but they are not discussed in the school's planning documents.

6. **RECOMMENDATION:** Because the administrative costs of the school appear excessive, the administrative section of the budget should be reduced by \$200,000. However, the school should receive \$200,000 in reallocated funds to support its undergraduate instructional commitments.

Without the recommendations to close two colleges, the budget recommendations for the Carlson School of Management would have been the same.

COLLEGE OF BIOLOGICAL SCIENCES

I. OVERVIEW

The College of Biological Sciences (CBS) was established in 1966 by amalgamation of departments from the colleges of Agriculture and of Sciences, Letters, and Arts, to provide a focus for fundamental biology at the University. The Department of Biochemistry in the new CBS was formerly the Department of Agricultural Biochemistry, a unit of international prominence in cereal chemistry. Population genetics also moved from Agriculture, while botany and zoology moved from the College of Sciences, Letters, and Arts. In the early 1970s the Department of Genetics and Cell Biology (GCB) was established, primarily due to a national NSF initiative for development of biophysics. Some members of the Department of Zoology who were interested in cell biology moved into GCB to provide the focus required by NSF in biophysics. The remaining members of the Department of Zoology then formed the Department of Ecology and Behavioral Biology.

Although the majority of the faculty in the college are housed on the St. Paul campus, the Department of Ecology and Behavioral Biology, the Bell Museum, and the Dight Laboratories (administered through GCB) still occupy space on the Minneapolis campus. The Gray Freshwater Biology Institute, the Itasca Biology Program, and the Cedar Creek Natural History Area are located many miles from the St. Paul campus. With the exception of the space on the Minneapolis campus, the facilities of CBS are excellent and comprise some of the most contemporary laboratories for biological research in the University.

The missions of the College of Biological Sciences are: (1) to afford students seeking a liberal education an opportunity to develop an understanding of living systems and the place of humans in the biosphere; (2) to provide basic instruction in biology for all units of the University; (3) to provide undergraduate preprofessional training in the biological sciences; and (4) to develop excellence in graduate training and research in biology. Although CBS is an upper division college, it has a strong commitment to the quality of lower division courses. The college carries out its undergraduate teaching very well under difficult circumstances.

CBS is presently organized into four academic departments-- biochemistry, botany, ecology and behavioral biology, and genetics and cell biology--and nine affiliated programs, centers and service units. Of the \$16.8 million total expenditures for FY86, 50% was derived from state support, with the remainder coming from federal and other sources.

The budget for the academic year 1986-1987 shows a faculty head count of 74, 13 of whom are twelve-month appointments. Thirteen are on tenure track; the rest are tenured. There are 5 open faculty lines. The budget shows 28 support staff on line item and an indeterminate number of support staff on miscellaneous state budgets.

II. OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

Available data indicate that, as a whole, members of CBS publish at a low but consistent rate. Biochemistry and GFWBI publication rates are similar to those in the Medical School departments. CBS faculty publish much of their research in the premier journals in their respective fields. The Department of Ecology and Behavioral Biology is a department of high quality; two of its members are regents' professors and three are members of the National Academy of Sciences. Botany's low productivity and low outside funding are cause for concern, although the quality of recently added faculty suggests that the department is on the way toward rejuvenation.

The college appears to have too few postdoctoral fellows, although exact numbers are not available. Graduate student numbers, on the other hand, are reasonable at an average of 2 to 3 per faculty member. Between 1985 and 1986 CBS increased its outside funding by 19 percent, more than twice the increment in comparable programs on the campus. Of concern is the fact that only 52 percent of the faculty were supported by outside funds in 1984-1985, compared to 68 percent in the Medical School and 75 percent in IT.

Overall, academic quality in the College of Biological Sciences appears to be uneven. Given the importance of the basic biological sciences in the University, substantial, carefully targeted strengthening needs to occur. CBS was formed to provide the focus for fundamental biology at the University and to provide leadership in research for all of the applied biological science units. With the exception of EBB, this has not occurred. Aside from the fact that its faculty provide a large amount of advanced service teaching, CBS does not have a broad service role as do the clinical departments in the medical school and veterinary medicine, or in extension in the Institute of Agriculture, Forestry, and Home Economics.

The uniqueness of CBS rests on the fact that it is the only unit within the University that deals with the totality of the biosphere. All other programs focus primarily (although not exclusively) on a limited range of species. The biological sciences at other universities also have this global capability, but Minnesota has built a reputation in areas of ecology and, recently, in simple systems models that have placed it in a leadership

position. Without a strengthened global focus on biology in the University, undergraduate and graduate education and research will suffer.

Undergraduate majors in CBS have declined from 535 in 1977 to 332 at present. Graduate student numbers have also declined in this same period from 246 to 200. Similar declines have occurred in biology enrollments across the nation and are reflected in declining applications to medical and dental schools as well. Whether or not this is a cyclical phenomenon is not known. However, there is little doubt that biology will be the principal intellectual challenge in science well into the 21st century.

The College has been "marking time" for several years while a dean's search has been in process. During this interval, decisions about program changes have largely been made at the departmental level. A number of issues regarding departmental restructuring and relationships with departments in other schools remain unresolved, primarily in biochemistry. Other areas in which programmatic changes may be necessary, however, are cell biology and genetics.

The issue of fusing the two departments of biochemistry (one in CBS, the other in the Medical School) into a single department located on the Minneapolis campus was addressed in the Strategy for Focus documents of each department. The major impediment for such a fusion, according to the CBS biochemistry departmental report, is lack of adequate facilities in Minneapolis. The problem of departmental consolidation has been addressed by a number of committees (e.g., Shapiro, Speaks) and each committee has shown diffidence in recommending fusion, primarily because of unknown effects on programs in St. Paul and lack of adequate physical facilities. The two departments have voted a number of times to join, but they also recognize the inadequate facilities on the Minneapolis campus.

The situation concerning cell biology is not significantly different from that of biochemistry. A major part of GCB is devoted to cell biology, and the science practiced resembles that found in the departments of Cell Biology and Neuroanatomy, of Laboratory Medicine and Pathology, of Microbiology, and of Physiology in the Medical School.

Genetics is a large and complex field that is poorly served by its dispersal on the Twin Cities campus.

1. RECOMMENDATION: Ecology and behavioral biology, a strong, productive department, requires central attention, especially in terms of faculty renewal over the next few years in order to maintain its position of excellence. Faculty renewal needs to be carefully handled to maintain that excellence. At least two additional tenure-track positions should be assigned to the department, in anticipation of future retirements, to assure departmental vitality.

2. RECOMMENDATION: The college, along with the College of Agriculture, Medical School, and other units having basic biology missions, should participate in the restructuring of biology across the University. A plan

for such restructuring is described above in the section on collegiate organization.

3. **RECOMMENDATION:** Given the centrality of the biological sciences in the University and their increasing importance to society, the college should receive \$3 million in reallocated funds. Those funds should be carefully targeted in keeping with a general plan to strengthen the basic biological sciences across the university, a plan in which the College of Biological Sciences must play a central role. Particular attention should be paid to improving the college infrastructure, particularly with respect to civil service and teaching assistant positions in support of the General Biology Program and other laboratory courses.

Without the recommendations to close two colleges, the budget reallocation into CBS would have been on the order of \$2 million.

COLLEGE OF EDUCATION

I. OVERVIEW

The College of Education has been severely retrenched since 1971 and its programs sharply revised, reduced, discontinued, moved, or merged. Departments have declined in number from 22 to 6. Three departments focus on teacher preparation (curriculum and instruction, physical education and recreation, and vocational and technical education), two on psychology, testing, and cognitive development (educational psychology and the Institute of Child Development), the sixth (Educational Policy and Administration) on training educational administrators for leadership roles and educational policy analysis. A seventh program, Music Education, is jointly administered by the School of Music and the College of Education and is budgeted in the College of Education.

During FY86, the College's printed budget was \$10,930,360; its ranked FTE faculty numbered 152; and it awarded 484 bachelors and 429 graduate and professional degrees. The cost of instruction per full-year equivalent (FYE) student was \$5,338.

II. OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

Since other schools in Minnesota train teachers in large numbers, the College of Education aims at evolving model teacher education programs rather than at being the principal supplier of teachers to the state. In accordance with this role and in tune with nationwide trends, the college's teacher preparation units are now beginning a "massive" conversion to a 4+1 (or in some cases 3+2) training system. The chief result is expected to be stronger grounding in the teacher's discipline. This conversion will probably take five to six years and will involve substantial redirecting of

faculty energies, close monitoring, cooperation with subject disciplines, careful attention to new appointments, and continuing consultation with school districts.

The quality of some departments (Institute of Child Development and educational psychology) is high, according to available rating data. Others are mixed, and there is strong concern about program quality in educational administration. The cost per FYE of the Department of Educational Policy and Administration is high within the college: \$6,795, vs. a range of \$3,700 to \$5,100 for other departments.

By focusing on the training of teachers in model programs, the college plays a central role in state education and achieves a comparative advantage over other institutions. The same is true in a different way for the research mission of the programs in child development and in educational psychology. The first of these is small and focused, the second large and many-faceted, but the demand for both is strong, as it is for the teacher training programs in the major academic subjects. The streamlining of the last decade and a half appears to have made the college more efficient and effective.

The College proposes internal allocations over the next five years to support (1) new appointments, not necessarily in the retiree's department; (2) two new centers (for applied research and educational improvement, and for the study of educational technology); and (3) additional TA and RA support to improve the quality of graduate students. In addition, the College is asking for about \$1 million for the repair and improvement of college facilities.

As the college moves to a 4+1 structure in its teacher preparation programs, it can be expected to shrink further in size. As this happens, it needs to reallocate funds available from retirements to take advantage of new opportunities for focus.

1. RECOMMENDATION: The College should be permitted to mortgage two or three future retirements for one strong research appointment in areas where the need is strong and central.

The program in educational administration has long been of questionable quality. In the last two years it has begun to address some of its serious problems.

2. RECOMMENDATION: The educational administration program's progress should be carefully monitored by the Graduate School, with particular attention to its admission standards, the faculty's research vitality, the curricular coherence of students' programs, and the topics and quality of dissertation theses. No new students should be admitted for study until the Graduate School has approved a proposal recently submitted by the program's faculty. After provisional approval is given, the Graduate School should consider discontinuing the program if no substantial improvement occurs.

The programs in vocational and technical education and in recreation, park, and leisure studies are less central to the new mission of the college and less obviously connected with the strengthened research mission of the University, and can be effectively provided by the state university system or, in the case of agricultural education, incorporated as a 4+1 year program with discipline-based study in the College of Agriculture and general pedagogy courses offered in other units of the College of Education.

3. **RECOMMENDATION:** Programs in vocational and technical education and in recreation, park, and leisure studies should be closed.

4. **RECOMMENDATION:** The curricular and thesis requirements of the Ed.D. degree should be carefully defined and clearly distinguished from Ph.D. program and thesis requirements.

5. **RECOMMENDATION:** The English as a second language program in CLA should be transferred to the second languages and cultures education unit of the Department of Curriculum and Instruction in the College of Education.

Part-time and interrupted graduate study is bound to tell on the quality of programs.

6. **RECOMMENDATION:** TA and RA appointments should be used more effectively to enable graduate students to pursue their degree work full-time and more consistently over time.

7. **RECOMMENDATION:** The master of education degree should be administered by the Graduate School.

Section F of the undergraduate education section includes a recommendation to establish a center for research on undergraduate education in the College of Education.

8. **RECOMMENDATION:** An amount of \$1,217,000, made available by elimination of the programs in vocational and technical education and in recreation, park, and leisure studies, should be transferred out of the College of Education's budget. \$142,000 should be transferred to the COE's budget to effect a transfer of ESL from the College of Liberal Arts. In addition, the college should receive \$1,050,000 in reallocated funds: \$550,000 for initiatives in the cognitive sciences and \$500,000 to support research on undergraduate education and to develop further the program in educational policy.

Without the recommendations to close two colleges, the proposal for reallocated funds would have been \$550,000 rather than \$1,050,000.

COLLEGE OF LIBERAL ARTS

I. OVERVIEW

The mission of the college is "to inculcate students with an awareness and appreciation of critical inquiry and the pursuit of human values, while providing them with the knowledge and skills necessary to lead satisfying, creative, and productive lives." The liberal arts liberate -- from ignorance to knowledge and from confusion to a sense of order. They begin a process rather than complete a design, a process that leads to the formation of essential habits: the habit of acquiring knowledge to understand what would otherwise be baffling; and the habits of reasoning, of evaluating information, of distinguishing between the trivial and the significant, of pursuing a train of ideas, of perceiving differences and similarities, and of ordering heterogeneous materials.

The departments and graduate programs of the college are grouped into four categories: 22 budgeted units have full staffing for undergraduate and graduate programs; 7 units have limited budgetary positions, shared faculty, undergraduate and graduate instruction, and advising; 5 units have limited budgetary positions, shared faculty, primarily undergraduate instruction, and advising; and 6 units have no budgeted positions or faculty. In addition, the college operates a dozen centers.

Full-year equivalent (FYE) enrollment, after a slight decline over the past three years, rebounded in 1986 to 95% of the 1977 enrollment; undergraduate enrollment in 1986 surpassed that of 1977. Over the same period, the college budget was reduced (in 1977 constant dollars) to approximately 83 percent of the 1977 budget. Further, for the period 1981-85, CLA was retrenched \$1,349,776, the largest retrenchment, in dollar terms, of any of the University's collegiate units.

The college's Budget Advisory Committee has completed an intensive review of all CLA departments by reference to quality, centrality, comparative advantage, demand, and efficiency and effectiveness. From that review, it is apparent that the greatest strengths lie in the social and behavioral science (SBS) units. Six departments were designated as "nationally distinguished"; all six were SBS units. Three departments were designated as "on the threshold of national distinction;" two of the three were SBS units. Fourteen departments were designated as "being positioned for distinction" (not national distinction); 7 of the them were SBS units.

The arts and humanities fared less well in the review, and that state of affairs is alarming. A university that is weak in the arts and humanities is a weak university. It may function as a technical institute, and its achievements in the professional schools may be excellent, even outstanding. But it cannot achieve an enviable reputation as one of the major universities in the country. To become first-rate, a university's humanities and arts departments must have a strong faculty devoted to research as well as teaching; those departments must have facilities (and a

geographical location on the campus) that encourage rather than inhibit research and collaboration between departments; and they must take the lead in providing undergraduates with the coherent training in basic humanities that a first-rate university owes to all its students, even those whose strong vocational interests might lead them to bypass the humanities. None of these conditions obtains at present for the vast majority of humanities and arts departments and programs, and the University has undertaken no major initiatives for addressing any of these problems. Without such major initiatives, without a powerful commitment to the project of restoring the quality and the institutional integrity of the arts and humanities, the University of Minnesota will enter the 21st century seriously, even disgracefully deficient, in this important area.

The CLA Strategy for Focus document reflects a commitment to maintain and enhance its nationally distinguished units; it wants to "invest" in three others "to move them over the threshold of national distinction in the near future" (p. 9); and it aims to "position other units so that they can be moved over the threshold of national distinction in the future."

The CLA plan does not, however, make clear just what strategies the college will adopt to move the departments in that third group nearer to national distinction. Such strategies need to be developed. Present policies of recruitment, retention, emphasis on interdisciplinary research, faculty development, establishment of centers, and so on will probably not succeed in steering particular units toward that distinction we all hope for.

For most arts and humanities units that are "being positioned for distinction," the most pressing needs are for (1) stronger research (and sometimes stronger cohesion) on the part of the faculty; (2) higher quality graduate students; and (3) better working conditions. The first and third are necessary to attract the second; the second and third are important if we are to attract the best faculty to accept appointments at the University of Minnesota. Any plan to improve these units must address all three of these matters together.

It is not enough to add positions to those units: the intellectual and physical conditions of each department or program must be sufficiently improved so that faculty and students can carry on research and graduate education in an atmosphere of hope and intellectual excitement and so that the best candidates will be glad to accept appointments here. (As the college document says, improving units "need not always involve more faculty positions. In a number of cases, research support, equipment, or support staff may provide the impetus" [p. 9]). The arts and humanities are notoriously, even scandalously, underfunded at the University. In some cases more appointments are needed immediately to compensate for significant losses of faculty. But, although large increases for some departments may be advisable at some time in the future, the more immediate need is for the kind of strategic positioning proposed by the college but not spelled out in detail.

II. OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

The College of Liberal Arts suffers from giantism. The large number and considerable diversity of programs prevent optimal administration. The research methods and disciplinary scope of the arts and humanities are substantially different from those of the social and behavioral sciences, and collegial associations are not enhanced by combination in a single college. The Task Force envisions a future for literature, sciences, and arts that is much better than that afforded by the structure of the present College of Liberal Arts, and the proposed Academy of Literature, Sciences, and Arts lies at the very heart of that vision (see section on Collegiate Organization). The new Academy would be a confederation of four colleges: Humanities and Arts; Social and Behavioral Sciences; Biological Sciences; and the Institute of Technology. The first two would be formed from the present College of Liberal Arts.

1. RECOMMENDATION: CLA should be divided into two colleges -- the College of Humanities and Arts and the College of Social and Behavioral Sciences.

Many of the departments that would comprise the new College of Social and Behavioral Sciences are considered to be nationally distinguished. However, for them to maintain such distinction will require careful attention by the dean. Several, for example, appear to be severely understaffed in comparison with peer units in other major institutions. Most, if not all, are in dire need of greater "infrastructure," particularly in the form of supply, equipment, and expense (SE & E) funds. The attention given to them in reallocation plans signals a recognition of their fragile status, and without adequate attention they could well lose their high standing in the country and the world. The college proposes to address the particular needs of the SBS units in the form of (a) faculty positions in the social sciences (e.g., economics, political science, and international economy and polity); (b) faculty positions in the behavioral sciences (e.g., audiology, computational linguistics, neurosciences, and cognitive sciences); (c) automatic return of vacant faculty positions to nationally distinguished units for a five-year period; and (d) greater infusion of SE & E monies.

2. RECOMMENDATION: The Task Force strongly favors the plan for automatic return of positions to units designated as "nationally distinguished" for a five-year period. Further, immediate steps must be taken to authorize searches for departments in the new SBS (e.g., geography and political science) to bring the size of those faculties back to appropriate levels and to maintain prominence. Additional strengthening of the social and behavioral sciences, with budgetary implications, is addressed in Recommendation 15.

In recent years many writers and speakers have stressed the importance of the humanities and the arts to the economic well-being of our state, region, or country -- and of individual lives. If you can write well and think logically you improve your chances of finding an attractive job. Knowing another language enables you to do business with the countries where

it is spoken. Knowledge of history, literature, and the arts may let you enter the world of cultivated people without feeling uncomfortable, and that may lead to promotion, higher incomes, and financial success. The emphasis here is on the fairly immediate material consequences (for the individual and the nation) of competence in the basic humanities.

But in a contemporary university, these reasons for studying the humanities and the arts are far less important than the other basic reason: that education is not complete without an initiation into the methods that writers and thinkers have used in the past to formulate and appraise the common experience of human beings.

The basic humanities--history, philosophy, literature, and the creative arts--all help orient us to an extremely complex and elusive world by showing us the most compelling, elegant, and innovative earlier forms and arguments through which people have tried to express, symbolize, and discuss the human condition. For students today, the excitement of encountering these earlier efforts to understand ourselves is not just instrumental to a better job or a richer nation. It is an indispensable prerequisite to a more satisfying, more luminous life, a life lived at the center of awareness rather than stumbled through in the dark. It is as true today as when Plato attributed the saying to Socrates, that "the unexamined life is not worth living."

The College articulates plans for positioning humanities and arts departments for distinction or national distinction, but such positioning is a meaningless and futile project so long as their geographical dispersal is as senseless as it is at present. The half way measure of a move to a remodeled Fraser Hall is inadequate and should be abandoned.

3. RECOMMENDATION: Specific plans for a humanities building near if not adjacent to its main resource, Wilson Library, should be given top priority in University planning. Further strengthening of arts and humanities, with strong budgetary implications, is addressed in Recommendation 15.

In recent years the college has made several interdepartmental or interdisciplinary appointments. Although the motivation is perhaps laudatory, the reaction in many quarters of the college was one of grave disappointment. Collaborative efforts have unquestionable value, but it is not necessary that a significant proportion of scholarship be done by groups. Further, when searches end with a dispersal of talent among several departments, the University has lost the opportunity to truly focus resources so that one or even a few departments can move more rapidly toward a position of national distinction.

4. RECOMMENDATION: The college should approach with great caution the use of interdepartmental or interdisciplinary appointments to build bridges between departments.

Some units of the College appear to need new leadership, and in some instances failure of leadership has been a problem for many units in the

University, but it may be a particularly crucial problem for arts and humanities departments.

5. RECOMMENDATION: The college should reassess its collegewide practice of electing chairs. In selected departments the hiring of a head from the outside may be an effective way for the faculty to become more productive.

The college has a poor history of recruiting minority faculty and presents no guiding plan for the next five years. The Task Force finds this indefensible.

6. RECOMMENDATION: The college should develop a specific plan for the recruitment and retention of minority faculty and students.

There is general agreement that the college has too many small departments. Division of CLA into two colleges should not stop the merger of small departments where efficiency will be increased and scholarly collegiality enhanced.

7. RECOMMENDATION: Further mergers to reduce the number of departments should not await the end of this five-year planning period. Serious consideration should be given to the advantages of such mergers as German and Scandinavian Studies; French and Italian and Spanish and Portuguese; and Afro-American and African Studies, Chicano Studies, American Studies and American Indian Studies.

A review of data concerning the number of Ph.D.s awarded, number of applicants for graduate study, and percentage of applicants admitted supports the conclusion that there are too many small and undistinguished departmentally-based graduate programs.

8. RECOMMENDATION: The Graduate School should give immediate attention to these graduate programs and devise strategies for strengthening or termination.

The Department of Rhetoric, currently in the College of Agriculture, is recommended for redefinition (see COA section). The humanities faculty in rhetoric will be incorporated into appropriate disciplinary homes in the proposed Academy of Literature, Sciences, and Arts. The faculty in rhetoric who specialize in technical writing, possibly joined with appropriate faculty from the Department of Speech-Communication and the composition and communication program, will continue to be located on the St. Paul campus, in order to provide the curriculum they now offer there.

9. RECOMMENDATION: In conjunction with these structural changes, the Academy of Literature, Sciences, and Arts must recognize and develop a plan that will better serve the arts and letters needs of students and programs on the St. Paul campus. Increasing joint faculty efforts and offering course sections in St. Paul are strongly recommended.

The Task Force has recommended that the Humphrey Institute of Public

Affairs become a unit in the proposed College of Social and Behavioral Sciences. (See the Humphrey Institute discussion, below.)

10. RECOMMENDATION: The college administration should begin now to plan for an orderly transition of the Humanities Institute into the new SBS College.

There is no persuasive rationale for the division of courses in broadcasting between the departments of Speech-Communication and Journalism and Mass Communication; there appears from inspection of course descriptions and titles to be considerable redundancy.

11. RECOMMENDATION: Responsibility for all offerings in broadcasting should be assumed by Journalism and Mass Communication.

The program in English as a second language focuses on research and instruction in teaching English as a second language. The development of pedagogic tools for instruction is best undertaken by the College of Education.

12. RECOMMENDATION: The ESL program should be moved to the College of Education.

Despite the presence of some accomplished scholars, the Department of Linguistics continues to be of apparent low quality and in low demand.

13. RECOMMENDATION: The linguistics department should be closed and faculty should be distributed to other appropriate disciplinary homes.

The Department of South and Southwest Asian Studies attracts few students, and secures little outside funding. It further appears that the program has failed to build its stature and gain national recognition.

14. RECOMMENDATION: The Task Force supports the dean's proposal to dissolve the Department of South and Southwest Asian Studies.

15. RECOMMENDATION: The CLA budget should be reduced by \$800,000 as a result of the following actions: closing of the departments of Linguistics (\$334,000; Recommendation 13) and South and Southwest Asian Studies (\$225,000; Recommendation 14). \$100,000 should be retrenched from speech-communication as savings resulting from closure of the broadcasting program (Recommendation 11). \$142,000 should be transferred from CLA to the College of Education to implement transfer of the English as a second language program (Recommendation 12). The new College of Humanities and Arts (see Recommendations 1, 3) should receive \$4,000,000 in reallocated funds in an effort to restore the arts and humanities programs to a position of scholarly distinction, plus \$659,000 to fund the rhetoric department transferred from COA. The new College of Social and Behavioral Sciences should receive \$1,700,000 in reallocated funds to support recommendations that have budgetary implications (e.g., Recommendation 2) and to fund other initiatives proposed in the college's Strategy for Focus document that

relate specifically to the social and behavioral sciences, plus \$1,092,000 to fund the Humphrey Institute.

Without the recommendation to close two colleges, the proposal for reallocated funds would have been \$1,300,000 to the new College of Humanities and Arts rather than \$4,000,000 and \$700,000 to the new College of Social and Behavioral Sciences rather than \$1,700,000.

CONTINUING EDUCATION AND EXTENSION

I. OVERVIEW

The mission of Continuing Education and Extension (CEE) is to develop and deliver credit and noncredit courses, programs, and services that build upon the academic resources of the University and that respond to the continuing higher education needs of the people of Minnesota. CEE accomplishes this mission through three distinct components:

1. curricular, carried out by the departments of Extension Classes and Independent Study;
2. postcurricular and professional instruction; and
3. public education through informal learning, artistic and cultural experiences, and forums for the discussion of public affairs.

CEE is central to the outreach portion of the land-grant mission of the University. The unique resources of this campus, as well as the University's location in a major metropolitan area, give CEE a comparative advantage in serving its mission. CEE serves a large number of students, many older than the average day school student, facing more responsibilities and longer working hours. Even so, approximately 45 percent of the students in CEE credit classes have University of Minnesota baccalaureate degrees, and 25 percent of the students registered at any given time are also registered in day classes at the University.

CEE programs are demand-driven and are almost entirely self-supporting, although credit-based courses subsidize the non-credit offerings. Tuition rates equal to day-school rates are adequate to this task, but result in relatively low pay for instructors. The unit serves its mission both efficiently and effectively.

The Task Force has chosen to focus most of its attention on the curricular activities of the unit, and limits most of its review and recommendations to those aspects that are specific to the Twin Cities campus and the metropolitan area.

II. OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

The Task Force finds it difficult to assess the quality of the full breadth of the unit's endeavors. The CEE Strategy for Focus document asserts that it is a leader among its peers, citing awards and other non-quantitative measures to support this claim. However, there is no regular external peer review of CEE such as the program reviews conducted by the Graduate School or accreditation reviews.

1. RECOMMENDATION: Academic Affairs should establish and carry out a regularly scheduled external review process for CEE. The first such review should be carried out during the 1987-88 academic year.

Considerable attention was given to CEE in Commitment to Focus, where its operations were described as "a key component in the activities of any land-grant institution." Commitment to Focus noted that the outreach activities of the University should "be structured to draw on our particular strengths," and in particular should "increase our efforts to provide access to our specialized and unique programs, particularly at the graduate level. We should also ensure that all resources of the University be at the forefront in developing new organizational and technical mechanisms for delivering both informal instruction and formal degree programs to Minnesotans around the State."

More specifically, Commitment to Focus recommended that Continuing Education and Extension shift its offerings to reflect University curricular strengths rather than market circumstances. It was recommended that this be accomplished in part by moving to a budget-based instead of income-based funding so that CEE offerings could better reflect the University's distinctive role among the institutions of higher education in the state by shifting the emphasis away from lower division courses.

CEE prefers to retain the present emphasis on tuition- and fee-based support in order to preserve flexibility in responding to the programming interests identified by faculty members and professional and scholarly societies, and to retain the advantages of the "responsibility center" model. CEE also proposes greater emphasis on upper division and graduate programs, including increasing the number of baccalaureate and graduate degrees which can be obtained entirely through extension classes.

2. RECOMMENDATION: CEE's efforts to improve its credit-based curriculum should involve faculty closely in programmatic planning, approval, and quality assessment. Formal mechanisms for that purpose should be established. CEE should increase baccalaureate and other degree opportunities only in response to clearly identified demand, and in response to the demonstrated interest by the departments and colleges in serving that demand through high-quality programs. CEE enrollment patterns should be consistent with the goals and objectives of the regular degree programs as

developed in Commitment to Focus, Strategy for Focus, and the additional recommendations listed below.

The Task Force is concerned that the students' educational experience in graduate courses required for the major and taken in CEE may not be of quality comparable to the alternative day courses. Possible reasons for lower quality in some cases include instructors who are not part of the regular faculty and may thus be either inexperienced or unavailable for office hours; because there is no formal review for admission, there might be a lower fraction of students enrolled who are well qualified and able to sustain discussion at a level comparable to the same course in the day school. Permitting graduate credit only for CEE courses taught by full members of the graduate faculty would help to remove both reasons for concern.

3. RECOMMENDATION: Maintain the existing 40 percent limit on transfer of CEE credits to Graduate School degree programs, and institute a requirement that only those courses taught by full members of the graduate faculty are eligible for transfer to graduate credit unless the student is already enrolled in the Graduate School. Establish a similar limitation for undergraduate degree programs. Specifically, 20 percent of the required courses in the major department should be taken during day or joint day/evening classes. Further, all degrees should require that 32 credits be taken in the major department during the last two years of registration.

We note with some concern that CEE enrollment is not included in the enrollment accounting associated with Commitment to Focus and mandated by the Legislature. This is troublesome because it opens the possibility that CEE will balloon in size as Commitment to Focus enrollment guidelines come into effect. This is already the case in some departments, where enrollment is capped in day school, but identical courses are offered in Extension, often by the same faculty. By taking on such overload obligations, the faculty member may be limiting his or her scholarly vitality, thus reducing the overall quality of the scholarly mission of the University. It is particularly troublesome when probationary faculty agree to these arrangements.

4. RECOMMENDATION: The University should include the credit-based instruction in Commitment to Focus base counts as well as in Commitment to Focus enrollment objectives in the future. Though nighttime instruction should be sustained in order to meet the needs of students who would otherwise be disadvantaged, CEE should not be an uncounted access point to stretch the capacity of departments. In particular, care should be taken that enrollment decreases in day school not show up as enrollment increases in CEE.

We also note with considerable concern that 3,201 regular faculty members were involved in teaching CEE courses in 1985-86, including 504 assistant professors; only a very small fraction of this faculty effort involved inloaded or noncredit courses. While these numbers include some duplications, this is too large an involvement in overload activities, especially by probationary faculty.

We recognize that faculty members choose to teach in extension on an overload basis for a variety of reasons, some of them entirely consistent with the mission of the University and their own scholarly goals. We are also aware that a number of faculty are substantially underpaid, and use overload teaching to ameliorate that situation. We point out, however, that in many cases the negative impact of this overload on research and other scholarship may in the long run result in lower merit salary increases, calling into question the wisdom of the overload strategy. (See Recommendations 9 and 10 under Faculty Selection and Development.)

5. **RECOMMENDATION:** CEE should work to minimize duplication between its courses and those offered by other institutions in the metropolitan area. CEE should also be prepared to offer courses in other areas of the state when University resources can make distinctive contributions.

6. **RECOMMENDATION:** CEE should give special emphasis to projects that can exploit new technologies (such as new computer, teleconferencing, and media transmission technologies) to allow others to benefit from the University's unique strengths through courses, workshops, cultural productions, public affairs information, and other activities made available to a wide audience. The emphasis should be on program content rather than technical development, and on programming that cannot be carried out in other higher education systems.

7. **RECOMMENDATION:** The CEE recommendation to eliminate the Department of Community Service should be approved, but care taken to assure that valued programs coordinated by that department are transferred to another unit in the state which can continue the most essential services presently provided by the University.

8. **RECOMMENDATION:** All prebaccalaureate certificate programs should be eliminated.

9. **RECOMMENDATION:** In view of the several public radio services in this area, KUOM should be eliminated.

10. **RECOMMENDATION:** CEE's proposals to continue to expand noncredit faculty-oriented programs through the Department of Professional Development and Conference Services, and expand the Office of Minority and Special Student Affairs Summer Institute, should be approved.

The concert program of the Department of Concerts and Lectures, now reporting directly to the provost, would fit appropriately into the outreach mission of CEE, while it received little managerial attention in its present administrative home.

11. **RECOMMENDATION:** The Department of Concerts and Lectures, together with its budget (after terminating the lecture support function and retrenching its budget) should be transferred to CEE.

CEE proposes to conduct a study concerning the fund-raising campaign to make the MacPhail Music Center financially self-sufficient. The center's mission is substantially different from that of the rest of the University, and there seems to be little articulation with other University programs (although there is some potential for increased interaction with the School of Music as it develops an increased emphasis on performance).

12. RECOMMENDATION: The MacPhail Music Center should become a self-supporting unit. The University should do whatever is feasible to assure that the program will be adequately provided for under new arrangements.

Faculty teaching in CEE and summer session have historically been paid at rates considerably below comparable day school levels.

13. RECOMMENDATION: Compensation for CEE and summer teaching should be increased to levels consistent with day school pay rates.

Finally, we note that many of our recommendations concerning CEE could be addressed by inloading all credit-based instruction. If this were to take place, there would need to be a commitment to sustain the evening course offerings at a level which serves the needs of clientele requiring evening scheduling. Such inloading would also require a substantial increase of funding by the Legislature and an accompanying increase in faculty salaries, which are now often subsidized by overload teaching in night classes.

14. RECOMMENDATION: All credit-based instruction in CEE should be inloaded after appropriate financial arrangements are secured.

15. RECOMMENDATION: The budget of CEE should be reduced by \$305,000 as KUOM is eliminated (Recommendation 10), and by \$381,000 as the University's financial support of the MacPhail Music Center is eliminated. The budget should then be increased by \$217,000 to effect the transfer of the Department of Concerts and Lectures to CEE. The net effect of these changes is a reduction by \$469,000.

Without the recommendations to close two colleges, the budget recommendations for CEE would have been the same.

GENERAL COLLEGE

I. OVERVIEW

A. ORGANIZATION AND FUNDING

The General College (GC) has 42 tenured faculty, 12 tenure-track faculty, 29 academic/professional personnel, 77 graduate assistants, and 152

undergraduate assistants. For 1986-87 total resources for the college were approximately \$5.16 million: 87 percent from 0100 funds, 13 percent from grants, contracts, and gifts. The college's planning document anticipates roughly a 40 percent reallocation of its budget by 1991, in support of new mission-driven priorities. In the 1985-87 biennium the College has already reallocated approximately \$300,000, about 7 percent of its budget, in accord with redefined mission objectives. Major sources of funding for reallocation come from unassigned instruction, retirement, reimbursements for the preparatory curriculum, and reallocations made possible by anticipated restrictions on enrollment and curricular offerings. Assumptions underlying the college's budget plans include an "ideal" core faculty of 50 regular members to serve a projected Commitment to Focus targeted student body of 1,550 students (30 to 1 student/faculty ratio) by 1992. No appreciable funding for reallocation from further retirements is anticipated before 1992, when several faculty members will reach age 65.

B. MISSION

The mission of General College has been subjected to repeated redefinition since 1979; so the college has perhaps had more experience with issues like those raised by Commitment to Focus than any other academic unit.

The GC mission statement approved January 9, 1987 by the Board of Regents, and the Strategy for Focus Plan, both acknowledge the loss of the former GC mission as the University's open-admission degree-granting college. Coupled with a mandated enrollment reduction from 2,800 to 1,550 by 1992, planning is now for a new college which will serve "a focused and differentiated role within the University, ...organized not around traditional disciplines but around the delivery of instruction in foundation skills and preparatory study." The student population targeted by the mission statement includes those from "a wide range of ethnic, social, and economic backgrounds who are serious about fulfilling their previously undeveloped or unrecognized academic promise" and who "can best benefit from their early integration into the total University community."

The Strategy for Focus plan emphasizes three interrelated functions of the new mission: (1) to teach underprepared students and prepare them for transfer to baccalaureate programs; (2) to conduct and publish research on the teaching and learning of postsecondary students; and (3) to provide training for undergraduate, graduate, and postgraduate students in postsecondary teaching and to provide the delivery of student services.

II. OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

The mission identified for General College under Commitment to Focus is to provide access to the University for students with special preparatory needs, and resources that will enhance their academic success. This mission has high priority in the University; the priority is raised even higher by the initiative under Commitment to Focus actively to decrease undergraduate

enrollment: Students with special preparatory needs could be especially vulnerable to proposed measures for restricting enrollment. The General College has had to redefine its mission in the context of the Commitment to Focus emphasis on the University's role as a major research institution. However, the present General College structure is not well suited to achieving its mission in such a context. This focus may not always be consistent with the strengths that the faculty members bring to the University. Furthermore, General College faculty members are cut off from their disciplinary base and from graduate education, and are invited under the new General College mission to focus their research on questions of pedagogy in which they may have little expertise. The College's students are separated from other students upon admission and stigmatized as unqualified for admission to other colleges. Here, the underlying principle of segregating students with special preparatory needs from the mainstream educational program is directly counter to the findings of contemporary educational research and from present educational policy in other parts of the educational system.

Therefore, for the benefit of both faculty and students in General College, we believe that the program should be "mainstreamed," reorganized as a preparatory program to serve the Academy of Literature, Sciences, and Arts. After a transition period, the outcome would be:

- Faculty now in General College would instead be located in the colleges of their disciplinary homes, mainly within the Academy of Literature, Sciences, and Arts.
- The colleges of the academy would staff preparatory courses just as they staff honors courses, overseen by the program director. This responsibility should draw from a wider selection of faculty than at present. Current General College faculty and staff would be well suited to advise other faculty members in the skills necessary for preparatory education.
- Students would be admitted to the preparatory program under the same criteria currently used by General College.
- The counseling and advising functions now provided by General College would be provided through the preparatory program.
- Reduced administrative costs from elimination of the General College structure would be redirected to improved recruitment, counseling and advising.

1. RECOMMENDATION: Transfer General College to the Academy of Literature, Sciences, and Arts to serve as a "mainstreamed" preparatory program.

2. RECOMMENDATION: Develop a plan for integrating the current faculty of General College into the departments of their disciplinary home.

The changes in faculty responsibilities that might ensue may call for a faculty development plan.

3. RECOMMENDATION: The \$3,696,000 budget of the General College should be transferred to the preparatory program of the new Academy of Literature, Sciences, and Arts to ensure that the functions of the General College will be preserved, indeed expanded and enhanced, under the new structure.

Without the recommendations to close two colleges, the budget recommendations for General College would have been the same.

THE GRADUATE SCHOOL

I. OVERVIEW

The primary responsibility of the Graduate School is quality control for graduate programs, graduate faculty, and graduate students. An important corollary responsibility is to stimulate and support research throughout the University. The school administers competitive fellowship programs and small grants for research, authorizes the curriculum and degree requirements for each graduate program, approves qualifications for individual graduate faculty members and individual applicants for admission, and monitors satisfactory completion of degree requirements.

II. OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

A. GRADUATE PROGRAMS AND GRADUATE FACULTY

There are a large number of graduate programs that have too few students and offer too few courses. The differentiation of graduate and undergraduate offerings is not clear. In such cases, there is reason to question whether such programs are fair to the graduate students who enroll in them. Some graduate programs appear to be exploitative -- maintained primarily to staff lower and upper division undergraduate courses. The problem of placing excessive responsibility on graduate students is not confined to the weaker departments. Even many departments with relatively strong graduate programs fail to make a clear distinction between the role of teaching assistant and lecturer.

1. RECOMMENDATION: Over the next three years the Graduate School should review the graduate programs with a view toward the elimination or reform (e.g., by merger) of graduate programs that are too weak to attract quality graduate students or provide effective graduate education for the students who enroll in them.

2. **RECOMMENDATION:** There should be a more careful distinction between the responsibility of teaching assistant and lecturer. This distinction should be recognized with a higher stipend level for lecturer than for teaching assistant.

A number of programs, particularly in chemistry and biochemistry, have developed internal minor programs. This process seems to be counter to a broad basis for the Ph.D. and thus must be viewed with some concern.

3. **RECOMMENDATION:** The Graduate School should conduct a review to determine whether internal minors are consistent with quality in graduate education. If the review determines that they are not, internal minors should be eliminated.

Graduate faculty members, once appointed, are never removed, even though diminution in their research may make them inappropriate advisors for graduate student research. See the Faculty Selection and Development section of this report for a recommended major revision of the University's present practice.

B. GRADUATE REPUTATION, ADMINISTRATIVE REVIEWS, AND PROGRAM RATINGS

It appears that graduate education across broad areas of basic and applied knowledge has become less attractive to U.S. students than in the past. The percentage of minority students of U.S. origin pursuing graduate degrees has declined over the past decade. In many departments, over half of graduate enrollment is accounted for by students of foreign origin. The presence of foreign graduate students contributes to the enrichment of our graduate programs and to the vitality of our research. At the same time, it would be disturbing if it were found that the trends referred to above were based on decline in the academic rewards to scholarly and scientific activity or decline in the ability or interest of American undergraduates in pursuing scholarly or scientific activity.

Our understanding of these trends remains both uncertain and intuitive. To the extent that economic factors are involved, they could be based on either inadequate stipend levels for graduate teaching and research assistantships and fellowships, or a perception that the financial rewards for pursuing a career of research or scholarship has declined relative to other opportunities. Yet there are a number of steps that could influence the observed trends. This includes making graduate fellowship and assistantship stipends financially attractive, clarifying and reforming the role of teaching assistants, and providing greater recognition to the accomplishments of younger scholars. Many of these actions have been proposed in the Graduate School document. It may also be useful to consider if there are educational reasons to determine the appropriate mix of students from the United States, other developed countries, and less developed countries in graduate programs. The issue of monitoring and incentives for rapid degree completion also deserves more careful attention by the Graduate School.

The Graduate School is, very appropriately, devoting substantial attention to program reviews at the departmental level and will be instituting program reviews across closely related disciplines. A major deficiency in the process is the absence of a managerial review process. Many of the program deficiencies that have been discussed appear to represent managerial deficiencies. Issues to be considered include the length of term of department chairs and heads, the recruitment of new faculty, the use of support staff and services, the management of graduate and undergraduate programs, and others. Many of these deficiencies will not be remedied by increases in the resources available to departments. And they are often not adequately addressed by program review teams.

A number of major and highly regarded programs at the University of Minnesota are not included in national rating systems. These are typically programs that are more characteristic of major public universities than of private universities.

4. **RECOMMENDATION:** The Graduate School must follow through with its proposals to make graduate fellowships and assistantships financially attractive, to clarify the role of teaching assistants, and to reward younger scholars.

5. **RECOMMENDATION:** The Graduate School should vigorously seek funding for programs to move more graduate students to full-time status by:

- requiring all units to pay graduate assistants for their actual workload;
- providing health care on a prorated basis for 25 percent to 50 percent graduate assistant appointments in the same way that tuition fellowships are currently handled;
- providing convenient and affordable child care on campus; and
- extending the tuition fellowship program to include all fellowships paid by all units of the University.

6. **RECOMMENDATION:** The Graduate School should be concerned with the managerial aspects of its programs and should review these at least as frequently as review of the scholarly content of the programs. The size and duration of the review process should be tailored to the size or complexity of the academic unit(s) being reviewed. The Graduate School should be involved in assuring that both program and managerial deficiencies identified in the review are resolved.

7. **RECOMMENDATION:** The Graduate School should, in cooperation with graduate deans of other major public universities, seek to develop a mechanism that would provide national rankings for departments or fields that are not presently ranked.

C. ORGANIZATION OF THE GRADUATE SCHOOL

Should the Graduate School be the permanent home of academic units such as the Hormel Institute and the Sea Grant College, or should the objective be, once they are operational, to spin them off to other units? The same question applies to a number of the programs described in Part C of the section on research and scholarship.

8. RECOMMENDATION: The Hormel Institute should report to the new all-University Department of Biochemistry rather than the Graduate School, to optimize its relationships with the University.

What role should the Graduate School play in bringing together University programs in areas such as water research, etc.? With the new push in the Graduate School to support interdisciplinary programs as independent administrative units, tensions have developed with existing departments. Should this continue? Should interdisciplinary programs be made into departments?

9. RECOMMENDATION: It is important that the Graduate School act to foster interdepartmental as well as interdisciplinary programs without necessarily creating new departments. The Graduate School should monitor these programs, however, and recommend formation of a department with an appropriate collegiate home when it is appropriate.

Is the structure of Policy Council and Review Council optimal for assuring that quality is maintained? Is this the best mechanism for governance in the school, or should some new form of governance be set up?

10. RECOMMENDATION: Structure of the Policy Council and Review Council should be reviewed periodically to assure that the Councils are functioning efficiently. A new Council of Basic Biological Sciences should be established.

D. GRADUATE EDUCATION

The Graduate School needs to recognize and support graduate education in addition to graduate student research. The lack of budgets for graduate teaching exemplifies the problem. Less attention is paid to teaching laboratories in graduate programs than in undergraduate programs, although there may be greater need in the former.

11. RECOMMENDATION: The Graduate School should, through the central administration, establish a fund to support graduate education. These funds would be earmarked for the development of graduate courses with priority given to laboratory-oriented courses.

Grading in graduate courses is not as discriminating as it could be; grade inflation does not allow programs clearly to differentiate excellent students from those on the borderline. The practice of including S/N grades in the major program for the degree contributes to the problem.

12. **RECOMMENDATION:** A new class of courses should be established that clearly differentiate graduate from undergraduate offerings. Thus, instead of 5000-level courses serving as the interface between the two programs, courses should be developed, with 6000 and 7000 designators, that would be primarily lower-level graduate courses. This would allow the 5000-level courses to be primarily upper-level undergraduate courses.

13. **RECOMMENDATION:** Grading should become more discriminating in graduate courses, with the "C" grade considered to be a passing grade.

14. **RECOMMENDATION:** Optional S/N grades should not be allowed in the major program. However, a department may decide that a given course is to be graded S/N for all who registered.

Marginal students may register through Continuing Education and Extension (CEE) to obtain graduate credit when they have been denied entry through the normal process. They then use CEE credits as the basis for admission into the program in the future. Quality of the offerings in CEE appears to be lower, on the average, than in regular programs.

15. **RECOMMENDATION:** Students should not be able to use CEE credits for graduate courses unless they already are enrolled in the Graduate School, or unless the instructor in CEE courses is a full member of the graduate faculty. Programs should be willing to offer regular graduate courses in the late afternoon and evening.

Basic science departments and degree programs exist because of their disciplinary status, whereas clinical departments in professional schools and colleges reflect a commitment to service.

16. **RECOMMENDATION:** The Graduate School should discontinue Ph.D. programs in clinical departments of professional schools and colleges when the principal focus is on clinical application or clinical applicability of knowledge rather than on the structure of knowledge. Ph.D. programs might be approved for departments in professional schools or colleges if the unit can demonstrate that structure of knowledge in addition to clinical application or clinical applicability of knowledge is the principal focus.

17. **RECOMMENDATION:** There should be established a revolving fund to support postdoctoral appointments, each for a limited period of time, in disciplines where such appointments are appropriate. This will allow a period of grace (one year) during which proposals can be made to external sources for longer term support.

18. **RECOMMENDATION:** There should be resources available to aid the formation of inter- and multidisciplinary programs and provide support for a

limited period or until external resources are secured. (See Faculty Development.)

19. **RECOMMENDATION:** The Graduate School should receive \$1 million in reallocated funds: \$250,000 to support a revolving fund for postdoctoral appointments (Recommendation 17), \$250,000 to aid in formation of inter- and multidisciplinary programs and centers, and \$500,000 to support other initiatives proposed in the Graduate School's Strategy for Focus document.

Without the recommendations to close two colleges, the proposal for reallocated funds would have been \$500,000 rather than \$1 million.

HUBERT H. HUMPHREY INSTITUTE OF PUBLIC AFFAIRS

I. OVERVIEW

The Humphrey Institute moved to a new \$18 million building this year. Created in 1936 as a public administration center, renamed the School of Public Affairs in 1968, and again renamed in 1977 for Senator Humphrey, it has a unique mission and high political visibility; their advisory committee includes many distinguished public figures.

The Humphrey Institute has 17 faculty, 14 senior fellows, 35 adjunct faculty, and 3 visiting faculty. They offer 2 master's programs; planning (21 students) and public affairs (135 students).

Graduate programs, interdisciplinary research, nonformal reflective leadership education, and community outreach are key activities. While there are no national rankings for schools of public affairs, a rough estimate is tenth of twenty schools.

The institute is central to the University as a catalyst for public affairs research and scholarship about governance. The combination of tenure track faculty and senior fellows provides a core faculty within the institute.

The service programs have too great a demand for the human and monetary resources available. In 1986-87, they involved more than 28,000 people through the Carlson Lecture Series, seminars, conferences, and workshops -- almost three events a week with about half being co-sponsored by other University units. Tenure track faculty need to balance service functions with increased scholarly productivity.

II. OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

The Humphrey Institute's small size, excessive cost of administration and need to interact more closely with disciplines in other professional

units suggest that the institute should not continue as a free standing unit.

1. RECOMMENDATION: The institute should move under the administrative umbrella of the College of Social and Behavioral Sciences.

While the Humphrey Institute has built a reputation in nonformal education for reflective leadership and public service and outreach, there is recognition within and outside the Humphrey Institute that faculty research productivity must be improved.

2. RECOMMENDATION: The scholarly productivity of the faculty needs to be substantially increased.

The combination of tenure track faculty and senior fellows provides a substantial core faculty for the institute. The Humphrey Institute can provide strong leadership and program continuity while being responsive to the rapidly changing issues in public affairs. For the system to operate optimally, clear roles of tenure track faculty and senior fellows must be articulated and procedures for quality control established.

3. RECOMMENDATION: Senior fellows should be selected through a University search committee which includes scholars external to the core faculty; time-limited contracts and a formal review process by faculty and administration resulting in termination or reappointment should be established.

Fiscal management practices of the Humphrey Institute has been questionable. The sizeable debt developed during the past few years must be paid and expenses brought in line with income.

4. RECOMMENDATION: Strategies for reducing instructional costs should be implemented.

Graduate programs and scholarship would be strengthened by utilizing more disciplinary expertise in political science, economics, sociology and the establishment of direct connections with professional units where public policy is an important concern (i.e., education, agriculture, home economics, forestry, public health).

5. RECOMMENDATION: Establish adjunct appointments for policy-focused faculty from other departments.

Central to the institute are the two master's programs. The master's in public affairs is in strong demand and although the master of planning degree has few applicants, accreditation (AICP/ACSP) should increase enrollment. Resources should be focused on maximizing the quality of these graduate degrees, rather than instituting new ones. There seems at present an insufficient basis for creating a doctoral program as the institute's policy document supports.

6. RECOMMENDATION: A doctoral program should not be established.

7. **RECOMMENDATION:** The institute's administrative budget should be reduced by \$150,000 to reflect reduced administrative costs occasioned by the move to the new College of Social and Behavioral Sciences.

Without the recommendations to close two colleges, the budget recommendations for the institute would have been the same.

INSTITUTE OF TECHNOLOGY

I. OVERVIEW

The Institute of Technology (IT) has a three-fold mission: (1) education from the precollegiate to postdoctoral levels; (2) basic and applied research; and (3) technology transfer. Thus, the mission is to meet those challenges, responsibilities, and obligations through a balanced structure of undergraduate education, graduate education and scholarly research, and outreach activities. A major premise of the Strategy for Focus document, however, is that IT is an unbalanced unit and that their central task for the next five years is to redress this imbalance.

The institute comprises five components with 12 schools and departments:

Engineering:

1. Aerospace Engineering and Mechanics
2. Chemical Engineering and Materials Science
3. Civil and Mineral Engineering
4. Electrical Engineering
5. Mechanical Engineering

Science:

1. Chemistry
2. Earth Sciences
3. Physics
4. Astronomy

Computer Science

Mathematics

Architecture and Landscape Architecture

The institute is Minnesota's principal resource for education and research in engineering, the physical sciences, computer science, mathematics, and architecture.

II. OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

The institute has developed an excellent facilities plan that, when implemented, will enable it more fully to accomplish its missions.

1. **RECOMMENDATION:** The IT facilities plan should be implemented as quickly as possible.

The five components (engineering, physical sciences, mathematics, computer science, and architecture) are consistently located among the top 20 to 25 peer institutions. Furthermore, some of the 12 IT departments (especially chemical engineering and mechanical engineering) have achieved high national ranking. Although a tradition of scholarly excellence continues to exist in IT today, the planning document acknowledges that IT does not have the strength and vitality it had twenty years ago, especially in comparison to its peers. The principal reason for the decline in national distinction is presumably that peer institutions, public and private, have invested significant sums in development of quality. In a sense, it is not so much that Minnesota has declined in quality, but that others have moved past them through their budgetary commitments and Minnesota's budgetary constraints. Since 1971, the state allocation for direct instructional expenditures per full-year equivalent for the institute has generally decreased relative to other units of the University. The low point was reached in FY83 (minus 38 percent relative to FY71, compared to minus 8 percent for the total University) and is projected to be at minus 17 percent in FY88, compared with an increase of 12 percent for the total University. That underfunding pattern has occurred at the same time that the cost of educating students in science and engineering has increased dramatically. It appears that a doubling of funds for instructional equipment would still leave Minnesota last among Big Ten universities.

The history of budgetary allocations demonstrates that central administration and/or the state have not been responsive to (1) increased enrollment and continued demand for access or (2) the increasing cost of instrumentation and support of that instrumentation. The institute is unbalanced and, as a consequence, instructional quality is not satisfactory.

A. SCIENCE AND MATHEMATICS COMPONENTS

The basic physical science and mathematics components are central to the basic arts and sciences core of the University. Educationally they provide large lower division service courses for the entire Twin Cities campus while maintaining modest bachelor of science and bachelor of arts undergraduate degree programs; each of these departments has a strong graduate program that emphasizes the Ph.D. degree.

The growth in engineering and computer science enrollment has resulted in unacceptably large class sizes in the service courses taught by the mathematics and basic physical science departments, and has resulted in a serious need for more educational support in the form of teaching assistants, staff support, equipment, and supplies.

Each of the departments awards a relatively small number of B.A. or B.S. degrees: the range is from four in astronomy to 62 in mathematics. In contrast, the engineering departments award substantially larger numbers of

professional bachelor's degrees: the range is from 77 in aerospace engineering to 241 in mechanical engineering.

In many respects there has been an erosion of stature in basic physical science and mathematics that is similar to that experienced by the humanities units. The erosion, relative to programs at peer institutions, appears to have occurred because increased (budgetary) attention was paid at other universities, while similar attention to IT at Minnesota was made difficult by the enormous increase in student demand in the engineering departments. It is possible that the state of Minnesota does not recognize the importance of "high science" to the long-term health and stability of high technology, whereas other states do. It appears that public understanding of the importance of science is not increasing. These problems of perception would be addressed at least in part by either (1) changing the name of the institute to make it clear that the dean's responsibilities extend considerably beyond concerns with engineering or (2) locating science and mathematics in separate colleges.

In spite of their apparent erosion in stature, there are signs that several of these departments have "turned the corner." Each has benefited by establishment of the Supercomputer Institute and the Minnesota Supercomputer Center. The situation in mathematics had already begun to improve before the National Science Foundation decided to establish the NSF Institute for Mathematics and Its Applications at Minnesota. The NSF Institute is one of only two in the nation (the other being at Berkeley), and it appears to have added significantly to the stature and vitality of the department. The stature of physics was improved substantially by the Northwest Area Foundation program that permitted the school to mortgage faculty positions and recruit several junior faculty in a focused search. The recent gift that led to the establishment of the Theoretical Physics Institute has received international attention and should produce an even greater improvement in the stature of the school.

Faculty size in mathematics and physical science departments is small relative to peer institutions, but each of the five departments has heavy undergraduate teaching responsibilities.

With respect to national rankings, mathematics is ranked 16th, and the other science units range from 23rd (chemistry) to 28th (earth sciences).

Earth sciences has a modest record of receiving federal funds, although the national rankings are not impressive, and student interest is low. The decline in enrollment reflects a national decline from a peak in the early 1980s. Nevertheless, the study of geology and geophysics is fundamental to liberal arts and science education and educational opportunities offered by the existence of the program must be preserved.

2. RECOMMENDATION: Recruit faculty to increase senior leadership for the earth science department.

In common with other units of the Institute of Technology, chemistry is in need of modern equipment for undergraduate laboratories,

additional teaching assistants, and technical support staff. Chemistry includes five specialty areas, one of which, physical chemistry, has only three of its faculty members under 40 years of age. Another area, biological chemistry, does not appear to differ from biochemistry (which already exists in both the College of Biological Sciences and the Medical School) sufficiently to justify the continuation of another biochemistry program.

3. RECOMMENDATION: (a) That a mortgage plan be developed for physical chemistry which would allow the early hiring of entry-level faculty in anticipation of future retirements; (b) there should be only one curriculum in biochemistry at the University. The separate program in biological chemistry in IT should be eliminated. Faculty in this program should be offered an opportunity to move to the organic or inorganic chemistry programs, to the merged single program in biochemistry (see sections on the College of Biological Sciences and Medical School), or other units that are mutually acceptable.

The very large service teaching responsibility of mathematics requires more teaching assistants than are presently budgeted. In addition, although mathematics is a large faculty, it is entirely tenured, or nearly so, and there may be a danger of losing significant numbers of younger faculty in retention cases. Beginning in 1992, it is scheduled for an average of 1.6 retirements per year for five years, with an average of 4.5 retirements per year for the following four years. Since the field of mathematics is more dependent than most on younger researchers for significant research advances, it is important to develop a strategy to maintain a flow of young faculty into the program.

4. RECOMMENDATION: Begin now to develop a scheme for mathematics parallel to the Northwest Area Foundation professorships in physics so that anticipated retirements can be replaced with entry-level faculty on a mortgage plan.

Federal support for research in the School of Physics and Astronomy has increased markedly during the last seven years, and is now the second highest in the University. Graduate enrollment has increased by 50 percent during the same period, while the quality of the graduate students has improved. The focused hiring program for junior faculty, made possible by mortgages supported by the Northwest Area Foundation, has brought a group of very successful young faculty into the school; this will have a positive impact on the physics rankings as they move into national prominence. However, each of them has been subject to recruiting pressure, an experience shared by young faculty in other departments of IT. Continued support of the Theoretical Physics Institute at the level agreed to by central administration is a key to retaining many of these faculty. However, the recent concentration on theory should not come at the expense of the experimental program. A balance must be maintained.

As with other departments, the heavy service load has created serious needs for additional teaching assistants, modern teaching equipment, and technical support staff. At a minimum it should be made possible to teach

recitation sections in the large service courses, a feature of every major physics department except the University's.

Astronomy interacts closely with physics. It appears to be a small but strong department with a productive faculty and a need for additional "infrastructure" support. Astronomy awards few degrees but has the highest undergraduate/graduate student-credit-hour (SCH) ratio (53.1) of the institute, and produces the smallest number of graduate SCHs (273). However, their 40 undergraduate majors represent 5 percent of all undergraduate majors in astronomy nationally.

There would be little gained by eliminating the astronomy and astrophysics undergraduate degree program because the net result would be, at most, cancellation of two 3xxx one-quarter courses. Furthermore, all other courses are either part of the physics major or are part of the 5xxx curriculum that must be retained for the graduate program in astronomy.

5. RECOMMENDATION: The School of Physics and Astronomy should integrate the administration of the astronomy department completely within the school's administration, which would eliminate the need for a separate department chair and some administrative costs. A separate astronomy graduate program could be maintained.

6. RECOMMENDATION: Increased support should be given to sustain and further the recent improvements in the research programs of the mathematical and basic physical science departments to enable them to recover their stature of 25 years ago.

B. ENGINEERING, COMPUTER SCIENCE, AND ARCHITECTURE AND LANDSCAPE ARCHITECTURE

The five engineering programs are based on the various subfields of chemistry, physics, and biology in varying proportions and emphasis. They use the language and methods of mathematics, and they offer professional baccalaureate degrees (B.AEM, B.CE, B.MSE, B.CE, B.GE, B.EME, B.EE, and B.ME). All degree programs are described as four-year programs, but in reality they require five years. Undergraduate instruction is concentrated in the last two years of the four/five-year program, leading to the first professional degree.

Architecture holds a unique and anomalous position in this group and in the institute, in that design and the impact of the environment on well-being, are more important to the curriculum than are the specific technical fields that underlie the engineering principles of structures. Admission to the program is competitive: only 25 percent of applicants are accepted (GPA must exceed 3.5). Its reputation rests on its design program. The ratio of adjunct faculty to full-time, tenure-track faculty is about 2:1. Ninety-four percent of the total budget is derived from 0100 funds; 22 percent of the faculty received their highest degree from Minnesota. Neither the IT or architecture planning document provides a compelling impression that a synergistic relationship exists between architecture and

landscape architecture and the rest of the institute. Furthermore, the administrative and geographic separations of faculty in landscape architecture seem awkward and disruptive.

7. RECOMMENDATION: Locate the program in landscape architecture in the department of horticultural sciences and landscape architecture and move the other programs in architecture to the St. Paul Campus to be administered by the College of Home Economics, by a new College of Design that might include programs in architecture (from IT), design, housing, and apparel (from home economics), and studio arts (from CLA), or by another appropriate college.

Computer science builds on the science base of mathematics and physics, and in the upper division relies in part on electrical engineering. Undergraduate enrollment has grown dramatically, even under the enrollment management plan initiated in 1979. Computer Science has the highest ratio of SCHs/faculty in IT, which has resulted in overcrowded classes and laboratories. Thus, the difficulty is the discrepancy between capacity and demand. The cost is borne substantially by the student, particularly the undergraduate student: "Each year since 1981 it (CS) has tried to educate an undergraduate contingent of more than 1200 majors and pre-majors, provide service courses to all comers, and to provide a graduate professional education and research environment to more than 250 graduate students." The results have been large class sizes (150 to 200), long waiting lists, delays in graduation with no assurance that the bachelor's degree can be completed in four to five years because of lack of space in core courses. Similar intolerable circumstances are experienced by the graduate student.

Electrical engineering is judged to be a troubled department that is overloaded with undergraduates (202 bachelor of electrical engineering degrees awarded) and a graduate program that was most recently ranked 19th. There is a large demand for professional education from local industry. Faculty morale appears low, and the unit has had difficulty attracting external leadership. The level of research productivity appears low in comparison with leading electrical engineering departments of public universities.

Electrical engineering, like computer science, is overloaded, and a substantial part of the excessive load occurs at the master's level because of enrollment of persons from local industries.

8. RECOMMENDATION: Growth of faculty for both computer science and electrical engineering in support of professional education for employees of local industry should be accomplished, in part, by establishing evening master's degree programs (administered by the two departments, not CEE) that are modeled after the evening M.B.A. program in the Carlson School of Management. The model might include higher tuition to help support the program.

9. RECOMMENDATION: Electrical engineering should continue to recruit externally for senior leadership. At minimum, the department should develop a strategy for expenditure of resources that will develop a high-quality program.

A further recommendation addressed to high enrollment is included below in section C.

Aerospace engineering and mechanics is a highly regarded program which, however, has a heavy undergraduate enrollment (SCH ratio, undergraduate/graduate, = 13.7). One-third of the faculty is scheduled for retirement during the next seven years, and the department has substantial space and equipment needs. Faculty share disciplinary interests with solid and fluid mechanics and with other engineering departments, chemical engineering in particular.

10. RECOMMENDATION: Aerospace engineering would benefit from a mortgage program similar to that proposed for mathematics.

Chemical engineering and materials science is a distinguished department: The chemical engineering component ranks first nationally, only 28 percent of its budget derives from state appropriations, it has a low undergraduate/graduate SCH ratio (3.5), and it attracts 10.8 applicants for graduate study per faculty member (exceeded in IT only by mechanical engineering and computer science). Chemical engineering and materials science is in reality two departments in one. Chemical engineering is a distinguished program of international stature, and materials science is a small unit with a good faculty that perhaps should become larger to take advantage of the materials research opportunities that are emerging in an area of fundamental importance to engineering generally.

Materials research emerged from the disciplines of condensed matter physics, metallurgy, solid state electrical engineering, and solid state chemistry, where it is still carried on; as such it has some of the problems exemplified by biochemistry, discussed elsewhere in this document. Recent growth of the materials science component of chemical engineering and materials science has had substantial overlap with the above mentioned fields; for example, the expansion has led to the hiring of both theoretical and experimental physicists. While physics was not consulted about the chemical engineering and materials science decision to move into this area of research, there was considerable informal consultation during the most recent search for a theoretical physicist. This is a good sign for the future, but care should be taken so that consultation occurs during the planning process. Subsequent steps should be taken to assure that the full strength of materials research as it occurs in several different departments is utilized to the advantage of the entire University.

11. RECOMMENDATION: Future development of the materials research program should be jointly planned by appropriate members of chemical engineering and materials science, the condensed matter physics program, the solid state chemistry program, the solid state electrical engineering program. At the very least, search committees should include appropriate representation from these areas of interest.

Civil and mineral engineering is a small department with a low graduate and undergraduate enrollment. It ranks high, however, with respect to degrees awarded and has an undergraduate/graduate SCH ratio of 3.8. It is characterized by diverse activities (civil, mineral, transportation, geological-rock mechanics, environmental, hydraulic), and its traditional disciplinary strength (mechanics) is shared with aerospace engineering and mechanics. Central facilities are judged to be excellent. The department has benefitted from strong leadership. These positive features, together with a sharper focusing of its programs, should enable the department to reverse its decline in national ranking from 15th to 28th.

The department appears to have considerable overlap with earth sciences, mechanical engineering, and aerospace engineering and mechanics, but it is not clear whether there is adequate coordination with the other departments.

The extractive metallurgy major given by the Mineral Resources Research Center (MRRRC) suffers from low enrollment. MRRRC appears to function nearly as a department unto itself, and is not well-integrated into the administrative structure of the department or of IT. Although the center was established by a 1911 state mandate, that mandate may be out of date. The staff of the MRRRC are in the process of being moved to 0100 funding. Given the declining interest in natural minerals in the state, and the rapidly growing interest in the design, synthesis, and production of materials to fulfill special needs, it appears that the programs in materials research deserve the greater support.

12. RECOMMENDATION: The MRRRC should be closed.

The St. Anthony Falls Hydraulics Laboratory (SAFHL) also appears to be a troubled program that focuses on water resources engineering and fluid mechanics. It is largely self-supporting but is experiencing severe financial difficulties because of a reorientation of federal priorities and a downturn in workload of commercial clients. The SAFHL is requesting 0100 funding.

13. RECOMMENDATION: The SAFHL should be closed.

Mechanical engineering is highly ranked (fifth), and has maintained its rank over the past 15 years despite a doubling of the undergraduate enrollment and only a small increase in faculty size. The most recent accreditation was granted for less than full term because of the heavy load of undergraduates (241 bachelor's degrees awarded--the largest number in IT) and inadequate instructional laboratory space, equipment, and technical support. The department has a serious shortage of research space, facilities, and associated technical support.

14. RECOMMENDATION: Provide improved research facilities and technical support staff; IT's request for a new mechanical engineering building should receive higher priority than a new facility for earth sciences.

C. THE INSTITUTE

15. **RECOMMENDATION:** Immediate steps must be taken to improve the quality of undergraduate education in the institute. By a combination of severe enrollment caps and the use of resources reallocated to the institute, acceptable undergraduate/graduate ratios should be established. This is intended to reduce class sizes and improve the quality of counseling and advising by decreasing the load. Likewise, the quality of education in lower division service courses should be improved by the decreased class size and by using new resources allocated to the institute to provide more teaching assistants, support staff and supplies.

16. **RECOMMENDATION:** The quality and quantity of instructional equipment used in both upper and lower division instructional laboratories must be improved by using new resources allocated to the institute.

17. **RECOMMENDATION:** The institute should expand its program for assessing the communication and teaching skills of graduate assistants to include all departments that make heavy use of graduate assistants for whom English is a second language.

18. **RECOMMENDATION:** In view of the overlap of subject matter interests between a number of the departments in the Institute, curricular offerings should be reviewed for the purpose of minimizing redundancies.

The IT library is generally considered to be woefully inadequate.

19. **RECOMMENDATION:** A faculty committee should be appointed to recommend immediate steps for improvement of the library, and the administration should view this as a high priority for immediate attention.

Student services (e.g., advising, counseling, placement) in the institute appear inadequate.

20. **RECOMMENDATION:** Resources and energies must be reallocated to improve all student services.

D. BUDGET

21. **RECOMMENDATION:** \$1.154 million should be transferred from the IT budget as the department of architecture and landscape architecture is transferred from IT, by \$200,000 as the Mineral Resources Research Center is closed, and by a further \$133,000 as the St. Anthony Falls Hydraulic Laboratory is closed. The institute should receive \$7.5 million in reallocated funds to support other recommendations that have budgetary implications and to fund initiations proposed in the institute's Strategy for Focus document.

Without the recommendations to close two colleges, the proposal for reallocated funds would have been \$5 million rather than \$7.5 million.

LAW SCHOOL

I. OVERVIEW

The Law School operates a single program leading to the Juris Doctor (J.D.) degree. A relatively small unit, it has about 750 students (250 new students being admitted each year), 40 tenure-track faculty and professional clinical staff, and about 26 part-time adjunct faculty. Its 1987-88 resources are expected to be about \$6 million, 78 percent of which comes from state appropriations, with most of the remainder from endowment income and other gifts.

The Law School estimates that it is currently one of the half dozen leading accredited public law schools in the United States and one of the top 10 percent of all 175 schools. It believes its high ranking is determined mainly by how well it compares with other schools with respect to (1) faculty scholarship, (2) the quality of its students and graduates, (3) library size and quality, (4) its building, and (5) the financial and other support provided by its alumni. The Law School is the only source of public legal education in the state.

The school has established 23 goals to be achieved during the planning period, all of which are directed toward raising the rank of the Law School to one of the top 3 public schools and one of the top 10 public or private schools. Among these goals is an intent to foster faculty and student scholarship, increase interactions with other parts of the University, and broaden the international aspects of their program.

The school is to be particularly commended for its successful efforts in equal opportunity and affirmative action, with respect to both faculty and students.

II. OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

On December 12, 1985 the Board of Regents endorsed the present 250 class size, which has remained the same for at least two decades. The regents based their decision not to reduce the enrollment on many factors, including: (1) the strong demand for public legal education in the state, (2) the excellent placement record of Law School graduates, (3) the adverse impact of a smaller class size on student body diversity, (4) the insignificant potential cost savings and program improvements, and (5) the fact that competing peer public and most private law schools have larger classes.

1. RECOMMENDATION: Continue the class size at 250.

The school intends to explore the possibility of offering a very limited number of high-quality post J.D. programs in areas in which they have special resources and expertise. Two possible areas are international

law and trial advocacy. One argument in favor of such a program is that it would be consistent with the school's greater emphasis upon research.

2. RECOMMENDATION: Explore the post-J.D. alternative with particular attention being paid to its potential impact on research productivity.

All tenure track law faculty have earned J.D. degrees from what the Law School considers to be the top 20 law schools in the country. A few also have Ph.D.s in such fields as economics, history, psychology, and sociology. Some have joint appointments with other units. One of the school's 23 goals is to encourage interdisciplinary exchanges and interactions.

3. RECOMMENDATION: Encourage the hiring of more J.D.s with research skills in other areas and more law faculty participation in research projects involving faculty from other units.

The Law School is subject to accreditation reviews but not to outside reviews for scholarly productivity.

4. RECOMMENDATION: Academic Affairs should require a regularly scheduled review of law school scholarly productivity by a panel of professors from other leading Law Schools. The Graduate School should be assigned responsibility for arranging reviews.

The school's administration costs are relatively high (16 percent of total expenditures) compared with those of other units. One reason is the special needs of the Law School, but, given the scarce resources available to the University, the Law School should reduce these costs.

5. RECOMMENDATION: The administrative section of the Law School budget should be reduced by \$100,000.

Without the recommendations to close two colleges, the budget recommendations for the Law School would have been the same.

MINNESOTA SUPERCOMPUTER INSTITUTE

I. OVERVIEW

The Minnesota Supercomputer Institute (MSI) is a two-year old interdisciplinary research program which supports the usage of the supercomputers and other resources of the Minnesota Supercomputer Center, Inc. (MSCI) by researchers at the University of Minnesota and other accredited post-secondary educational institutions in the state. It provides a focal point for collaborative research on supercomputing by serving as a granting agency for supercomputer resources, supporting a

visitors program, holding short courses and symposia at the graduate research level, maintaining additional resources and facilities that complement those of MSCSI, and disseminating results of research accomplished with its resources. The institute is housed in excellent new facilities shared by MSCSI in the research corridor on Washington Avenue.

The operating budget of MSI is approximately \$1 million per year out of a state special funding of approximately \$6.4 million; the remainder of the funds are used to purchase supercomputer resources from MSCSI which are then granted to researchers at the University and some other state colleges and universities for the purpose of research computing.

Fellows of MSI are faculty members of regular departments. Four senior fellows were appointed to the University as a result of a general search by all departments in IT. A number of other fellows have been appointed from within the current faculty of the University.

II. OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

MSI was successful in attracting outstanding scholars to its program and to several University departments. The research program supported by MSI has been highly productive.

In their Strategy for Focus responses, numerous departments in several colleges reported current programs and high priority plans involving MSI and the resources of MSCSI. The existence of these two institutes has been a powerful recruiting aid, and is highly visible around the world. It has enabled many University faculty members and graduate students to dramatically improve their research programs, which often suffer from lack of competitive support for large-scale computing when compared to peers at other universities.

1. RECOMMENDATION: The Minnesota Supercomputer Institute should continue to be provided resources in the present range, which should be shifted from the state special budget to the regular (0100) funding in the near future in order to assure stability.

UNIVERSITY COLLEGE

I. OVERVIEW

University College is a small college with a longstanding mission to "encourage curricular and instructional innovations and to respond to new student populations by providing opportunities and support for students and faculty to develop worthy programs in experimental, alternative, and cross-collegiate undergraduate education." This mission is carried out

through two degree programs: Intercollege Program (ICP), and the Program in Individualized Learning (PIL), formerly called University Without Walls (UWW). The college proposes rekindling the suspended experimental program in order to serve this mission in a more general way.

ICP offers degrees for upper-division undergraduates whose goals cannot be met by departmental majors; this is the continuation of the founding charge of University College in 1930. In this form UC has served the University and its students very well. Several majors and programs have been spun off as permanent components of other colleges, including interdisciplinary majors in CLA and CBS.

The PIL baccalaureate is based on graduation criteria or standards, rather than numbers of credits or classes. The criteria and the plan of study for the degree are developed by the student, academic adviser, and faculty. The faculty come from throughout the University, as is the case in ICP. The decision to grant a degree is based upon a graduation dossier which is approved by the faculty director of PIL and by a graduation committee.

II. OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

Commitment to Focus included the recommendation that the University Without Walls Program be eliminated in view of the similarities of its program to that offered at Metropolitan State University. It was pointed out that the UWW counselors would then be able to create an expanded advising service for other traditional and non-traditional prospective and enrolled University students. UWW responded with a proposal for focusing the degree program (resulting in a decrease of 25 percent in enrollment), and extending the resources of the program to other areas of the University. President Keller accepted this proposal in a letter to the regents dated September 10, 1985, along with a name change of the program to Program in Individualized Learning.

UC serves a useful and important function by providing faculty-based programs for experimentation with curricula as the needs for such experimentation emerge out of individual student interests. This is aided and promoted by a small, but dedicated and talented staff and with general oversight by a College Assembly and other committees consisting largely of faculty members.

There is some similarity of the Intercollege Program to the individually designed program in CBS and the individually designed interdepartmental major in CLA, but they are both college-based. ICP is closest to CLA's bachelor of individualized studies, since that program permits taking 40 major-program credits outside of CLA. UC states a willingness to, "discuss the possibility of serving some of the students now served by BIS, if that emerges as an issue during the planning process."

1. **RECOMMENDATION:** University College should be moved into the Academy of Literature, Sciences, and Arts, where it should be combined with the two

similar programs in CLA. The degrees should be changed to bachelor of independent studies to more appropriately represent the content of the degrees. As part of the process of this consolidation, each of the individualized programs mentioned above should be reviewed by a single, small, ad hoc committee, with attention paid to the quality of the programs as well as the efficiency and effectiveness of the proposed new arrangement. Care should be taken to preserve the present mission of University College as well as the faculty advisory structures which exist presently.

University College proposes to further enhance the capability to carry out their general mission by reestablishing a budget for experimental programs; the initial request is \$50,000. It appears that such a separate program was not necessary nor successful for these objectives through most of the history of UC.

2. **RECOMMENDATION:** University College should make use of present resources, including some of the staff time freed by the reduction in enrollment in the Program in Individualized Learning as well as savings due to increased efficiency of the consolidated programs, to enhance the ability of the present degree programs to meet the needs that might otherwise be addressed by the Experimental Program.

The ICP staff has had a significant increase in prospective student advising because of the changed mission of General College. The college indicates that it, "would be receptive to a proposal that UC take on a more active, University-wide role in general advising, especially of transfer students and returning adults."

3. **RECOMMENDATION:** As with CEE and GC in particular, and other collegiate units in general, the matter of entry-level advising should be reexamined and coordinated with a coherent all-University effort that takes maximum advantage of the skills and experiences already present in these units.

4. **RECOMMENDATION:** The \$450,000 budget of the University College should be transferred to the Independent Study Program of the new Academy of Literature, Sciences, and Arts to ensure that the functions of the University College are preserved, indeed enhanced, under the new structure.

Without the recommendations to close two colleges, the budget recommendations for University College would have been the same.

ACADEMIC SUPPORT UNITS

Because of time constraints, the Task Force did not find it possible to examine the plans of the academic support units in sufficient depth to make recommendations for all of them. Generally speaking, we would expect to see a similar budgetary reallocation, in percentage terms, as has been imposed on colleges. The Task Force did develop recommendations on several units which are included below.

A. UNIVERSITY LIBRARIES

I. OVERVIEW

The University libraries provide support for the full range of teaching, research, and service programs on the Twin Cities campus, exclusive of journalism and law. There are four main libraries in the University library system: the bio-medical library (with an operating budget of \$2 million and catalogued holdings of 335,000 volumes); the humanities/social science libraries (with a budget of \$4.8 million and holdings of 2.8 million volumes); the science and engineering libraries (with a budget of \$1.7 million and holdings of 375,000); and the St. Paul central libraries (with a \$2.0 million budget and a 280,000 volume collection). In addition, these libraries are supported by a central technical services division and the libraries' central administration. In comparison with publicly supported university libraries, Minnesota ranks 9th in collection size, 13th in total staff, 1st in items loaned, and 4th in items borrowed.

II. OBSERVATIONS, CONCLUSIONS AND RECOMMENDATIONS

Library collections and the services provided by the library staff lie at the very heart of a research university such as the University of Minnesota. The distinction to which Minnesota aspires in research, teaching, and service depends fundamentally on a distinguished library system. Without a great library, there cannot be a great university.

The University library is no longer adequately serving the scholarly and instructional needs of the University community. Most serious has been the long and gradual decline in quality and reduction in support experienced by the libraries over the last 40 years. That decline has produced a good library for a second line research university. Support for collection development is far below what it should be. Staffing stands at least 100 full-year equivalents below the top five public institutions. Services and operations resources are spread much too thinly across technical, reference, and information operations, while the preservation program is lagging.

The dimensions of the library's decline relative to peer institutions are sobering. Before 1947, Minnesota was second only to Illinois in collection size among major, public research universities; today it is ninth. In 1940, Minnesota's library operating budget ranked third behind Illinois and Michigan; today it also trails Berkeley, UCLA, Wisconsin, Texas, and Washington. In 1985, the operating budget was 25 percent below the average of this group. In 1976-77, Minnesota ranked 15th among major research libraries in FTE staff; by 1984-85, it had slipped to 20th. Over the past four decades, the average rate of collection growth among the top public university libraries has been 4.2 percent per year. Minnesota's average has been 2.8 percent per year. Library expenditures rank 84th among 106 major U.S. and Canadian universities as a percentage of total university expenditures.

Although there are many able and dedicated faculty, professional appointments, and civil service staff providing effective service to the University community, morale appears to be low. Efforts which were undertaken to protect the acquisitions budget during recent retrenchments came at the expense of staffing. Older collections are generally sound, with special strengths to be found in the health and biological sciences, agriculture, law, and Scandinavian studies as well as the Bell, Ames, Wangenstein, and Kerlan collections.

While some of the serious problems are fiscal in origin and can be attributed to long-term underfunding, others trace directly to failures of the library's central leadership. Moreover, many of the most urgent problems have remained largely unaddressed by the University's central administration since they were highlighted by the Sorauf Committee in 1980. We share with many of our colleagues a sense of frustration at this delay and a deepening concern about the library system. We call on the University administration to act promptly and decisively to rebuild the library's strength, for such action is essential if we are to achieve the goals of Commitment to Focus.

- 1. RECOMMENDATION:** First and most urgently, decisive steps must be taken to establish stable and effective leadership in the office of University librarian. We recommend appointing a distinguished faculty member as University librarian, with operational responsibilities to be carried out by skilled library professionals.
- 2. RECOMMENDATION:** The long-term decline in acquisitions and staffing budgets relative to other major research libraries must be reversed. Establish a specific plan and timetable for bringing the University library to a position of fifth among public research institutions.
- 3. RECOMMENDATION:** The long delayed and much troubled plan to computerize library acquisitions, cataloguing, and circulation must be carefully reviewed. Of special concern are the appropriateness of the system design (including hardware and software), the plan for implementation, and the quality of the catalogue database that is being produced. A panel of outside experts should be part of the review process.

4. **RECOMMENDATION:** Improve essential library services, especially in Wilson and Walter libraries, so that those libraries fulfill their primary mission of serving the academic needs of faculty and students. That principle should explicitly guide all library operations--too often it has not.

5. **RECOMMENDATION:** Implement improvements in the governance structure and procedures of the library as recommended by the Sorauf Committee. This should include reexamination of the library constitution, a document that the Sorauf Committee found to be "seriously flawed."

6. **RECOMMENDATION:** Examine personnel policies concerning faculty, professional appointments, and civil service classifications with an eye to strengthening the Library staff and rewarding individual excellence.

7. **RECOMMENDATION:** Strengthen the Senate Library Committee so that it can work more effectively with the library administration and represent faculty and student interests more vigorously. Ex officio membership on the committee should be reduced.

Wilson Library is expected to exhaust its present collection capacity by the end of 1988 and the campus library system is expected to run completely out of space by 1996.

8. **RECOMMENDATION:** Develop specific plans for improving the present facilities and providing for the future space needs of the library. Such plans should include proposals for construction of an undergraduate library, containing extensive study space, on the West Bank, and the transformation of an expanded Wilson facility into a humanities/social science research library. Undergraduate and graduate/research libraries, focusing on Walter Library, should be established for the Minneapolis east bank as well.

The amount that the Task Force proposes to allocate to libraries, below, even combined with the Legislative funds provided this year, may not be adequate to bring them to the level necessary for the University we aspire to be; however, in the time available the Task Force was unable to form a judgment on what the true needs are. Further review of this urgent problem is required.

9. **RECOMMENDATION:** The University should allocate \$500,000 to improve library services.

Without the proposal to close two colleges, no funds would have been available for this purpose.

B. COMPUTER SERVICES

I. OVERVIEW

Computing services exist throughout the Twin Cities campus at all levels: personal, research group, department, college, and campus. The Task Force found it necessary to restrict its focus to campus level computing services. There are five campus-wide components reporting to the provost: the telecommunication department; the Minnesota Supercomputer Center; libraries; Administrative Information Services; and Information Systems. Under a recent reorganization, all but Administrative Information Services report to Vice Provost V. Rama Murthy in order to reduce the somewhat chaotic management of these areas and to increase the coordination and collaboration among the various computing activities. Administrative Information Services (excluding telecommunications and library automation) continues to report to the vice president for finance and operations.

Information Systems includes three of the four campus computing services organizations: Academic Computing Service and Systems (ACSS), St. Paul Computing Services (SPCS), and Health Sciences Computing Services (HSCS). The fourth computing service is the Minnesota Supercomputer Center, Inc. (MSCI), which is a for-profit corporation wholly owned by the University of Minnesota; Vice Provost Murthy is the chair of the board of directors of MSCI.

ACSS provides services for both central and distributed computers. Central computing is provided on CDC Cyber, DEC VMS, and Encore UNIX mainframes. Distributed computing is provided by many public microcomputer and terminal labs for student access to computing. ACSS also provides support for the purchase, use and maintenance of personal computers and workstations for faculty, students, and administration.

HSCS relies presently exclusively on the use of CDC Cyber mainframes to support computing in the health sciences.

SPCS provides computing support on IBM mainframes, which are accessed remotely throughout the Twin Cities campus. Administrative computing also relies on IBM mainframes.

MSCI owns three supercomputers, including a state-of-the-art Cray 2 four processor supercomputer and a CDC/ETA 205 supercomputer, and plans to replace the latter with a state-of-the-art ETA 10 in the near future. These facilities make the center the most advanced academic computer center in the world. The center is housed in excellent new facilities in the research corridor on Washington Avenue, shared by the Supercomputer Institute. According to the president of MSCI, "The mission of the Minnesota Supercomputer Center is to provide the University of Minnesota with access to the most advanced computing facility in the world." Academic access to the MSCI supercomputing resources is provided by computer time grants awarded by the Minnesota Supercomputer Institute (MSI), an academic institute within the University supported by a state special grant.

The total income of the Office of Information Services for the 1985-86 budget year was \$12.7 million, of which approximately \$5.9 million comes from various state sources, \$5.7 million is income from sales and services, and \$1.1 million from grants and contracts administered by ORTTA. Rapidly declining income from sales and services on mainframes poses a serious problem for continuing the current structure of providing computing services.

Approximately one third of the \$15 million budget of MSCI is provided by the purchase of supercomputer time by the Minnesota Supercomputer Institute using state special funds. The remainder must be raised from the non-state funds, limited almost entirely to the private sector after the recent loss of several million dollars of National Science Foundation resource grant support.

II. OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

Within a few years, the key computing technology in a research university will be networked workstations and supercomputers accessible by the same networks. The workstations will be needed for faculty and student communication and collaboration, computer-based instruction, simulations and problem solving, information access and management, and data analysis. Workstations in faculty offices will provide varying amounts of computing capabilities ranging from the advanced level of today's microcomputers to the level of today's mainframes. Access to a workstation which can be connected to larger computers having software assisting the instructional and research programs is expected to be required by nearly all faculty and students in all disciplines in the 1990's. Thus, networking is a key component of a successful system of computer and information services. The need to transmit data at high rates is growing rapidly in all fields -- from supercomputing for astrophysics to accessing a social science data base to general library access (including electronic delivery of documents). Our three campus segments with many overlapping disciplines make needs more acute.

Administrative support services are becoming increasingly computerized, which should improve the service. However, this computerization must be coordinated with the academic computing services so that access by the academic staff is available through the same workstations and networks. Care should be taken to avoid a natural tendency for the present administrative support services staff to design inefficient computer replicas of current paper networks. Although it may appear more expensive at first, careful system design by expert consultants will result in true improvements in services which will quickly pay for the initial investment.

1. RECOMMENDATION: High priority must be placed upon providing the services necessary to support the research, teaching, and administrative support at the level of a top-five public university.

The bewildering array of computer service organizations and multiple architectures has no apparent rationale and appears susceptible to large inefficiencies. This complexity almost certainly adds considerable inertia to a set of services that must be very agile to keep up with a state of the art which seems to change every three years. Moreover, faculty and students wanting to use computer or information services are presented with multiple access points which have little, if any, coordination. The provost's office appears to be moving toward a more streamlined administration of this complex assortment of computer services.

2. RECOMMENDATION: Academic computer services on the Twin Cities campus should be joined into one system with a simplified access system for customers wishing to arrange computer or information services. Central computing services must be centralized.

The creation of several faculty/staff advisory committees for various computer services is a welcomed development. Members of the Task Force met with two of these committees. However, the complexity of computing services and the associated technologies make it very difficult for most academics to understand the needs and problems of these systems. It is clear that the technology changes so quickly that there is a very high premium on outstanding management and flexible staffing. It is unlikely that faculty members will be able to judge the situation well.

3. RECOMMENDATION: External reviews by management and computer/information system experts should be held on a three-year cycle to assure the efficiency and effectiveness of these services.

The All-University Committee for Networking and Communications Planning is dealing with the crucial networking component of computer/information services. Members of the Task Force who met with this committee were impressed by its work and its plans and visions for the networking of the campus. We generally endorse the preliminary recommendations of this committee as they were communicated to us, but again we are incapable of making a judgment about the costs of a proper networking of the campus. Moreover, we do not know whether improved efficiencies in the campus computing services will produce the resources necessary to complete the networking.

4. RECOMMENDATION: Networking of the campus should proceed immediately upon completion of the networking committee's planning. Support should be provided on a temporary basis until it can be determined whether improved efficiency in the campus computing services would fund the project.

In spite of the presence of state of the art computing for many years, changing algorithms for research computing have been highly unfavorable compared to peer institutions, resulting in underutilization of computing facilities and disadvantages to University researchers. The situation improved with the institution of "Keller grants" several years ago, and the support of supercomputing by a state special allocation from the legislature. On the other hand, the policy of complete cost recovery for the recently installed telecommunications network has served as a

disincentive for full utilization of the services, echoing the previous situation for mainframe computing. Vanderbilt University has adopted the following policy:

"An environment with decisions being made by thousands of people can only be coherent if prices are used aggressively to manage the diverse resources. The university will employ price incentives to shape behavior while encouraging the growth of computing."

5. RECOMMENDATION: The University must adopt a price incentive policy which leads to an optimum use of computer and information systems.

Members of the Task Force are very concerned about the quality of the impending computerization of the University libraries.

The Microcomputer and Workstation Research Laboratory provides excellent services to the campus community in the form of advice and assistance in the use and purchase of microcomputers. The laboratory serves as a show room for microcomputers and accessories which may be purchased through the University bookstores. Although there is a very large volume of such sales, evidently the profits do not provide support for the laboratory. If that is the case, it should be rectified.

6. RECOMMENDATION: A surcharge on the sale of microcomputers and accessories through the University bookstores should be established, and the proceeds used to support the microcomputer laboratory. Other surcharges (e.g., on tuition) should be explored as a means for supporting computer services on campus, a method which has met with success at other universities.

7. RECOMMENDATION: Plans for the computerization of University library catalogues must be reviewed by established experts to assure that an appropriate system is being installed.

Minnesota Supercomputer Center

The presence of the two principal American supercomputer architectures in the center is a reflection of the fact that both of these architectures have been developed and produced in the Twin Cities.

Approximately one-third of the \$15 million budget of MSCSI is provided by the purchase of supercomputer time by the Minnesota Supercomputer Institute using state special funds. The necessity to raise the remaining budget from the private sector has been the source of difficulties for the center, and also appears to have shifted the attention of the MSCSI staff away from its academic mission stated above.

8. RECOMMENDATION: Central Administration should continue to make a strong effort to maintain MSCSI as an academic computer center, with a majority of its efforts expended in academic computing. MSCSI should be removed from for

profit status as soon as possible and then be fully integrated into the centralized campus computer services unit. Consideration should be given to settling on one state-of-the-art architecture unless adequate support can be arranged from the local supercomputer manufacturers to offset the additional costs necessitated by multiple architectures.

The needs for expanded computing, and improved networks to link our computers with others inside the University and throughout the world, will obviously be of high priority; but the Task Force was unable to determine what expenditures are being made now, and what is needed for this purpose; it has therefore not included a budget recommendation.

C. EDUCATIONAL DEVELOPMENT PROGRAMS

I. OVERVIEW

The Office of Educational Development Programs is a programming unit of Academic Affairs reporting through the assistant vice president for undergraduate education and outreach. The office supports programs related to educational development by administering grants and awards to faculty, staff, and students, holding workshops and conferences, maintaining a program of publications, coordination, of related programs and projects involving more than one college.

The income provided by the state budget is \$1.5 million, of which \$1.3 million is 0100 funds and \$200,000 comes from indirect cost recovery funds. Approximately \$300,000 is spent on the administration of OEDP, \$100,000 on programming activities and publications, while the remainder goes to the funding of programs.

II. OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

The Task Force makes recommendations elsewhere in this document which would result in considerably increased attention to undergraduate education both through the Academy of Literature, Sciences and Arts and through a center for research in undergraduate education. The academy would assume much of the responsibility for educational development in the entire lower division, and would provide some of the stimulus for educational development within the colleges throughout the campus. Similarly the center would develop undergraduate educational research within the campus which would often involve faculty outside of the center, and would provide a source of information about the results of such research here and elsewhere and advice on its implementation on this campus when desired. In short, educational development is expected to receive increased attention through initiatives originated and administered in the colleges. Members of the Task Force believe that the educational development funds would in the future be most effectively used if distributed to the colleges annually on a formulaic basis rather than through a proposal process. The necessity for centrally administering the funds would then be nearly eliminated with the exception

of certain awards programs and the Undergraduate Research Opportunities Program (UROP).

1. RECOMMENDATION: Close the Office of Educational Development. Distribute the educational development funds annually to colleges by formula for the purpose of supporting educational development. Retain the administration of UROP and awards programs in the Office of the Assistant Vice President for Undergraduate Education, and Outreach. Retrench \$230,000 of administrative cost.

Without the proposal to close two colleges, the recommendation would have been unchanged.

D. DEPARTMENT OF CONCERTS AND LECTURES

I. OVERVIEW

The department of concerts and lectures (DCL) is an academic support unit whose mission is to present and sponsor a variety of performance art forms and lectures that are of high quality for the University community and residents of the state of Minnesota. The concert function constitutes almost all of the budget. The director books the concerts; the free lectures are proposed either by individual departments that invite the DCL to contribute to their presentation, or by the Assembly Committee on Convocations and the Arts, a faculty-student committee which meets regularly "to dispense funds for high quality presentations/lectures of wide interest."

By booking presentations of considerable public interest (Metropolitan Opera performances, dance theater programs, marching band concerts, etc.) and by charging for the tickets, the DCL derives an income that is expected to range between \$1.6 million and \$2.8 million between 1985-86 and 1991-92. But these large sums go mainly to defray expenses of production; the program is not self-sustaining. Its 0100 revenue was \$288,000 in 1985-86, and the department's projected 0100 income for each year from 1986-87 to 1991-92 is \$318,000.

II. OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

The program employs eleven full-time staff (one academic position) plus .75 part-time help to administer a program of \$3 million. This is evidently a good ratio for arts organizations. The DCL sends parking maps and ticket policy information to concertgoers and runs shuttle buses for performances to help patrons who have to park at a considerable distance from Northrop. In general, the program tries to be "user friendly." The concerts component of the DCL is of high quality. It is not exactly central to the mission of the University, but it supports that mission. Its comparative advantage rests on its access to a large auditorium (Northrop) which can accommodate a very large audience and can therefore present events of a kind

that can hardly be presented anywhere else. Demand runs high, and efficiency and effectiveness are evidently impressive.

The lectures component seems somewhat more questionable. The large presentations are undoubtedly strong by our usual criteria, but the lectures proposed by departments and supported by DCL are probably more uneven. Some are unquestionably excellent, but there is some doubt as to whether departments, programs, or centers always succeed in getting their own students and faculty to attend events they sponsor in numbers that justify their presentation. In any case, such units ought to be able to sponsor such events out of their own funds without constantly relying on additional small contributions from DCL. Oversight by the assembly committee is an excessively cumbersome mechanism for the distribution of a very small budget, and direct supervision by the Office of the Provost means that the unit receives little attention in the press of other concerns that face that office.

1. **RECOMMENDATION:** The department should report to Continuing Education and Extension.

2. **RECOMMENDATION:** The department should be limited to its concert function, renamed the department of concerts, and its budget should be reduced by \$52,000 to eliminate the support of lectures.

Without the proposal to close two colleges, this recommendation would have been unchanged.

E. UNIVERSITY ART MUSEUM

I. OVERVIEW

The University of Minnesota Art Museum is an all-University unit, in a position analogous to the University library system, which is charged to be an interdisciplinary teaching resource with a broad base of service. In the early 1970s the museum was moved administratively from the department of art history to become a freestanding service unit under the Office of the Vice President for Academic Affairs.

The museum is located in the upper floors of Northrop Auditorium.

II. OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

The museum's facilities are a serious liability which hamper the accomplishment of its mission. The museum staff sees the need for appropriate space as the major factor in its plans. A campaign has been organized to raise funds totalling approximately \$6 million to erect a new museum building on the Minneapolis campus east bank. If this fails, it is evident that the museum will fall far short of meeting its mission at a

quality level appropriate to the University and its aspiration for the future.

Although it was pointed out in the museum planning document that no top-ranked university, regardless of location, lacks a first-rate museum, it is nevertheless true that the Twin Cities is the location of several high quality museums that are very accessible and fulfill many of the functions satisfied by art museums in universities not located in such a culturally rich setting.

If the University Art Museum is successful in raising funds for the new facility, it is to be hoped that funding will be available for the program. However, it appears that current funding is far below what would be needed to provide a true research museum in support of the University's educational programs, and it is difficult to recommend an adequate increase because the greater needs elsewhere on the campus, most especially in the humanities and arts programs. The Task Force has reluctantly come to the conclusion that the University Art Museum should be closed.

1. RECOMMENDATION: Close the University Art Museum, for a budget saving of \$388,000.

Without the proposal to close two colleges, this recommendation would have been unchanged.

PART FOUR:

BUDGET PRIORITIES

I. OVERVIEW

The recurring state support (0100) budget for the Twin Cities campus, and our recommendations for funds to be reallocated over time, are shown in broad terms in Table 1, and in detail in Table 2. Explanations are given in the text of the report. (See the last recommendation for each unit or program.) Dollar amounts for retrenchment are very rough approximations, in 1986 dollars, to the amounts that would eventually be released by the recommended programmatic changes. Budget amounts are taken from the 1986-87 operations and maintenance budget (0100); they therefore do not include fringe benefits. The summary in Table 1 includes some units (parts of academic support, all of the service units) for which no recommendations have been made. The Task Force does, however, recommend that these units be scrutinized and subjected to the same discipline to which colleges have been subjected.

TABLE 1. SUMMARY OF SOURCES OF FUNDS FOR REALLOCATION

	Budget in \$1,000s	Gross Reallocation in \$1,000s	Percent
INSTRUCTIONAL UNITS	\$186,234	-\$24,656	-13%
ACADEMIC SUPPORT UNITS	\$16,868	-\$670	-4%
SYSTEM ADMINISTRATION	\$15,950	-\$2,000	-13%
SERVICE UNITS AND GENERAL EXPENSES	\$79,363	\$0	0%
TOTAL CAMPUS	\$298,415	-\$27,326	-9%

Note: Reallocation means that funds are to be retrenched (-) or added. Table 1 shows only the recommended sources of funds, the retrenchments. The table does not include transfer of a program from one college to another.

The recommendations represent difficult choices between functions now being performed by present staff members and functions not yet undertaken, typically by people as yet unidentified and generally not now part of the University community. To inform the debate that will ensue from these recommendations, we offer the following observations:

The recommendations are not intended to represent immediate changes. Rather they are to be phased in over time, as staff leave the University and resources are thereby freed. The Task Force assumes, and the administration has given assurance, that individual tenure contracts will be honored, independently of whether a program is closed.

If the changes are phased in over 10 years, our recommendations for retrenchment of instructional programs call for an average reallocation of 1.3 percent of the instructional budget to be shifted each year, mostly among colleges, in addition to the internal college reallocations already proposed in their Strategy for Focus planning documents.

Proposals for retrenchment must be made in the context of overall priorities for the campus, with improving the University's quality as the most important priority. This means, inevitably, that the campus must consider difficult choices. It is not possible to improve the quality of the overall institution, while continuing all programs at their current levels. If the University is to improve its overall quality, some programs which rank high on one or more important criteria will need to be reduced or eliminated to provide increased funding for others.

Responsible criticism of these proposals must propose and defend alternatives. Smaller decreases than are proposed here for any program, or larger increases, mean that other programs must be reduced more, or increased by less, than the Task Force has proposed.

II. OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

Recommendations are discussed in the section for each individual unit and program. (See the last recommendation in each section of the report for budgetary implications.) The recommendations are summarized in Table 2, below.

We have found it impossible to make recommendations regarding retrenchment and reallocation for service units (i.e., support units outside academic affairs), not because they are uncalled for, but because we lack knowledge. Our major recommendation is for administrative goal-setting and review of that process.

1. RECOMMENDATION: Central administration should review all service units funded on the 0100 budget to identify at least 12.5% for retrenchment and reallocation toward the highest priority campus programs.

Our recommendations for central administration are based on inadequate knowledge, but they are based on principle: Central administration should be subject to the same discipline and the same degree of budget stringency to which operating units are subject.

2. RECOMMENDATION: Central administration should identify a total of 12.5% of its budget for retrenchment and reallocation toward the highest priority campus programs.

TABLE 2. BUDGET RECOMMENDATIONS

	Reallocation* in \$1,000s	Transfer** in \$1,000s	Net in \$1,000s	Notes
INSTRUCTIONAL UNITS				
INSTITUTE OF AGRICULTURE, FORESTRY AND HOME ECONOMICS				
Agriculture				
Rhetoric		-\$659	-\$659	Transfer to Humanities
Landscape Architecture		+\$141	+\$141	Transfer from Architecture
School of Natural Resources		+\$1,070	+\$1,070	Transfer from Forestry
Other	-\$650		-\$650	See text
Net, Agriculture	-\$650	+\$552	-\$98	
Forestry	-\$215	-\$1,070	-\$1,285	Transfer to Ag., after subtracting admin. savings
Home Economics	-\$250		-\$250	See text
Net, IAFHE	-\$1,115	-\$518	-\$1,633	
HEALTH SCIENCES				
Pharmacy	-\$200		-\$200	Reduce administrative cost
Veterinary Medicine	-\$6,846		-\$6,846	Close college
Mortuary Science	-\$66	-\$175	-\$241	Close dept., transfer svc. function to Med. School
Medical School				
Family Practice	-\$4,000		-\$4,000	Shift to external funding
Basic Sci., Interdisc. Progs.	+\$4,000	+\$175	+\$4,175	\$175000 is for svc. for anatomy class.
Net, Medicine	+\$0	+\$175	+\$175	
Dentistry	-\$8,084		-\$8,084	Close college
Nursing				
Administration	-\$200		-\$200	Reduce administrative cost
Undergrad, Masters	-\$250		-\$250	Reduce class size
Ph. D.	+\$120		+\$120	Mortgage future positions for research faculty now.
Net, Nursing	-\$330		-\$330	
Public Health				
Public Health Nursing	-\$300		-\$300	Close program
Increase state funding	+\$300		+\$300	For college priorities
Net, Public Health	+\$0		+\$0	
Net, HEALTH SCIENCE	-\$15,526	+\$0	-\$15,526	

*Reallocation means that funds are to be retrenched (if -) or added (if +).

**Transfer means that a program is to be moved from one college (-) to another (+).

	Reallocation* in \$1,000s	Transfer** in \$1,000s	Net in \$1,000s	Notes
OTHER COLLEGES				
Academy of Literature, Sciences and Arts				
Undergrad. program	+\$1,000		+\$1,000	New admin. unit Advising, lower div.
Preparatory Program		+\$3,696	+\$3,696	From General College
Independent Study		+\$450	+\$450	From University College
Net, Academy	+\$1,000	+\$4,146	+\$5,146	
Carlson School of Management				
Administration	-\$200		-\$200	Reduce administrative cost
Undergrad. studies	+\$200		+\$200	
Net, Carlson School	+\$0		+\$0	
Biological Sciences	+\$3,000		+\$3,000	See text
Education				
Recreation, Park & Leisure	-\$252		-\$252	Close division
VoTech Ed	-\$1,217		-\$1,217	Close department
Cognitive sciences	+\$550		+\$550	
English as a Second Language		+\$142	+\$142	From Linguistics (CLA)
Research on Undergrad. Ed.	+\$500		+\$500	Fund recommendation of committee on this issue.
Net, Education	-\$419	+\$142	-\$277	
Liberal Arts (Humanities & Arts)				
Rhetoric		+\$659	+\$659	This budget does not show the transfer of programs from CLA to 2 successor colleges, but divides other transactions into two parts. For new college
Linguistics	-\$333	-\$142	-\$475	
South & SW Asian Studies	-\$224		-\$224	
Broadcasting Prog. (Spch)	-\$100		-\$100	
Coll. of Humanities & Arts	+\$4,000		+\$4,000	
Net, Humanities & Arts	+\$3,343	+\$517	+\$3,860	
Liberal Arts (Social & Behavioral Sciences)				
Humphrey Institute		+\$510	+\$510	From independent status
Coll. of Soc. & Behav. Sci.	+\$1,700		+\$1,700	For new college
Net, Soc. & Behav. Sci.	+\$1,700	+\$510	+\$2,210	
Continuing Education and Extension				
KUOM	-\$305		-\$305	Close radio station
MacPhail Center	-\$381		-\$381	Move to independent status
Concerts		+\$217	+\$217	From Concerts & Lectures
Net, CEE	-\$686	+\$217	-\$469	
General College		-\$3,696	-\$3,696	Move to Academy as Pre- paratory Program

*Reallocation means that funds are to be retrenched (if -) or added (if +).

**Transfer means that a program is to be moved from one college (-) to another (+).

	Reallocation* in \$1,000s	Transfer** in \$1,000s	Net in \$1,000s	Notes
Graduate School				
Post-doctoral bridge prog.	+\$250		+\$250	
Interdept. Centers	+\$250		+\$250	
Other	+\$500		+\$500	See text
Net, Graduate School	+\$1,000		+\$1,000	
Humphrey Institute	-\$150	-\$510	-\$660	Reduce admin; transfer to Coll. of Soc. & Behav. Sci.
INSTITUTE OF TECHNOLOGY				
Arch. & Landscape Arch		-\$1,154	-\$1,154	Move to St. Paul & out of IT
Mineral Resource Res. Ctr.	-\$200		-\$200	Close Center
St. Anthony Falls Lab.	-\$133		-\$133	Close laboratory
Other	+\$7,500		+\$7,500	See text
Net	+\$7,167	-\$1,154	+\$6,013	
Architecture		+\$1,013	+\$1,013	To be school in a college with other design-related units
Law	-\$100		-\$100	Reduce admin; transfer
University College		-\$450	-\$450	Move to Academy as Independent Study Program
Net, OTHER COLLEGES	+\$15,855	+\$735	+\$16,590	
CAMPUS-WIDE PROGRAMS				
Faculty Development	+\$430		+\$430	For Task Force recommend.
New Research Initiatives	+\$500		+\$500	Research VP to distribute
Undergraduate Education	+\$577		+\$577	Impl. Task Force recommend.
EEO, Affirmative Action	+\$500		+\$500	For Taborn Ctee recommend.
Net, CAMPUS-WIDE PROGS.	+\$2,007		+\$2,007	
Net, INSTRUCTION	+\$1,221	+\$217	+\$1,438	

*Reallocation means that funds are to be retrenched (if -) or added (if +).

**Transfer means that a program is to be moved from one college (-) to another (+).

	Reallocation* in \$1,000s	Transfer** in \$1,000s	Net in \$1,000s	Notes
ACADEMIC SUPPORT & SERVICE				
Libraries	+\$500		+\$500	Unable to evaluate needs for units with \$0 recommendation. See text.
Computers	+\$0		+\$0	
Other Academic Support Units				
Art Museum	-\$388		-\$388	Close museum
Concerts & Lectures	-\$52	-\$217	-\$269	Transfer concerts to CEE
EDP	-\$230		-\$230	Close EDP, distribute funds
Acad. Personnel, CURA, etc.	+\$0		+\$0	to colleges by formula
Net, Other Ac. Support	-\$670	-\$217	-\$887	
Net, ACAD. SUPP.&SVC.	-\$170	-\$217	-\$387	
Service Units, General Expense	+\$0		+\$0	Unable to evaluate
ADMINISTRATION				
General Administration	-\$2,000		-\$2,000	12.5% reduction
Research VP, Admin.	+\$250		+\$250	Office of new VP
Arts & Science VP, Admin.	+\$250		+\$250	Office of new VP
Net, Administration	-\$1,500		-\$1,500	
CAMPUS-WIDE				
NET ALLOCATION	-\$449	+\$0	-\$449	For needs not yet evaluated.

*Reallocation means that funds are to be retrenched (if -) or added (if +).

**Transfer means that a program is to be moved from one college (-) to another (+).

APPENDIX I: WATER

The following report was not reviewed by the entire Task Force, so its recommendations have not been adopted by the Task Force and are included for information only.

A 1987 directory of water resources compiled by the Water Resources Research Center lists 150 Twin Cities faculty members interested in research in this area. Because this interest is diverse, these individuals reside in centers, departments, and colleges scattered across the Twin Cities campus. Among these are units of quality but their strengths have not been coordinated and focused in a manner that makes the University's resources in this area apparent. Consequently, our research capability in the area of water is not fully recognized, interdisciplinary graduate programs are not well developed, and opportunities for graduate study and research are not as visible to undergraduate colleges and students as should be the case. At the state level, the University's resources for solving water problems are not sufficiently visible in the Legislature and the potential for cooperative research between the University and water-related state agencies is not fully realized.

The recently formed Office of Water Resources and Graduate Education (OWRGE) addresses these problems. Its primary mission is "to provide a means for coordination, information exchange, and focus among the many faculty at the University whose principal goal is understanding of aquatic systems from physical, chemical, mathematical, ecological, economic or policy/management perspectives."

The Task Force endorses the mission of OWRGE and, because of the all-University scope of its concerns, concurs with its location in the Graduate School.

1. RECOMMENDATION: The Office of Water Resources and Graduate Education should proceed to coordinate, exchange information, and focus research and graduate education in water resources and be provided with the necessary administrative support to carry out its mission.

Facilities are a major expense in water resources research and graduate education. Current research opportunities may require better use and improvement of existing facilities, the closing of others and the building of new ones. Where facilities provide research services to investigators, the University's obligation should be for a limited term of declining support with user fees from research contracts and grants assuming the burden.

2. RECOMMENDATION: OWRGE should inventory the existing water research facilities, assess their capabilities, and prepare a report of facility needs.

The Limnological Research Center and the Gray Freshwater Biological Institute appear to have a common purpose, the study of freshwater lakes from the molecular level through larger aggregations of water systems, including the dynamics of aquatic processes and the behavior of such systems. Reality fails to bear out this perception but in no way diminishes the state's need for such a capability if one of its major resources is to be protected for future generations. There is a need for a single center/facility embracing research on fresh water from the microscopic molecular level to the macroscopic system, coordinated by the common purpose to understand and preserve this asset.

3. RECOMMENDATION: A comprehensive review should be conducted of the Gray Freshwater Biological Institute and an assessment made of its mission and research accomplishments.

4. RECOMMENDATION: The Limnological Research Center and the Gray Freshwater Biological Institute should be joined to become an intercollegiate center whose chief purpose would be the organization of faculty and graduate students interested in research on inland lakes. The new unit should be linked programmatically with the proposed aquatic sciences center at UMD.

Given this focus of research capability the possibility would be improved for obtaining state appropriations especially targeted for research on fresh water, inland lake problems. The current existence of widespread research activity supports the development of a minor in water resources.

5. RECOMMENDATION: A minor in water resources for masters of science and doctorate students on the Twin Cities Campus and masters of science students on the Duluth campus (under way) should be developed.

In order to encourage and support the coordination effort required in water research and graduate education, a representative body is needed to advise the OWRGE.

6. RECOMMENDATION: The directors of all water-oriented centers and representatives of appropriate academic departments should constitute an advisory committee to the OWRGE.

This committee should meet regularly to exchange information and coordinate plans for University interactions with state and federal agencies.

APPENDIX II: DRAFT CALENDAR

June 16 - Sept. 15	<p>Provost's planning committee:</p> <p>forwards Task Force recommendations to colleges for study, with copies to Campus community;</p> <p>meets with colleges, with priority to Dentistry and Veterinary Medicine;</p> <p>makes early August progress report on Dentistry and Veterinary Medicine to President and Vice Presidents;</p> <p>presents preliminary analysis of alternatives and recommendations to the Academic Vice Presidents with copies to colleges, Advisory Task Force members, and Campus community.</p>
July 10	<p>Provost provides progress report to Regents.</p>
Sept. 16 - Oct. 31	<p>Campus response to preliminary recommendations:</p> <p>Each college is invited to give reaction to preliminary recommendations.</p> <p>Advisory Task Force members invited to submit reactions to preliminary recommendations.</p> <p>Senate-sponsored forum and Deans' forum in October.</p> <p>Provost provides progress reports and partial recommendations to President, Vice Presidents and Regents, September and October.</p>
Nov. 1 - Nov. 30	<p>Colleges may, if they wish, revise their planning documents in light of subsequent discussions and recommendations.</p> <p>Provost provides further progress reports and partial recommendations to President, Vice Presidents and Regents.</p>
Dec. - Jan.	<p>President, Vice Presidents and Regents consider proposed Campus plans for approval in principle, and consider those budgetary recommendations that are final for action.</p>
Feb. --	<p>President, Vice Presidents and Regents continue to implement planning decisions.</p>

APPENDIX III: TASK FORCE MEMBERS

Regular Members:

Professor Charles E. Campbell, **Chair** (School of Physics and Astronomy)
Professor Shelley N. Chou (Head, Department of Neurosurgery)
Professor David W. Hamilton (Head, Department of Cell Biology and Neuroanatomy)
Professor M. Janice Hogan (Head, Department of Family Social Science)
Professor John Howe (Department of History)
Professor Warren E. Ibele (Department of Mechanical Engineering)
Professor Sally B. Jorgensen (Chair, Department of Veterinary Biology)
Mr. Stephen Kohlmeyer (President, CLA Student Intermediate Board; undergraduate representative)
Professor Albert H. Markhart (Department of Horticultural Science and Landscape Architecture)
Professor Jack C. Merwin (Chair, Department of Educational Psychology)
Professor Margaret A. Newman (School of Nursing)
Mr. Steven Prince (Graduate student, Department of Geography; Council of Graduate Students representative)
Professor Irwin Rubenstein (Department of Genetics and Cell Biology and Director, Plant Molecular Genetics Institute)
Regents' Professor Vernon W. Ruttan (Department of Agricultural and Applied Economics and Department of Economics)
Professor Charles E. Speaks (Chair, Department of Communication Disorders)
Minneosta Insurance Industry Professor C. Arthur Williams (Department of Finance and Insurance)
Professor George T. Wright (Department of English)
Professor John S. Wright (Chair, Department of African and Afro-American Studies and Associate Professor, Department of English)

Ex Officio members:

Professor Ellen S. Berscheid (Chair, Senate Consultative Committee, and Department of Psychology)
Professor Shirley M. Clark (Vice chair, Senate Consultative Committee, and Chair, Department of Educational Policy and Administration)
Professor Edward Foster (Acting Associate Vice President, Academic Affairs, and Department of Economics)
Professor W. Phillips Shively (Chair, Senate Finance Committee, and Department of Political Science)

Staff:

Ms. Carol A. Balthazor (Executive Assistant, Office of Academic Affairs)
Ms. Mary K. Bilek (Assistant to the Vice President for Academic Affairs)