To the University Community

In September, we presented to the University community a preliminary discussion of strategic planning for the 1980s. We identified six broad topics to be addressed as part of a continuing review of the University's plans and purposes: minority faculty and students, undergraduate education, graduate education, research capacity, educational outreach, and ties with the City of Philadelphia. Working groups of deans and other University officials were subsequently convened to develop a range of substantive options and proposals in each of these areas.

Following are the draft papers prepared by the working groups. Each of these draft working papers has a style and life of its own, reflecting the particular character and demands of the subject under investigation; taken collectively, however, they convey a judgment that the basic goals being pursued presently by the University as a whole are the right ones. What is changing is not these traditional values but the available means by which to achieve them.

Our task now is to assure that the concerns and options described in each of the working papers receive the widest possible consideration. We urge the University community to examine the working papers closely—to review their implications as well as their premises—so that as we further develop our strategic planning for the decade ahead these six topics will reflect the considered judgment of all parts of the University.

To coordinate this University-wide review, we are asking the Academic Planning and Budget Committee to seek the comments of individual faculty, students and staff, to solicit the views of the relevant University committees and organizations, and to define publicly a process for assembling these comments and views. At the same time, we are asking the deans to consult their faculties with regard to the working groups’ proposals and to report to the Academic Planning and Budget Committee on the implications for the University’s academic programs. When individual schools or other groups judge a particular proposal appropriate for immediate action, we want to encourage its implementation. By the close of the spring semester, we expect the Academic Planning and Budget Committee to transmit the judgments thus collected from across the University, along with whatever additional advice the committee thinks appropriate, to the President for his consideration and his subsequent report to the University.

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Six Working Papers for Strategic Planning

Minority Faculty and Students

I. Charge

The function of this working group is to identify practical actions that the University might adopt to increase the number of members of minorities in the faculty and the student body, and to submit the options to the University community for further consideration. We understand that this consideration will take the form of discussion and consultation within the administration, and with the appropriate consultative and advisory groups and committees representing faculty and students, as well as with interested individuals. We understand also that which actions are ultimately adopted will depend on the results of this widespread consultation.

The working group therefore regards this working paper as a starting point to form a consensus from which specific actions can be implemented.

A number of reports and recommendations on minorities at the University have been submitted in the past. These documents contain detailed analyses and presentations of various views from which the working group has learned. However, we did not try to repeat, criticize, or synthesize them. Our paper is limited to specific possible action items.

II. Possible Administrative Changes

Within the central administration, the working group recommends that the following be considered:

A. Appoint a minority member to a high level position, charged to oversee all aspects of minority presence at the University. This individual should be a tenured faculty member with direct access to the Provost and President, and with responsibility for all staff and all functions dealing with minority affairs in the central administration.

B. Establish a recruiting network to identify distinguished minority faculty candidates and help attract them to the University. This network could start with interested faculty members represented by a network committee with staff support from the Provost's office. The network committee should report regularly to the Provost and to the Council of Deans.

C. Make Affirmative Action Officers de facto members of School personnel committees.

D. Reserve a portion of the subvention for increasing minority presence by:
   1. supporting minority visiting professors;
   2. supporting minority graduate and professional students and postdoctoral fellows;
   3. making minority faculty appointments beyond the normal faculty allocations to each school;
   4. providing funds from the Provost's office for minority faculty appointments.

III. Faculty Appointment and Promotion Policy

University policy recognizes three major factors that must be considered for faculty appointments and promotions: scholarship, teaching, and service. In practice, service is given the least weight in decisions to appoint or promote faculty members. It is the working group's contention that giving significant weight to exceptional service would be beneficial to the University, particularly when that service is unique and of considerable importance. This, of course, can be true for men or women of any ethnic or racial background. Statements of University policy on appointments and promotions should be revised to make explicit that significant weight should be given to exceptional service of the following kinds when considering faculty appointments and promotions:

A. giving the University access to areas of scholarship that would otherwise be difficult to enter;
B. strengthening international programs; for example, with universities in Africa, South America, Asia, or Europe;
C. increasing the University's leadership role and involvement with discrete groups in society;
D. assisting in recruiting, advising, and counseling activities;
E. enhancing the University's ability to contribute to and cooperate with the City of Philadelphia.

The working group believes that outstanding service of the type listed above deserves significant weight in appointment and promotion deci-
Undergraduate Education

In recent years, undergraduate education at the University of Pennsylvania has undergone significant change in an effort to ensure that the quality of the undergraduate curriculum is reflected fully in the intellectual reach of the four undergraduate schools. All of the four schools with undergraduate students have initiated curricular reforms, developed new interdisciplinary majors, and strengthened ties to the graduate and professional schools.

This process must continue. If we are to preserve and strengthen our standing as a university of choice, we must continue to assign a special priority to undergraduate education. To this end, the working group on undergraduate education examined a wide range of questions. It quickly became evident that the group could not develop recommendations on all issues. Some questions are complicated by differences in size, curriculum and philosophy among the four schools. Some questions involve curricular matters that are properly the responsibility of each faculty concerned. Still other questions, such as those regarding admissions and financial aid policies, are currently being discussed by the University Academic Planning and Budget Committee and other groups. After much discussion, the working group decided to focus on three broad areas:

I. Strengthening Student Academic Ties with Faculty Members
II. Improving English Literacy and Increasing Understanding of the Computer and its Impact
III. Encouraging Greater Interaction Between Liberal Arts Education and Professional Education

Our decision to focus on these areas does not suggest that others are unimportant. Rather, we believe that attention to these three concerns is particularly important to strategic planning in the realm of undergraduate education. Each affects all undergraduate programs within the University and raises issues that merit careful consideration by faculty and students throughout the institution. Each focuses on how faculty and students can learn together in a complex university like ours, one that takes special pride in providing opportunities for an individualized education in a scholarly setting.

In sum, the goal of our proposals is a university in which:

- Most members of the standing faculty regularly teach undergraduates;
- Most undergraduates have at least one tutorial experience with a tenured member of the faculty during their time at Pennsylvania;
- Undergraduates are encouraged to draw on, as well as to contribute to, the scholarly and research interests of our graduate and professional programs and faculties.
- The undergraduate curriculum gives special attention to the abilities to write and reason clearly as demonstrated by basic literacy in the English language and to understand the pervasive impact of the computer in our lives.

In the pages that follow, we propose options to achieve these goals while recognizing that we must also address questions of cost and quality. Many of the options will require increased funding at a time when the University is struggling to maintain financial support for what it now does. Further, a careful monitoring of quality is essential if we are to assure academic excellence. Although quality is relatively easy to establish at the outset of a new program, maintenance is often as difficult as it is essential.

I. Strengthening Student Academic Ties with Faculty Members

Direct academic contact with faculty members is necessary if undergraduates are to develop a positive orientation toward learning and take full advantage of existing educational opportunities. Many undergraduates, however, often leave Pennsylvania with out a significant academic relationship with even one faculty member. The variety of living arrangements now available—the numerous living-learning programs that stimulate intellectual and cultural interaction among students—cannot replace personal academic contacts with the faculty. Nor should students find themselves in academic difficulties that they could have avoided through faculty guidance. Advising by the faculty is but one solution to this problem. We suggest three other approaches for improving faculty-student academic contact

A. Increasing opportunities for undergraduate involvement in faculty research.
B. Strengthening current programs that were designed to increase academic interaction between faculty and students.
C. Involving more senior faculty in undergraduate teaching.
A. Increasing Opportunities for Undergraduate Involvement in Faculty Research

Undergraduates can currently participate in research in a number of ways. In the Engineering School, for example, all seniors must complete an individual research project under faculty supervision; the Nursing School offers a required research course; the physics department urges its juniors and seniors to work with one of the established research groups as research assistants to a senior faculty member. All our undergraduate schools provide for independent study. The working group believes, however, that more opportunities can and should be made available.

We recommend the following options:
1. Seminars devised by faculty engaged in major research that could be shared with undergraduates.
2. Research seminars in which students work directly with graduate students and a faculty member on a given project. Students would apply to faculty members and be admitted according to criteria of each sponsor's own devising.
3. Opportunities for limited numbers of students to participate in faculty research work as part of existing courses.
4. More undergraduates involved in selected faculty seminars. The Exxon-sponsored seminar in ethnohistory is an important model: a faculty seminar with graduate students, it is designed to lead to an interdisciplinary undergraduate seminar. A similar experiment is underway in the English Department: seminars offered by senior faculty for graduate students who teach freshman seminars. In both models, graduate students serve as an important link between faculty and undergraduates. Another approach would be the creation of separate seminars for undergraduates that mirror faculty seminars.
5. Research internships that provide students with a one-to-one academic relationship with faculty members. Among the most successful example of internships are those that exist through the work-study program. Designed as part of student financial aid packages, the work-study program has resulted in many students assisting in faculty research. The University should build on this experience and perhaps consider providing internships for students not receiving financial aid. In some cases, internships could be coupled with the independent study program, and students could receive credit when their academic contribution is substantial.

Whatever options are ultimately adopted, any program relating to faculty research must avoid using undergraduates solely to perform routine tasks. The research problems must be significant and the student's role of substantive value.

B. Strengthening Current Programs That Were Designed to Increase Academic Interaction Between Faculty and Students

A number of programs are in this category: examples include the Freshman Seminar Program, the College House program, and the Independent Study and Directed Reading program. Unfortunately, financial exigencies, and competing faculty interests, have weakened some of these programs. The working group believes that strengthening these programs will enhance academic interaction between students and faculty while significantly improving undergraduate education.

Freshman Seminar Program: Although the original intent of the Freshman Seminar program was to encourage standing faculty throughout the University to work closely with a small group of students and serve as their advisors, in recent years teaching fellows have taught the majority of seminars, while the preponderance of offerings have come from the English and history departments. A strengthened Freshman Seminar program should bring students in the freshman year into close intellectual contact with senior faculty members. The seminars should enable students to take a more active part in their own education and should serve as a sound introduction to serious scholarship at the University. At the same time, the University would emphasize its commitment to standing faculty involvement in undergraduate education.

We recommend the following options:
6. All departments and schools offer at least one freshman seminar and standing faculty generally teach these seminars. Seminars offered by teaching fellows should be the exception. Senior faculty from across the University should be encouraged to use the program to test new ideas and new ways of teaching traditional materials.

7. Some involvement by senior faculty in those freshman seminars that continue to be offered by teaching fellows. As mentioned, the English department is currently offering graduate teaching seminars for teaching fellows who will be conducting freshman seminars in the same subject areas. The faculty who direct the graduate sessions will be teaching freshman seminars as well. This approach offers one way to increase the involvement of senior faculty in the Freshman Seminar Program while at the same time provides support and guidance for those new to teaching.

College House Programs: Increased use of University residences for educational purposes could be a part of the program to improve the quality of interaction between faculty and undergraduates. Although more than one hundred faculty members are affiliated with the formal programs at college houses, few courses for credit are offered in any residences except Hill House. Continuation of the informal opportunities for faculty to dine, meet, and talk with students is essential.

We recommend the following options:
8. Arrangements through which seminars and departmental courses are offered in the residences. These arrangements could increase the opportunities for faculty-student interaction while allaying the concern of some junior faculty that their involvement in the college house system will go unrecognized.

9. A broad effort to make the campus residences an educational focal point for all students throughout their entire undergraduate experience. Most freshman live in one of the campus residences; however, most students move frequently in their undergraduate years and, consequently, do not have an opportunity to develop close ties or stable residential associates. Formal and informal arrangements could be designed to encourage continuing ties to those residences when students move to off-campus housing. Hill House has been particularly successful in developing these ties; Stouffer and Van Pelt have enabled students to be part of a house for two or more years.

Independent Study and Directed Research Courses: These programs offer another means to strengthen faculty-student academic contacts, while extending the opportunities outlined in part A of this document. While they have been available for a number of years, more students in both the College and the professional schools would benefit from working with faculty in this way. Ideally, all departments should offer such opportunities and encourage qualified students to take advantage of them.

We recommend the following options:
10. An Independent Study-Research Opportunities Register of professors who have volunteered to sponsor independent work. Such a registry is currently provided in the General Honors program and was offered in the past on a University-wide basis.

11. Increased opportunities for independent research within existing courses. The urban studies major and the Schools of Engineering and Nursing now provide such opportunities.

12. Tutorials in which selected undergraduates concentrate on a subject with individual faculty guidance. Such a program, involving a weekly meeting or conference, could be offered through departmental majors or to students at-large. The inclusion of a graduate student in the process might yield even more exciting results.

(Continued)
II. Improving English Literacy and Increasing Understanding of the Computer and Its Impact

Curricular flexibility is one of the great strengths of this University. Students may shape their programs to meet their interests within the structural arrangements designed by each school. The working group does not suggest a shift in this basic pattern. We believe we can and should maintain “One University” without the same core curriculum for all students.

At the same time, the working group agrees that all graduates of the University should be able to read critically and write clearly. They should also be able to work comfortably in an intellectual environment transformed by the advent of the computer. Not all University graduates are substantively prepared to communicate effectively or to handle the impact of computers on our culture. We stress that our concern here is not skills training, but education in two fundamental modes of thought, their applications and their influence in changing the way we live.

There was considerable discussion among the working group on how best to handle these two areas of concern. Four long term approaches were suggested:

a. At one extreme, the University—perhaps in collaboration with others—could require all incoming students to prove proficiency in English and in computer-aided analysis as a condition for entrance. These requirements would press responsibility for at least some of the matter upon secondary schools. We could impose such responsibility only over a period of time; otherwise, the impact on admissions would be significant.

b. A more flexible approach would be to inform students that proficiency in these two areas is expected of all students and that University courses are designed accordingly.

c. A more modest step would be to urge prospective students to gain proficiency in these areas on the ground that it will be extremely useful during their undergraduate life.

d. Finally, the University could engage the graduate and professional schools in bringing their influence to bear on the matter. If those schools in the University, for example, were to impose a set of prerequisites in these two areas—perhaps in collaboration with graduate and professional schools in other institutions—the impact on undergraduate education would be substantial. None of these approaches, however, deals directly with the problems at hand. Although the University should take a lead in developing long-term resolutions to these problems, we can take a number of immediate steps to help students gain proficiency in these areas.

A. Improving English Literacy

Although relatively few students come to the University requiring basic instruction in grammar and spelling, most do need continuing education in clear English expression.

The English Freshman Seminar program provides a strong base for dealing with this matter; through its courses, faculty attempt to deal with problems in writing and in literacy generally. Although participation in the program is voluntary, the majority of freshmen, some 80 percent of the class, choose to take an English freshman seminar.

In addition, the Writing Center provides practical assistance. This tutorial service is available to all in the University who believe their writing needs improvement. It supplements the instruction students receive in classes, especially classes where the teaching of writing does not lie within the instructor’s field of expertise or where students require more assistance than instructors can realistically provide.

The present structure, however, needs improvement. Strengthening the Freshman seminar program, as suggested in Part I of this working paper, will help improve English literacy among undergraduates. But the attention provided by a semester of freshman English, or even two, is inadequate for those students whose facility in language needs to be strengthened significantly. We focus too little attention on literacy beyond the freshman year. Moreover, students who write well for an English course often are unable to do so for other courses.

The working group concurs with an English department proposal calling for an extensive and formalized liaison between the Writing Center and departments throughout the University in an attempt to improve writing in the major courses offered by departments. We recommend:

20. Teams of English instructors be assigned to major courses in the University. They would consult with professors in those courses about required writing assignments, the writing problems of students in the courses, and the means by which these problems might be solved. As a result, instructors might arrange and conduct a number of classes to delineate basic principles in writing, set up ad hoc writing labs to deal with general problems, and make themselves available as tutors to students who feel they need individual help. Consistent effort and continued review would be essential to the success of this program.

The relationship of English instructors to courses in engineering and in the physical and biological sciences, which often do not require substantial written work, might take different forms. The basic approach, however, should be the same: a major component of the effectiveness of an engineer or scientist is how well he or she presents ideas to others. Instructors could be assigned to work with faculty to determine how best to address their students’ literacy problems.

B. Increasing Understanding of the Computer and its Impact

The computer is transforming the way people interact with one another and with machines. A recent Sloan foundation paper, “The New Almanac Supplement January 15, 1982
III. Encouraging Greater Interaction Between Liberal Arts and Professional Education

The interaction between the liberal arts and the professional schools is one of Pennsylvania's greatest strengths. Its undergraduates have the opportunity to draw on the resources of the entire University for their education. Some barriers have been eliminated that prevented students from taking advantage of all Pennsylvania has to offer. For example, nearly half the courses now taken by Wharton and Engineering students are offered by the College of Arts and Sciences. The working group believes, however, that we can and should do more to encourage interschool cooperation in undergraduate education. Two major approaches deserve particular attention:

A. Creation of incentives for greater interaction across school lines.
B. Development of curricular options that maintain the liberal character of the College degree while allowing for concentrations that draw on expertise within the professional schools.

A. Incentives for Interaction Across School Lines

The educational intent of the Development commission was to foster "One University." We reaffirm that concept with enthusiasm. The current budgeting system, however, may encourage some schools and departments to build fences around their resources and to dissuade their students from taking courses elsewhere. Similarly, some schools are hesitant to allow their faculty members to offer courses in other schools, for fear of straining their resources and losing income.

Although there are ways—such as cross-listing courses—to evade the existing barriers, the working group believes that consideration should be given to establishing incentives that would promote greater interaction among the schools, rewarding them for the development of programs that cross school lines. We recommend the following options:

24. Elimination of the Faculty of Arts and Sciences restriction on the number of electives that students can take outside the College. Would FAS consider such a move if there were a guarantee that it would not lose income and methods could be devised to maintain the integrity of the BA degree? Is it possible to increase the number of credits needed for the Bachelor of Arts degree but allow for more unrestricted electives?

25. Courses primarily for undergraduates offered by faculty members in those schools without undergraduate programs. We have in mind not adulterated pre-professional instruction, but rather courses that provide serious academic opportunities for undergraduates to learn about the roles and disciplines of the professions in our society. Some courses along these lines are now available; more could be offered. Undergraduates should have an opportunity to be exposed to each of the University's thirteen schools.

26. Financial incentives, including:
   a. A special stipend program to enable a school to buy the time of faculty from other schools.
   b. A university-wide fund for innovative programs that link various schools or disciplines. This fund would be similar to the Exxon Fund, which encourages faculty in individual schools to develop interdisciplinary courses and programs of interest to undergraduates. The fund could provide support for the development of courses, buy faculty time, or reimburse schools or departments for their efforts, particularly for administrative support.

Of course, not all barriers are financial. Some faculty members, for example, may not be familiar with the work of professors with related research interests outside their department or school. At least in some areas, mechanisms that identify faculty research interests would be helpful.

27. Establishment of faculty consortia in a selected number of areas that cross school boundaries. Arrangements along these lines are already underway in ethnomedicine and a few other fields. More might be promoted by relatively modest funding for staff support, outside speakers, and the like. Two examples of areas in which faculty now do significant academic work are:
   a. The impact of technology on society.
   b. Ethics and the professions.

28. A roster of faculty research interests listed within broad categories that cross disciplines.

The University's unique resources in both liberal arts and professional education can be exploited more fully in these and other areas through conscious efforts to promote faculty exchange. The University Press might be encouraged, for example, to publish an interdisciplinary series with research essays by University faculty members.

B. Curricular Options

We need curricular options that maintain the liberal arts character of the FAS degree while allowing for concentrations that draw on expertise within the professional schools.

We have already achieved some progress in this area. A communications major is offered by the Annenberg School for students in arts and sciences; the major in the biological basis of behavior involves faculty from the departments of psychology and biology as well as faculty in the Schools of Medicine and Veterinary Medicine; the urban studies major involves faculty in regional science, economics, and city and regional planning. To encourage this movement, we recommend the following options:

29. New minors such as law and public policy, economics and finance, biomedical anthropology, marketing and psychology, and medical ethics and sociology.

30. New formal dual-degree programs. A number of such programs already exist, such as those between the School of Engineering and applied Science and Wharton (the management-technology program) and between FAS and Engineering (science, technology, society and design, and structural technology).

31. New courses that focus on the humanistic or social science dimensions of areas within the professional disciplines.
Graduate Education

1. Introduction

After consultation with the deans of all the schools, the President and Provost identified graduate education as one of the six topics on which to focus the strategic planning process this year. As America's first University, Pennsylvania has had a long and distinguished history in many areas of graduate study. Today, graduate education is widely recognized as a prime educational mission of the University. Strong graduate programs are necessary to attract outstanding faculty, to preserve tradition and cultural values, and to create and advance knowledge. To a considerable extent, the problems of graduate education have been caused by a decreased and decreasing financial base of support. With little hope of return to the substantial federal funding of the 1960's, Pennsylvania is faced with planning for a future in which new resources must be found and existing resources must be used as efficiently as possible.

2. Present State of Graduate Education at Pennsylvania

Graduate education at Pennsylvania fulfills two distinct but at times interrelated functions: research and professional education/certification. In the fall of 1981, there were approximately 8000 full-time and 1700 part-time graduate students.

Graduate students are supported by unrestricted grants (University fellowships, University scholarships, Dean's fellowships, Senatoriums, work study, Faculty and Staff scholarships), by restricted grants (endowed fellowships, grants from industry, federal grants, federal work study and gifts), and by unrestricted loans.

Professional doctoral and master's degrees are offered by the individual schools. For research-oriented programs, there are currently 67 graduate groups, each centered in one of seven schools. Each group falls under the academic jurisdiction of the Faculty of its school and the budgetary authority of that school's dean. The current organization of graduate education provides for the Associate Provost to serve as the central administrative focus for Ph.D. education. The Associate Provost receives advice from the Council of Graduate Deans and the Graduate Council of the Faculties on matters related to University-wide requirements and policies that affect Ph.D. education and on questions of quality control and creation or termination of graduate programs.

3. Focus: Ph.D. Education

Although there are a variety of issues in graduate education to be studied, time constraints for this working paper dictated focusing on a single major area. We chose Ph.D. education because the strength of that degree above all else determines the quality and direction of our entire graduate program. Indeed, as Pennsylvania's flagship degree, the stature of the Ph.D. significantly affects the quality of education throughout the University.

4. History/Definition of the Ph.D. in the United States

Nonprofessional graduate study was almost unknown in the United States until the mid-19th century. The idea for such graduate programs came to America from students who, after graduation from American colleges, had gone to Germany for postgraduate study and research. These students advocated and worked to develop Ph.D. programs based on the German model. As was the case in German universities, the Ph.D. in the United States became a research degree. In fact, in transplanting the Ph.D., an increased emphasis was placed on the specialized research aspects of the program. From the outset, graduate education in the United States developed with the distinct purpose of graduating productive scholars.

By the mid-1870's, some twenty-five institutions awarded the Ph.D. It was the founding of Johns Hopkins, the first institution in the United States primarily devoted to graduate study, however, that marked the crucial turning point in Ph.D. education. Hopkins' success stimulated other institutions to develop programs of their own. In 1881, for example, Columbia established its graduate program. That same year, the Trustees of the University of Pennsylvania approved the formation of the Faculty of Philosophy and the granting of the degree of Ph.D. for prolonged and creative research. Professors in thirteen subjects, all of them already at the University, constituted the new faculty. In 1887, the Faculty of Philosophy was recognized as a separate school drawing its professors from the arts and sciences and Wharton. When the Association of American Universities was established in 1900, the University of Pennsylvania was among the fourteen founding research institutions.

In the first decade of the 20th century, Ph.D.'s educated as researchers in the sciences began to locate outside the University in business and government. Graduate education for the social sciences was also seen as useful for individuals who planned to work outside the academy. Some social science Ph.D.'s envisioned their primary function as improving and reforming government. Regardless of where a Ph.D. was employed or for the purpose of his or her work, the degree was defined as a research degree. That definition still applies.

5. The Goal of Ph.D. Education

The goal of Ph.D. education, as the Working Group sees it, is to develop individuals who will function as intellectual leaders. In this sense, a Pennsylvania Ph.D. graduate should:
• possess research skills and abilities of the highest quality;
• ask and attempt to answer significant questions;
• be conversant with major intellectual trends outside the specific field of in-depth study;
• function as an intellectual role model exhibiting a high level of ethical behavior.

The strategy for achieving this goal is to educate for intellectual leadership more effectively by improving the quality of our students, our instruction, and our programs. The options in Section 7 are designed with that aim in mind.

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6.1 Identification and Distribution of Resources

Because of internal and external factors (the rising tuition needed to cover soaring costs of graduate education and the erosion of governmental support for fellowships, research, and student loan programs), we need to identify resources to support graduate education. Without sufficient resources, Pennsylvania will have difficulty in maintaining excellent programs and attracting the most able students in a competitive market. The University's procedure for allocating funds to under-graduate, graduate, and professional education should be examined to determine whether that allocation reflects the University's priorities. The allocation of resources among graduate groups themselves also needs to be considered.

6.2 Fellowship Support

At the University of Pennsylvania, there are four major types of fellowship support: research fellowships, teaching fellowships, traineeships, and University fellowships.

Research and teaching fellowships support many of our Ph.D. candidates and are given, at least in principle, on a quid pro quo basis (i.e., the student normally receives a stipend and tuition benefits in return for services rendered). A research fellowship is given for services provided on a funded research project; a teaching fellowship for work in the classroom. Problems and issues relating to research and teaching fellowships include:

- the probability of diminishing funds during the 1980's with which to support fellowships;
- the question of whether there should be a standard stipend and tuition benefit for fellowships as opposed to a procedure reflecting such factors as the Dean's priorities, the sponsor's generosity, or the market mechanism;
- the logical basis of the process by which teaching fellowships are allocated to departments.

University fellowships and traineeships are not offered as quid pro quo; rather, such support is made in the form of direct grants to doctoral candidates. Their chief purpose is to allow intensive pursuit of the degree without the interference of job-related activities. They are particularly useful in attracting first-year students. For University fellowships, the University of Pennsylvania made $1,250,000 available during 1981-82. The money comes directly from the University's operating budget. Problems and issues relating to University fellowships include:

- Our current budgeted funds for this purpose, although rising in recent years, are well below the comparable amounts budgeted by some peer institutions.
- The present procedure for allocating these fellowships is an interim one.

The general problem of fellowship support is both obvious and significant:

- How do we provide means of support for doctoral candidates beyond that available at the present time?

6.3 The Ph.D. Student Population

Presently, the Ph.D. students at the University of Pennsylvania are largely engaged full time in activities on campus, at least during the early years of their programs. During the latter part of their programs, some are fully occupied on campus and some have jobs elsewhere; the writing of dissertations goes on under a variety of conditions. Because the Pennsylvania Ph.D. is a research degree of the highest quality, it is desirable to maintain the full-time characteristic of the programs, particularly for that period of time during which the candidate is fulfilling degree requirements. Programs in which students are employed nonacademically off campus for a large portion of their time are not likely to be distinguished for their academic quality. This does not imply that terminal Master's degrees aimed at part-time students may not be desirable in some areas. As a matter of fact, some such programs probably are desirable in maintaining faculty for the doctoral programs.

6.4 Structure and Governance of Graduate Education

The structure and governance of graduate education has been intensively studied during the last several years, resulting in the recently published report of the Provost entitled "On Graduate Education." The Almanac Supplement January 15, 1982 working group suggests that, given the years of effort and experiment in developing this document, the structure and governance established therein be given a reasonable period to mature before further revision is contemplated. Furthermore, the working group feels that its central element, the graduate group structure, is an important source of strength in that it fosters interdisciplinary participation and communication.

6.5 Biomedical Education

When the Graduate School of Arts and Sciences was dissolved in 1974, each graduate group was assigned to a home school. The purpose was to join the graduate programs with the budgetary resources that support and strengthen them. The Biomedical Graduate Groups (appendix 10), however, were treated differently because they are constituted in a different way from other graduate groups in the University. For the most part, the membership of the Biomedical Graduate Groups consists of faculty in the basic science departments in the Schools of Medicine, Dental Medicine, and Veterinary Medicine. Additional members are adjunct faculty from local biomedical research institutions and faculty from the School of Arts and Sciences. Thus, it is not easy to identify a logical home for any particular group. At the request of the faculty members involved, the Biomedical Graduate Groups were assigned to the Faculty of Arts and Sciences for academic matters; a Board of Biomedical Dean was established to oversee their budgetary needs. Two major problems arising from this scheme are the lack of direct financial resources to support programs and the absence of one leader or director to coordinate budget and programs. These issues are addressed in appendix 11.

6.6 Structure of Ph.D. Instruction

Considerable attention needs to be given to the methods by which doctoral instruction is currently carried out at the University of Pennsylvania and to the ways in which it is structured. Typically, Ph.D. courses are given in a lecture or seminar mode. These may be appropriate in many cases; however, it is not clear that serious attention has been given to variations and to alternatives such as an apprenticeship approach.

6.7 Master's Degree Programs in Graduate Groups

There are several questions related to the nature of master's degrees awarded by graduate groups which ordinarily give the Ph.D. How do the curricula of these master's programs mesh with the associated Ph.D. programs? When the master's and doctoral curricula are sharply distinct, is the master's degree really a professional degree? Should graduate groups exist which give only the master's degree? How do we reconcile a master's degree with terminal course units with those given for the completion of twenty course units? Finally, a perennial issue is whether or not University fellowships should be awarded to students who matriculate into a master's program?

In looking at all these issues one should be concerned with the demand for master's degrees of various sorts. In fields where opportunities for Ph.D. holders have contracted, master's programs which may be tied to vocations other than those traditionally pursued by doctoral students are perhaps a means of profitably and usefully employing faculties we wish to maintain and strengthen for intellectual reasons.

7. Options/Implementations

7.1 Improving the Quality of Our Students

7.1.1 Option: Increased Fellowship Support

The most critical need for Ph.D. education at this University is for increased fellowship support. Over the past decade, inflation and related economic pressures have raised significantly the cost of graduate education. At the same time, Pennsylvania and other research universities have experienced a dramatic reduction in major sources of graduate student support. Privately-funded national fellowships have nearly disappeared. Since the early 1970's, the Ford Foundation, Woodrow Wilson National Fellowship Foundation, and the Danforth Foundation have all reduced or terminated important programs of support. It has been, of course, the rapid withdrawal of federal and other public resources after a decade of nearly continuous growth in these sources of support that has had the most apparent and serious impact on graduate education.
For example, NDEA (National Defense Education Act) Title IV funds, which provided millions for graduate study, primarily for the humanities and social sciences, were phased out; NDFL (National Defense Foreign Languages) monies still exist but in very limited amounts compared to the sixties; and the paltry number of National Science Foundation graduate fellowships available during the past few years shows the unwillingness of the federal government to support graduate students directly. For Pennsylvania, these and other losses in public revenues have meant a markedly decreasing fellowship pool.

Although peer institutions have been affected by the decline in federal and other outside sources of support, our situation is more severe. It is more severe in part because peer institutions seem to have shown a greater willingness to increase the amount of university general funds expended for direct support of graduate students. Regardless of the cause, Pennsylvania, according to all existing data, seems to provide substantially less money for graduate support than our peers.

Quite simply, if we are to provide a first-rate Ph.D. program with first-rate students, we must increase our fellowship support.

**Implementation**

- New fellowship money in the form of endowment or term funding should be generated in general support of Ph.D. education, or for particular Ph.D. programs, or sets of programs. Such action involves making doctoral student support a high priority of the Development Office, as well as of the schools themselves.
- Reflecting a raised internal priority for graduate support, existing resources should be reallocated. Among the steps that could be taken would be the institution of a University Fellowship Fund which would draw an initial endowment from roll-forward funds and which could then be the focus for attempts at private, foundation, and corporate fund raising. The recent termination of the University's method of reallocating funds for graduate support through the employee benefits pool should be reevaluated; other universities are now turning to the system Pennsylvania just discarded.

**7.1.2 Option: Increase in Submatriculation Programs**

Submatriculation provides a way of attracting graduate students and of maintaining the faculty necessary for Ph.D. programs. We presently have extraordinarily capable undergraduate students at Pennsylvania, many of whom take courses on the graduate level as part of their undergraduate programs, and some of whom participate in dual programs, ending in the granting of an undergraduate degree and a master's degree in a shorter period of time than is normally the case. Because of the shortening of the time period involved, formal submatriculation programs reduce both student expenses and tuition income but are academically attractive and can likely influence some of the best minds to stay on for doctoral study.

**Implementation**

- Consideration should be given to developing a number of carefully designed submatriculation programs to attract more of our best undergraduates into graduate programs. Consideration should also be given to enhancing submatriculation programs by developing a formal connection with our doctoral programs. Since the University Scholars Program enables outstanding undergraduates to pursue a Ph.D. or other advanced degree while working on completing a baccalaureate, it should be examined in any study of submatriculation.

**7.2. Improving the Quality of Instruction**

**7.2.1 Option: Decreased Duplication of Courses**

The graduate group structure presently employed at Pennsylvania has significant strengths: as mentioned in 6.4, it fosters interdisciplinary participation and communication, making it possible for students to concentrate on important problem areas that would be difficult to approach under a strictly departmental structure. However, because of the interrelation of many disciplines, redundancy of courses does exist.

**Implementation**

- A careful examination should be given to the question of which courses, presently given each year or each semester to small numbers of students, might be given every other year or every other semester without serious deleterious effects on the program involved.
- A consolidation of courses that duplicate content should be considered, with the possibility of team teaching across graduate groups.

**7.2.2 Option: Increased Reliance on Apprenticeship Approaches**

Rather than relying entirely on the present seminar or course system, consideration should be given to a move toward an apprenticeship mode of instruction. The apprenticeship system would involve a closer association of a given student with a given faculty member from the beginning of the graduate program. This method of instruction at the higher levels was used almost exclusively over the centuries and is still used to a great extent in the natural sciences. Since the Ph.D. is a research degree rather than offered for the completion of a given sequence of courses, an apprenticeship mode is indeed appropriate. The closer working relationship with a faculty member would improve student/faculty interaction, as well as involve the student in the production of scholarship and independent work at an earlier stage in his or her career. A reduction of the number of sparsely-populated, advanced-level courses might save faculty time, some of which could be put to effective use in undergraduate teaching. The financial implications of various kinds of apprenticeship arrangements need careful examination.

**Implementation**

- An increased attempt should be made to use reading courses, particularly to cover well-defined bodies of material. Some reading courses perhaps could be given outside the semester structure, employing examinations to test the student's mastery of the subject.
- An increased use of tutorials should be considered, and any resulting financial implications explored.
- The concept of "apprenticeship", used so successfully in other countries, should be explored for Pennsylvania.

**7.3 Improving the Quality of Our Programs**

**7.3.1 Option: Consolidation Among Graduate Groups**

In order to educate for intellectual leadership and to make the maximum use of our existing resources, an examination of our graduate programs needs to be undertaken. This examination should be aimed at the achievement of outstanding and unique graduate programs throughout the University.

**Implementation**

- To develop outstanding and unique programs, it may be necessary to foster consolidation among graduate groups. Consolidation has two aspects: reduction of duplication courses and programs, allowing resources to be used more effectively, and integration of areas of knowledge, encouraging the broadening of areas of inquiry and overcoming the narrow specialization that is generally identified as a major problem in Ph.D. education. Particularly if Pennsylvania should, to educate individuals who ask and attempt to answer meaningful questions, as well as have a broad perspective, it is necessary that graduate groups encompass significant areas of knowledge. In an ideal world, a world of unlimited financial and intellectual resources, a given university could attempt to reflect the entire universe of knowledge. The 1980's are a far cry from the ideal world. Thus, consolidation, or careful husbandry, of our intellectual and material resources has become an increasing requirement for intellectual excellence.

Any attempt at consolidation would, of course, require some criteria for determining where change should be made. The Development Commission, although calling for a more fundamental reshaping of graduate education (stating that it was necessary "to bring all programs up to a minimal standard of quality or plan to eliminate them"), did establish six criteria for the strengthening of graduate programs. Those criteria are: potential for significant, creative work in the area; a present high-level of excellence; strong interactions with existing strengths; long-run contribution to the solution of problems of society; uniqueness of our strength in the area; and availability of outstanding new faculty in the area. We have attempted to build on the Development Commission's discussion and provide a similar, but alternative, set of criteria we find...
meaningful for the 1980's. These include selectivity and uniqueness, excellence, and societal needs.

Selectivity and Uniqueness—

Particular attention should be given to those areas in which Pennsylvania has unique strengths and can make unique contributions. The University must concentrate on developing first-rate graduate students in those research and educational programs which are both unique and appropriate in the context of Pennsylvania's history and particular resource configuration. Selection of areas for graduate study should be guided by the Faculty's assessment of their intellectual resources and skills, as well as their values and beliefs about the nature of a good society. For example, in the early 20th century, social scientists decided they had a particular role and could help solve particular societal problems; what they saw as their contribution to society was not determined by the marketplace.

Excellence—

The measure of excellence can no longer be avoided with the rationalization that it is impossible to do. Subtle and relatively objective measures of excellence exist for each area of study and discipline. It should be possible, therefore, to construct various indexes that allow for effective evaluation of graduate groups. At the very least, some measure of excellence should be expected in each long-range plan proposed.

Societal Needs—

Reasonable responses to society's need for Ph.D. graduates depend upon several factors. On the one hand, it is incumbent upon management perspective, there is no coordinated focus within the University regarding industry relationships. We are behind our peer institutions in this respect. This subject deserves serious attention, and the group was unable to give it the attention it deserves due to time constraints. We wish, however, to alert the Provost to this important area with a suggestion that the subject be carefully studied next semester.

The excellence of the University's diverse research efforts has rested upon the strength of the faculty and a tradition of decentralized coordination. The central administration has seen its role primarily as an enabling one, that is, providing the environment and resources which can facilitate the faculty's effort. The working group on research endorses this concept and has set as its highest priority for this report an examination of this enabling function, including what changes, if any, would benefit the broad University research community, consonant with the total well-being of the University.

In its examination of the enabling function of the University administration, because of time constraints, the working group could only examine data that were readily available from existing sources. It was not possible to search out answers to all the questions posed during our deliberations. In general, the University data systems related to research are geared primarily toward financial management and emanate from the Comptroller's Office and the Office of Research Administration.

It is important to note two significant limitations. First, the data available relate only to restricted research expenditures and do not account for the substantial amounts of faculty research effort that vary by school and that are funded by school and that are funded by extramural and other sources. It is particularly important to note the very large and significant research efforts in the humanities and social sciences which occur outside the purview of quantifiable research expenditures. In view of the difficulty of assessing the extent and value of research which is unsponsored, the working group stresses its belief that a useful discussion concerning the research enterprise cannot be framed solely in financial terms. In fact, in the current climate of federal program cutbacks, the health of research programs in the humanities and social sciences—areas which have traditionally enjoyed less external funding—are of particular concern to the University.

8. Summary

In a letter to the University community, the President and Provost noted that the working groups were asked to prepare papers on issues and options that would lead to a "campus-wide discussion of the educational issues involved". It is indeed our intention that this report lead to further discussion and study, as well as the formulation of recommendations by appropriate faculty bodies. It is our hope that any discussion and study will look carefully at the five options presented above. In summary, these are:

- Increased Fellowship Support
- Increase in Submatriculation Programs
- Decreased Duplication of Courses
- Increased Reliance on Apprenticeship Approaches
- Consolidation Among Graduate Groups.

Research

I. Introduction

Among the institutions of higher education in the United States, major universities are distinguishable by the centrality of the research function. The fruitful interdependence of the dual missions of research and education enhances the essence of a major university. This interdependence is especially important in graduate education where the research accomplishments of the faculty, postdoctoral research fellows and graduate students are a key component of the development and transmission of new knowledge.

The University of Pennsylvania is an internationally respected research institution. As such, the fabric of the institution is nourished by the research enterprise, and the furthest it's reputation rests in large part upon continued research excellence. Research must be considered of fundamental importance to the continued well-being of this University. The definition of research used in this report, therefore, is based on the belief that each and every faculty member, whether from the arts, humanities, natural, or biological sciences must be engaged in seeking out new knowledge for his or her field.

The working group on research has viewed its overall mandate as one involving an assessment of the vitality of research across the entire University. Obviously, such a formidable task could not have been carried out before the deadline established for this group's working paper. Priorities, therefore, had to be set. In setting priorities, the group decided not to focus upon two areas that were included in its charge: computing and relationships to industry. We are of the opinion that computers will play an increasingly important role within the University community. The use of computers will become pervasive not only in research but in other spheres of University activity as well. We believe that the management of computing is an important University function but one that this group cannot deal with effectively as presently charged and constituted. Therefore, the working group recommends that the questions raised in the charge be referred to the existing University-wide Computing Committee.

In its discussions about the University's research enterprise, the working group noted current activities in other major research universities related to developing ties to industry. This is a subject that raises major academic and financial questions. It is our perception that, from a...
Second, while financial issues surrounding research can potentially affect the stability of the University in very dangerous ways, financial data—be they restricted or unrestricted—do not provide a standardized measure of research activity, quality, or vitality. Any serious consideration of research programs should bear this in mind. There is, in fact, no easy way to maintain data regarding the faculty’s research interests or the quality of research. The Office of Research Administration attempted, over a period of several years, to maintain a faculty research profile that documented the research interests of individual faculty members. This system was unwieldy, difficult to maintain, and notably underutilized.

The remainder of this report is divided into three sections. First, in Section II. A. we introduce five general topics that affect the well-being of the research enterprise at the University of Pennsylvania and discuss these briefly. Then in Section II. B. we proceed to a presentation and discussion of our findings as regards the five topics. Because of the magnitude of the biomedical research effort at this university, we shall frequently use illustrative material relevant to that particular area. Finally, Section III gives a short discussion and the specific recommendations that follow from our work.

II. Viability of Research at the University
   II. A. Research Issues
      II. A. 1. Should a more formal central University mechanism be established to monitor what research fields are presently being pursued and to provide an awareness of important areas that might be developed?

As has already been noted, the research strength of this University has been built upon individual faculty initiative. Historically, the ebb and flow of concentrations in various fields has been based upon spontaneous activities by individuals or groups of faculty. The role of administration has been one of encouraging disciplinary research and of removing barriers so that interdepartment and interschool cooperation can be fostered.

There are positive and negative aspects of increasing the central University role in managing the selection of research programs. On the positive side, in a time of constrained resources, the University will find it increasingly necessary to be more selective in building upon existing strengths. The increased use of expensive technologies (for example, NMR, positron emission tomography, and cyclotrons) may make it necessary for the central University to choose among programs, especially if University funds must be used to match outside investments. Finally, a central focus might provide a more timely mechanism for recognizing obsolescence of research programs and for adding new and important ones.

While the working group believes the above factors worthy of careful consideration, we believe that the negative aspects of influencing program choice from a University level outweigh the positive aspects. The tradition of relying on faculty creativity is a strength that should be continued. Research fields develop through groundswells of faculty interest, and coordinated planning cannot replace spontaneity. In addition, it would be very difficult for a central office to obtain sufficient expertise or to maintain sufficient information upon which to base such decisions. The expertise resides in the faculty.

The University’s responsibility for monitoring its research programs gains in importance in times of fiscal restraint. This detailed oversight should occur at the departmental and school level. The prudent use of academic review procedure—both internal and external—provides the best mechanism to learn of potential deficiencies in departmental programs. The working group would also like to stress that the University, following the concept of selective excellence, should not feel compelled to cover all research areas.

II. A. 2. What should be done to address the obsolescence of much of the physical plant and equipment that supports research?

There are many examples that can be cited, but two are the lack of adequate basic science laboratories in the Veterinary School and the long term deterioration of the School of Medicine’s animal facility (DLAM). The working group addressed the questions of how and why the obsolescence was allowed to occur and what might be done to renew the deteriorating facilities. A related issue involves the maintenance of support systems that provide the infrastructure of a successful research enterprise, e.g., glass blowing and machine shops.

II. A. 3. What should be done to deal with the increasingly high cost of research?

Many research programs depend more and more on expensive equipment and facilities. Digital data acquisition systems, high power pulsed lasers, and ultra-high-vacuum facilities are only a few examples of a general trend. Continued excellence in research may require a substantial and continuing commitment of University resources, a commitment that should be examined carefully. The working group also notes that in many disciplines within the social sciences and the humanities there is a high scholarship return for limited funds. In our concern for the high cost of research in the physical, biological and engineering sciences, the needs of these disciplines should not be overlooked.

II. A. 4. What should be done to assess the impact of external forces upon the research enterprise and to ameliorate destructive effects?

The total research activity at the University of Pennsylvania is heavily dependent upon funding from the federal government. It is clear that during a period in which federal priorities are being reordered, this...
heavy dependence puts these research programs at risk. The working group therefore addressed itself to the University's current and potential ability to influence policy and the implementation of policy within the federal government. It did not consider similar problems at the state and local levels where the dollar amounts are smaller and the relationship to research much less direct.

II. A. 5. Has the University Administration during the last several years made prudent management decisions affecting research?

This concern of necessity overlaps those stated in A. 2., A. 3., and A. 4., and we consider it to be of considerable importance, not so much for the historical perspective it implies as for what it may tell us concerning the University's capacity to make correct decisions influencing research in the future. It is not altogether clear that the University's administrative structure was set up with this capacity in mind. Past decisions concerning the setting of the indirect cost recovery rate and the distribution of indirect cost recoveries themselves raise questions of this sort.

II. B. Working Group Findings

The working group on research approached its examination of the enabling function of the University by dividing it into two parts: (1) the internal function of maintaining a supportive environment within the University for research activities and (2) the external function of representing the University's research interests to federal and other sources of funding for research activities. In considering the internal function, the group examined data and trends related to sponsored research, heard testimony regarding the various administrative functions related to the research enterprise, and examined in detail the manner in which indirect cost rates are established through negotiations with the federal government. In considering the external function, the group heard testimony regarding the University's role in influencing policy and its implementation within the federal government.

II. B. 1. Data

Exhibit A details grants and contracts subledger 5 expenditures from FY 1977 to FY 1981 by direct expenditures and indirect recoveries. Also shown are the percentage increases of both expressed in current and in constant 1972 dollars. It is apparent that, with the exception of a major growth spurt in FY 1980, direct expenditures have been more or less keeping pace with inflation. In contrast, indirect recoveries have consistently exceeded increases in inflation. This is especially true during FY 1980 and FY 1981, due to the increase of the federal indirect cost recovery rate to 65%.

In measuring the vigor of sponsored research, the direct cost expenditure levels, when corrected for inflation, are probably most important. It is encouraging, therefore, that these expenditures have kept pace.

Exhibit B shows both sponsored program research funding by responsibility center for FY 1981 and principal funding sources within responsibility center. Note that these data are research dollars only. They are based on O.R.A.'s dollars available estimates from annualized award data rather than from actual expenditures. The data indicate that each of the health schools is heavily dependent on funds from the U.S. Public Health Service, primarily the National Institutes of Health (NIH). The School of Arts and Science also receives substantial funding from NIH. The National Science Foundation (NSF) provides important levels of funding to Medicine, Arts and Sciences, Engineering, and Interdisciplinary.

Exhibit C shows sponsored program research funding by major sponsoring category over the past 5 years for the entire University. The general pattern is one of stability. By far the most important sponsor has been the support from the Public Health Service. This source has ranged from 57.9% to 60.3% of all support. The National Science Foundation and all nongovernment sponsored programs comprise the two next largest categories of support. It is difficult to detect trends in this overall pattern. However, it appears that a trend of reduced support from NSF may be occurring (a decrease from 13.7% in 1977 to 10.5% in 1981).

Exhibit D shows that biomedical research comprises a very large part of all sponsored research carried out at the University of Pennsylvania. Because of this, the working group devoted some effort to that sector as one important area where general problems might be more sharply focused than elsewhere.

Biomedical research is not easy to define precisely; it can be said to encompass any research having to do with biology in its broadest context. Included would be all of the biological and medical sciences. Defined as such, biomedical research pervades the University and includes essentially all of the research performed in the Schools of Dental Medicine, Medicine, Nursing, and Veterinary Medicine; in the departments of biology and psychology in the School of Arts and Sciences; and the department of bioengineering in the School of Engineering and Applied Sciences. In addition, important biomedical research programs can be said to be ongoing within the departments of anthropology, chemistry, physics, and sociology and in the Leonard Davis Institute of the Wharton School. Because parts of many departments and schools are involved, the quantification of biomedical research expenditures is difficult. However, even limiting the definition of biomedical research to that done in the health schools and in the departments of bioengineering, biology, and psychology, about two-thirds of the University’s FY 1981 sponsored grants and contracts research dollars available were in the biomedical areas, as is shown in Exhibit D. The lower part of the table shows the percentage of total University research dollars available that is made up of biomedical research dollars. The data indicate a re-
II. B. 2. Administration of Research

In hearing testimony, the working group was seeking to understand the various administrative functions that impact upon the research enterprise. The key issues considered were whether these units are organized and function in such a way as to provide optimal support for research. The principal offices involved, their major functions and their reporting lines are detailed below.

a. Office of Research Administration (O.R.A.)

O.R.A. is concerned with the administration of policy and procedures for externally sponsored (subledger 5) research. The office tracks individual research projects from the proposal stage through the entire life of the project of the University. O.R.A. maintains an impressive database related to these research activities that permits analysis by school, department, principal investigator, and sponsoring agency. In addition, O.R.A. has become involved in the University’s interface with industry through the negotiation and administration of details of grants and contracts from industry. Finally, a past activity of O.R.A. has been the establishment and maintenance of a database that contains information about the research interests of individual faculty. This database proved difficult to maintain and was of questionable value. The last major updating occurred in 1977 and in the past year the responsibility for the data was shifted to the News Bureau. The Director of O.R.A. reports to the Vice Provost for Research. Additional functions of O.R.A. include:

1. Formulation of contract and grant administration policy and procedures for approval and promulgation by the Vice Provost for Research and the University Committee on Research.

2. Supervision of the administration of contracts and grants throughout the University.

3. Maintenance of a liaison with sponsoring agencies concerning University organization, policies, and procedures; the representation of the University in negotiations with sponsoring agencies in the establishment of consistent contract and grant provisions and policies; the resolution of problems and settlement of disputes.

4. Assurance of compliance with the sponsors’ policies, e.g., fiscal, patent, property, human subjects, use of warm-blooded animals, etc.

5. Serving as signature authority for contracts, grants or other extramurally sponsored programs.

6. Acting as the University Patent and Copyright Officer.

7. Negotiating license agreements after approval by appropriate University officers.

8. Serving as the repository for all records pertaining to extramurally sponsored projects, such as the official grant and contract files, patents, copyrights, human subjects, etc.

9. Serving as members or as ex officio members on University committees (except the Committee of Research) which may involve extramurally sponsored programs, e.g., Subcommittee on Faculty Grants and Awards, Radiation Safety Committee, The Committee on Studies Involving Human Beings, etc.

(10) Assisting, in conjunction with the office of the Vice Provost for Research, interested faculty members in locating potential sponsors, preparing proposals (particularly the budget) and with all other administrative aspects of grants and contracts.

(11) Establishing uniform property control procedures and for maintaining central records of all government-owned property. This office will assist the Principal Investigator in meeting his or her obligations under his or her grant or contract with respect to such property.

b. Comptroller’s Office

The Comptroller’s Office has a variety of functions that relate in some way to research. Each grant and contract has an individual account. The following describes the major Comptroller functions related to research.

1. Maximum of cash flow

2. Final report of expenditures

3. Expenditure control

4. Services to schools (e.g., information)

5. Effort reporting (required by OMB A-21)

6. Equipment inventory (required by OMB A-21)

7. Indirect cost calculations and the negotiation of rates with the federal government

8. Setting of employee benefits rates and the negotiation of rates with the federal government

9. Grants and contracts audits

10. Liaisons with external auditors.

The Comptroller reports to the Executive Vice President.

c. Budget Office

The principal function of the Budget Office that impacts upon research is participation in the determination both of the appropriate level of roll-forward to claim as part of indirect cost recoveries from the federal government and of the distribution of the total indirect cost recoveries from grants and contracts, e.g., the percentage for responsibility centers, the library system, etc. Currently, the Budget Office reports to the President. In the past, this function was part of the activities of the Vice President for Budget and Finance.

II. B. 3. Indirect Cost Recoveries

Because of their importance to research, the working group examined carefully the process by which indirect cost rates are set and also examined the distribution of the recovered indirect funds. The group was interested in whether the elements of cost have been identified and treated accurately and efficiently and whether the management decisions made that affect indirect recoveries and their distribution have been sufficiently supportive of the University’s research capacity.

The indirect recovery rate can be viewed as consisting of two parts: the base rate and the roll-forward component. The base rate is negotiated with the Department of Health and Human Services and is governed by the very specific guidelines enunciated in OMB Circular A-21. Audited indirect costs for a completed fiscal year, as measured according to A-21 guidelines, are used as the base rate for the subsequent fiscal year. Appendix One, consisting of Schedules A, A-1, B, C, D, E, F, F-1, G, H, and K plus a page headed Supplementary Information provides the detail for the computation of the indirect cost rate for FY 1980. The various categories and step-downs used all follow rigorous federal guidelines. The group has satisfied itself that the Comptroller’s

Exhibit E

University of Pennsylvania Federal Negotiated Roll-forward Experience

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Indirect Cost Pool</th>
<th>Direct Cost Base</th>
<th>Base Used</th>
<th>Rate Approved</th>
<th>R.F. Recovery Approved</th>
<th>R.F. Added</th>
<th>R.F. Cumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td>1972</td>
<td>11,550,005</td>
<td>19,749,826</td>
<td>S&amp;W</td>
<td>37.0%</td>
<td>—</td>
<td>3,948,217</td>
<td>3,948,217</td>
</tr>
<tr>
<td>1973</td>
<td>11,940,928</td>
<td>20,665,902</td>
<td>S&amp;W</td>
<td>37.0%</td>
<td>2,103,356</td>
<td>467,327</td>
<td>5,502,270</td>
</tr>
<tr>
<td>1974</td>
<td>14,166,530</td>
<td>36,033,652</td>
<td>MTDC</td>
<td>44.5%</td>
<td>1,967,340</td>
<td>4,190,082</td>
<td>6,386,254</td>
</tr>
<tr>
<td>1975</td>
<td>18,082,673</td>
<td>38,672,081</td>
<td>MTDC</td>
<td>44.5%</td>
<td>1,490,861</td>
<td>5,072,967</td>
<td>6,640,843</td>
</tr>
<tr>
<td>1976</td>
<td>19,383,824</td>
<td>41,508,100</td>
<td>MTDC</td>
<td>45.5%</td>
<td>2,938,053</td>
<td>2,562,829</td>
<td>6,487,019</td>
</tr>
<tr>
<td>1977</td>
<td>21,064,525</td>
<td>41,999,505</td>
<td>MTDC</td>
<td>50.0%</td>
<td>2,938,053</td>
<td>5,072,967</td>
<td>7,707,154</td>
</tr>
<tr>
<td>1978</td>
<td>24,635,790</td>
<td>40,650,634</td>
<td>MTDC</td>
<td>51.0%</td>
<td>1,001,790</td>
<td>3,232,325</td>
<td>10,888,121</td>
</tr>
<tr>
<td>1979</td>
<td>27,312,661</td>
<td>47,775,479</td>
<td>MTDC</td>
<td>52.5%</td>
<td>500,000</td>
<td>2,342,063</td>
<td>12,730,184</td>
</tr>
<tr>
<td>1980</td>
<td>32,327,718</td>
<td>54,924,689</td>
<td>MTDC</td>
<td>55.0%</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>1981</td>
<td>—</td>
<td>—</td>
<td>MTDC</td>
<td>65.0%</td>
<td>2,062,828</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>
Office has systems set up to attempt to maximize under the law the base indirect cost recovery. The second component of the indirect cost rate is the roll-forward component. Roll-forward is the recovery of unrecovered indirect cost from the activity of prior years. Each year, a roll-forward percentage is negotiated with the federal government and added to the negotiated base recovery rate. Although the University has regularly included a roll-forward component in the indirect recovery rate, because indirect costs have risen faster than the recovery of past due costs, the roll-forward amount has continued to grow. As Exhibit E shows, the total roll-forward figure is now approaching $13 million, representing years of accumulated underrecovery.

The working group on research finds it very troublesome that such a situation has been allowed to develop. It is obvious that the value of the unrecovered funds is reduced through inflation each year that they are not recovered, and the University has suffered financially from having lost the opportunity of investing this very large sum of money in a productive manner. The group learned that, in theory, the University could raise its rate to a high level so as to garner these funds. The two principal reasons offered for not having done so are the desire to avoid fluctuations up and down in the rate and the desire to protect faculty whose grant funds come from NSF where an increase in indirect funds would cut directly into available direct funds.

The group finds both reasons questionable. Prudent planning could offset the effects of a fluctuating indirect rate, and the use of appropriate University discretionary funds could soften the impact on faculty of a rate increase on NSF grants. In FY 1981, direct dollars available from grants from the NIH totalled $45.9 million and from NSF totalled $6.8 million. An additional 5% added to the indirect recovery rate for roll-forward would have yielded an additional approximately $1.5-$2.0 million from the NIH. This 5% increase would have cut approximately $300,000 from NSF direct dollars available. Clearly, a portion of recoveries from NIH could be used to subvene NSF sponsored research (and research from other agencies) and the remainder could be used in a productive manner. It would take several years of this level of roll-forward recovery to deplete the funds owed to the University.

The group has dwelled upon this issue because it provides evidence of a lack of a sufficiently strong voice speaking within the central administration for the broad interests of the research community.

The working group also concerned itself with the distribution of the recovered indirect costs within the University. The University is legally free to use these recoveries in any way that it chooses so that the distribution of the recoveries does not have to mirror the distribution of costs. The University has taken advantage of this flexibility over the last several years to use a portion of the indirect recoveries for what were perceived to be priority University concerns.

The two components of the indirect recovery distribution that have provided this flexibility have been the roll-forward component and the support of general resources component. The percentages of the total rate of each are shown below for the past five years.

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Roll-Forward Component</th>
<th>Support of General Resources Component</th>
<th>Total Indirect Cost Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978</td>
<td>5.2%</td>
<td>0.8%</td>
<td>51.0%</td>
</tr>
<tr>
<td>1979</td>
<td>4.4%</td>
<td>0.8%</td>
<td>52.5%</td>
</tr>
<tr>
<td>1980</td>
<td>3.4%</td>
<td>3.15%</td>
<td>55.0%</td>
</tr>
<tr>
<td>1981</td>
<td>3.1%</td>
<td>5.0%</td>
<td>65.0%</td>
</tr>
<tr>
<td>1982</td>
<td>3.1%</td>
<td>5.0%</td>
<td>65.0%</td>
</tr>
</tbody>
</table>

Of the total pool of indirect recoveries, the roll-forward component and the support of general resources components together have accounted for a low of 9.9% (in FY 1979) to a high of 12.5% (in FY 1981 and FY 1982). 12.5% of the FY 1981 indirect recoveries totals approximately $3.6 million.

These funds derived from research have been used for worthy ends—for example, retiring the University debt, establishing the Research Foundation, and supporting the subvention pool. The working group wishes to point out, however, that this utilization of funds represents a potentially serious drain on the University's research capacity. This is especially noteworthy given the obsolescence of the physical plant that supports research. Once again the group would ask which office within the central administration has been the advocate of the vitality of research in such issues.

II. B. 4. External Influence on Federal Agencies

Because of the dependence upon federal support for much of the University's research, the nature of the relationship between the University and various federal agencies is of considerable importance. To examine the influence of the University and selected national organizations within relevant federal agencies, the working group on research testified from the Vice President of Health Affairs and the Director of the Office of Research Administration. The testimony is summarized below.

The relationship with the National Institutes of Health is vital to biomedical research. All universities, and Pennsylvania in particular, have input with NIH through membership of individual faculty members on National Advisory Councils. Each of the 10 Institutes has a Council, which serves in an advisory capacity. The influence of these councils is on major programmatic issues; they have little to do with funding. Faculty also have a great deal of influence over program development within NIH through the established peer review mechanism. It is during Congress' budget process that opportunities exist to influence decisions related to funding. During hearings conducted by the relevant Congressional committees, testimony is given and the staffs of the influential members of these committees are lobbied. The period for the heaviest lobbying and the greatest potential influence in the amount and distribution of appropriations comes when bills are presented to each chamber, especially during the House/Senate conferences after bills have been passed by each chamber.

The task of educating Congress and agency representatives is primarily accomplished through national organizations located in Washington, D.C. Among the most important are the:

a. Association of American Universities
b. National Association of Land Grant Colleges and Universities
c. American Council of Education
d. Association of American Medical Colleges
e. Association of Academic Health Centers
f. Institute of Medicine of the National Academy of Sciences
g. Council on Government Relations
h. National Association of College and University Business Officers
i. Joint Health Policy Committee

The University itself lobbies through the testimony and contacts of its faculty and administrators. In addition, when a specific need arises, e.g., the funding of the Small Animal Hospital, the University has been able to strengthen its effort by hiring professional lobbyists in Washington.

The working group on research sees cause for concern over the effectiveness of lobbying through the national organizations and through its own lobbying efforts. As a major research university, we should be making sustained efforts to influence the relevant federal agencies. There is currently no central effort on a University level capable of responding to issues, participating in decision making, and influencing how regulations are written.

III. Conclusions and Recommendations

Based upon the data that it has gathered and the testimony that it has heard related to research, the working group has reached consensus on a set of conclusions and recommendations.

A. The University should continue to support the present system of research organization in so far as this fosters research initiative at the level of the individual investigator and concentrates the monitoring function primarily at the school and department level. The role of the Central Administration should be one of encouragement and facilitation. Thus Research Issue II. A. 1. can be very directly addressed.

B. In response to Research Issues II. A. 2. and II. A. 3., our conclusion is more strongly advisory. Because of the enormous and increasing costs involved in many areas of research and the obsolescence of some of our major research facilities, the University should be extremely
Educational Outreach

I. Introduction
The fundamental question we have addressed is this: How should the University of Pennsylvania posture itself to respond to the growing demand for nontraditional postsecondary education in the face of: a) a declining applicant pool for traditional degree programs, and b) its primary missions in providing research and full-time degree-oriented teaching?

In the sections below we treat first the areas of general agreement reached by the task force and second, we outline several alternatives for facilitating and governance of this important area of activity.

II. Areas of General Agreement in the Working Group
All working group members agreed that the opportunities in educational outreach are real and valid. Career-oriented educational needs arise even if an individual pursues a single profession or career. The more recent tendency of people to change careers adds even more demand. It is also clear that mid-career individuals whose undergraduate education was relatively narrowly professionally oriented often wish to broaden their educational exposure in the arts and sciences later in life.

However, opportunities as viewed by the schools of the University vary both by the degree of conflict with their primary mission and by extent of market. Markets vary even by discipline within schools. As to the former, conflict varies with faculty capacity utilization in its primary missions. The College of Engineering and Applied Science is a case in point. Because that faculty is small relative to the existing teaching and research demands it is faced with, only limited opportunities can be pursued in outreach. While faculty shortages also obtain in the Wharton School, however, the fact that executive education is perceived as highly complementary to primary research and teaching leads that School more aggressively to the outreach market. While Wharton's largest market is mid-career business executives, the needed educational content quite often is that offered by schools other than Wharton or by Wharton in cooperation with other schools.

Because the opportunities and problems are so different among schools, and because curricular control by tradition is a faculty prerogative, the task force concluded that the fundamental control of materials offered should remain with the faculties of the schools offering outreach programs.

The task force further agreed that the offering of educational outreach programs involves specialized expertise in marketing and "packaging." Reaching potential students can take several forms, among them advertising, direct mail promotion, and co-venturing with professional societies or associations. And because most outreach programs take the form of "short courses" (a few days to a few weeks), they do not allow for the type of educational gestation that traditional coursework provides. Hence, "packaging," organization of material for rapid assimilation, becomes a necessity. Thus staff with know-how in these areas is perceived as a necessity for production of successful outreach programs.

In the charge to the task force the question was raised: How should the University approach new technologies which promise to expand the modes of educational delivery? The task force generally concluded that the marketing of traditional modes of delivery were more pressing problems, but second, that investigation of new modes of delivery also needed expert staff assistance.

Thus, the task force reached the following conclusion. While school faculties should retain curricular control, not every school could afford itself to provide the necessary technical and logistical expertise, so some sort of central facility to provide this should be created by the University. Various organizational options for this are discussed in Section III below.

As to the economics of outreach programs, the task force reached two clear conclusions. The first is that launching programs requires considerable investment of both time and money. The second is that outreach programs, being of secondary priority to the main missions of the schools, should ultimately be self-supporting. While some schools
may be able to fund their own investments, others may not be able to. We conclude then that the University should provide some form of "venture capital" to encourage entrepreneurship in these endeavors. Various options for so doing are examined in Section III below.

Aside from the provision of venture capital, the University should take steps to remove certain impediments that it (perhaps inadvertently) imposes on new ventures in outreach. The task force urges the University to reexamine those accounting and budget practices which may serve as disincentives to outreach programs.

Finally, we conclude that while problems, opportunities and economies differ school by school there is sufficient commonality that some University policies should be established to guide the aggressive pursuit of the opportunities inherent in outreach programs. Mechanisms for establishing such policies are outlined in the next section.

III. Alternative Approaches to Facilitation and Governance

The task force having concluded that the University should aggressively pursue the opportunities inherent in educational outreach, the question remains how to organize both to facilitate and govern these activities.

It became clear that some sort of central agency is required to provide expert support in packaging, promotion, logistics, pricing, and educational technology. But it is also clear that some schools are self-sufficient, or nearly so, in this area. The central agency could be established de novo and be made available, voluntarily, to any school on a fee-for-service basis, or even operate speculatively on a percentage-of-revenue basis. Alternatively, the charter of one of the existing within-school agencies could be broadened and be made available to other schools on the same basis. The College of General Studies, Wharton Executive Education, and the School of Dental Medicine Continuing Education staff, and the Graduate School of Education, all have experience and strength in the required areas, and could be expanded to serve as the central facility. There was some feeling in the task force that CGS would be the most logical central agency in that it already serves a very broad scope of educational areas and activities.

Other alternatives were considered but not endorsed by the task force. The first was no central agency, merely encouraging smaller schools to make use of existing agencies in other schools. This was rejected as being fraught with political difficulties and a continuation of the same basis. The College of General Studies, Wharton Executive Education, and the School of Dental Medicine Continuing Education staff, and the Graduate School of Education, all have experience and strength in the required areas, and could be expanded to serve as the central facility. There was some feeling in the task force that CGS would be the most logical central agency in that it already serves a very broad scope of educational areas and activities.

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Ties with the City

I. The University: Its Educational Mission and its Commitment to Philadelphia

The central mission of the University of Pennsylvania is to be a national and international center for teaching and research. Through these functions of creating new knowledge and preparing students to be intellectual and professional leaders, the University provides an indispensable service to society. This mission draws tremendous assets, both human and financial, to Philadelphia. A great deal of study currently conducted at Penn is of use in the surrounding area, through research which is directly related to social issues and abstract considerations which create new ways of thinking about such issues. Many of the students who graduate from the University remain in the Delaware Valley as concerned and active citizens. Thus, the teaching and research functions of the University play a major role in the City. In addition, the cultural resources of the institution, the role of the University in the economy of the area and the civic and professional work of our students, faculty, staff and alumni serve to enhance the lives of the people of Philadelphia.

While the University remains committed to our central mission of research and teaching, we are cognizant of how these functions benefit the Philadelphia area. We believe that this relationship can be improved, and better organized and publicized. We care about this relationship because all of us at the University work in Philadelphia and our futures are bound up with the future of the City. As an intellectual community we...
II. The University's Present Contributions to the City

The University provides an array of benefits to the surrounding community, some of which are directly educational and others are necessary consequences of our educational mission. It is important that we become increasingly aware of these ongoing activities for they indicate, to some degree, the present state of relations between the University and the City. In addition, these activities suggest what it is that the University is best suited to provide to our neighbors and how we have been and can be more effective in meeting the needs of the City.

The University plays a leading role in the local economy. With a $1 billion physical plant, a $600 million annual budget, and more than 14,000 employees, the University is the largest private employer in the five-county Philadelphia area. We contribute over $7 million in wage taxes from our payroll of $156 million each year. The University attracts more than $100 million in federally sponsored research into the city. The economic activity of our employees, our 17,000 students and approximately 43,000 local alumni account for a significant portion of sales in the area, some of which would be displaced if the University were not located in Philadelphia.

In addition to the general offerings of the University's thirteen schools, programs in the College of General Studies, Liberal Studies, the Wharton Evening Division and several specialized programs of professional development enhance the community's educational resources. Through these programs, the University serves the needs of several thousand Philadelphians even though they are not enrolled as full-time students at Penn.

One of the central functions of the University is that of conducting research. Many individuals and institutions seek the advice or assistance of the faculty in addressing practical local problems. Findings of studies conducted in Wharton, the Graduate School of Fine Arts, the School of Social Work, the School of Public and Urban Policy, the School of Engineering and Applied Science and the College of Arts and Sciences have proved useful in local applications. Several programs, including the Wharton Small Business Development Center, have the express intent of providing such service to the community.

The University is a meeting place for people, their ideas and interests and thus provides a major cultural resource to the region. The University Museum is a world center of archaeology and anthropology and houses a rich collection of artifacts from varied cultures. The Annenberg Center is the most active theater complex in the area. The gardens, museum and educational programs of the Morris Arboretum are enjoyed by many Philadelphians. Music, exhibitions and athletics at the University are part of the cultural and recreational assets of the region. The University facilities are open for a large variety of cultural and recreational events.

The University directly serves the community in many ways. The Hospital of the University of Pennsylvania is a major provider of health care in the region. HUP and the affiliated hospitals of the School of Medicine (the Children's Hospital of Philadelphia, the Pennsylvania Hospital, the Graduate Hospital, the Presbyterian-University of Pennsylvania Medical Center and the Veterans Administration Medical Center) constitute one of the largest resources in the nation for the training of resident physicians. The clinics of the School of Veterinary Medicine are among the best in the nation and are the largest resource in the region for the treatment of sick and injured animals. Many of the University's own operational services enhance the amenities of life in University City. The most important services are those provided by the students, faculty and staff in a myriad of voluntary, professional and governmental organizations. Many political and civic leaders, neighborhood organizations and special interest groups interact in and with the University and benefit from our resources.

This list of the University's contributions to the City is only a rough summary. One of the options discussed in Part IV of this paper is the need for a more thorough and widely publicized study of these relations. Such a study will help us set up a mechanism for judging the effectiveness of such endeavors and for deciding where greater efforts, consistent with our educational mission, would be most effective.

III. Criteria for Choosing Among Options

If we are to judge the effectiveness of present activities and in order to consider proposals for the improvement of such activities as well as new means for building ties between the University and the City, a set of criteria for such decisions is necessary. Three criteria are proposed.

First, the University should attempt to build upon our strengths in teaching and research in expanding our community service. Our course of action should be set according to what we do well and how we can do more of what is consistent with our educational mission. To pretend to be something we are not, or to offer services we cannot afford and are not equipped to carry out, would only lead to frustration in the general community and would detract from the effectiveness of our special contribution. Therefore, serving our educational mission should be the most significant criterion for deciding on the use of University resources. The more distant from this mission an activity is, the more severe should be the test by which we decide to allocate resources to it.

Second, the University's efforts to improve ties with the City should correspond to the needs of the City. While struggles over priorities for Philadelphia go on in many arenas, our efforts should be directed toward those issues about which there is some consensus and in which our involvement would be most appreciated. This match between University efforts and City needs must be carefully made so that our activities are both responsive to the shared priorities of the community and consistent with our educational mission.

Third, ties with the City is a matter of external relations and a proper subject of direct administrative responsibility. While cooperation in such efforts should be encouraged from all sectors of the University, the administration must insure that activities are chosen which are effective, do not waste already limited resources, and do not damage our ability to perform the vital social function of teaching and research. We must be particularly cognizant of the allocation of our resources at a time when public funding for both social programs and universities is decreasing.

IV. Options for Action

The following proposals have been judged to be consistent with the University's educational mission, or directly related to this mission, and appear to serve the mutual interests of the University and the City. Some are currently underway. Many build upon our present activities or suggest a means by which we can become more aware of these activities and their effectiveness. As time goes on, further suggestions should be added to this list.

1. A Study of our Present Activities and a Comparison with Other Universities

The Executive Vice President, or his designee, should organize a study of our current ties to the City and their effectiveness. This study should include an opinion of these various activities should be solicited through meetings or community breakfasts. As a result of this study, the University should publish and distribute widely a compact document describing the services and resources which are available to the community and City. An external survey of City-University arrangements developed elsewhere should supplement our internal review and aid in our programming efforts. The experiences of Rand in New York, MIT, the University of Chicago, Wayne State University and Columbia University may provide a useful comparison of more and less successful projects and programs to enhance City and Community Relations.

2. Administrative Reorganization of City Relations

The Executive Vice President is currently reorganizing government relations and should assign responsibility for organizing City Relations to a particular administrator. This administrator should coordinate his or her efforts with those responsible for Federal, Commonwealth and Community Relations. The incumbent of this position might oversee the preparation of the study described above and would make use of this study, implement its recommendations and act as a facilitator who will direct people towards issues in which they may be interested. Such a
person would also channel the multi-lateral communications between the University and City, so as to inform community members of interests and abilities within the University and to inform us of perceived needs within the City. In time, this should lead to greater ties at all levels and to greater awareness of existing and new ties in relevant quarters.

3. Voluntary Efforts of Staff, Faculty and Students

The officers and individual faculty of the University should become more visibly active in the civic leadership of the region through membership in major civic organizations. A list of present membership in such organizations should be included in the study described above. People on this list should be encouraged to introduce others from the University into these arenas.

The School of Public and Urban Policy, the School of Social Work, the Family Maintenance Organization, the department of city and regional planning, the Urban Studies Program and the various departments of the Wharton School are among the schools, departments and programs that annually place scores of graduate and undergraduate students in internships and field placements. These arrangements are mutually beneficial to the students, in that they provide professional work experience, and to the organizations, in that they offer skills and services that are much needed at minimal cost. The expansion of such opportunities will attract volunteer efforts and the selection and assignment of students from professional programs to fill such positions would strengthen ties with the City. The University might also develop a program to provide some mid-career education for civic leaders and City executives after carefully reviewing similar activities elsewhere.

Students at the University have their own mechanisms of support for voluntary activities. Volunteers In Action, while only a year old, is becoming more prominent on campus, and its growth should be encouraged. This organization should be the clearing house for student voluntary activities. VIA could benefit from opportunities that are used by the units noted above and by the listings that find their way to the student employment office. This is an example in which there is a great deal of activity but we know little of its magnitude and effect. The study recommended above would correct this ignorance.

All of these efforts should broaden the participation of University students, faculty and staff in voluntary and semi-professional service to community organizations. The educational value of such participation should not be underestimated. The office assigned responsibility for City Relations should keep a record of all such memberships, internships and activities in order to serve as a clearing-house for such participation, working in cooperation with individual schools and the VIA. Further possible means for organizing and encouraging such efforts, including membership on a President’s Council on City Relations, or the awarding of special medals by the President and the Mayor, should be studied.

4. Cooperation Between the University and the City’s Operational Services

There are similar activities conducted by the University’s operational services and the City’s operating departments which should be listed in the study described above. Most of these are under the Executive Vice President. There are informal contacts among some of these, for example between Facilities Development and the City Planning Commission, or between the Construction Department and the City Department of Licenses and Inspections, or between Public Safety and the Philadelphia Police. If such relationships were more clearly mapped and nurtured by the aforementioned administrator and by others, our ties with the City would be improved accordingly. Such efforts could be encouraged by the membership on the Council or the awarding of medals described as possibilities above.

5. City-Oriented Research

Several centers and institutes on campus are very much involved in studies and research on the City of Philadelphia. The Philadelphia Social History Project, the Center for Philadelphia Studies, the Center for Environmental Planning and Design, and the Wharton Applied Research Center are among those that have studied the City and its problems. Historically, the Fels Institute for State and Local Government played a major role in both the research and training for public management. This function should be strengthened at the University because of its traditional high regard by public officials, as long as it remains consistent with our educational mission. By directing more of our research attention to the City’s problems we might develop more and better applications of our findings. Second, by explicitly fostering connections between our research interests and the City’s specific problems, we might avoid some of the difficulties of meshing academic orientations and rhythms with the problems and pace of public life. This might lead to research on highly focused issues of immediate importance. The “Philadelphia Past, Present and Future” project is one very promising example of this kind of effort. The Small Business Development Center is another. Once again, it is not so much a problem of the lack of interest or activity at the University but more a matter of recognizing what we do and making the appropriate connections. The Offices of the Provost and the Executive Vice President should jointly convene the various research personnel to discuss this matter, and to design appropriate mechanisms for improving connections.

6. Present Organizations

Through the organizations in which the University has strong representation such as the West Philadelphia Corporation and the University City Science Center, the University should promote community and economic development. We should work more closely with such organizations in order to use our resources more effectively. These organizations have pursued our objectives but they now need to be linked to a more integrated approach to City Relations. They can be additional vehicles for carrying out what is learned in the study recommended above.

7. Community Outreach of Cultural Resources

The community outreach of the University’s cultural institutions should be recognized in the study described above and the improvement of such outreach should be encouraged. The Morris Arboretum has already established itself as a leading source of advice on the development and maintenance of urban spaces and parks, including Independence National Park, Fairmount Park and the International Garden. Research at the Arboretum on the introduction, testing and evaluation of plants, as well as the development of maintenance systems, training in proper care and the interpretation of the proper role of parks in urban life should continue. Such work is essential to insure the continued vitality of our urban areas and the Arboretum should be encouraged to expand its leadership in the development of recreational spaces, in cooperation with the public and corporate sectors. The Annenberg Center should be encouraged to continue its efforts to find productions of interest to the community and to find ways to continue to subsidize tickets for school children, senior citizens and social organizations. The University Museum should also continue its efforts to improve its educational program, advertise and to mount exhibits of interest to the general community.

It is consistent with such outreach efforts that our Facilities Development Office should work to make it increasingly convenient for the public to attend such cultural events. This goal should be considered in the planned development of the 3400, 3600 and 3900 blocks of Walnut Street, which will include retail stores and parking facilities. Public attendance can also be improved by posting larger signs, such as that planned for the Walnut Street side of the Annenberg Center.

8. Economic Development

Philadelphia’s main underlying problem is economic development. A part of that problem is amenable to technical study, and a part of that study is amenable to academic study consistent with our educational mission. The Executive Vice President, or other officer designated by the President, should survey University-City relationships to determine the conditions under which economic development has been aided by universities elsewhere. Using that information, as well as the best advice from members of the University and City community, the Executive Vice President should recommend to the President specific means for organizing University activities to facilitate economic development assistance to the City.

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9. Health Service

The University's main present direct service is in the health area. This is a complex matter, and its improvement will be even more complex. It is best studied and carried out by the health professionals on campus. The Vice President for Health Affairs should chair a permanent committee of Health Deans and the Executive Director of HUP, appointed by the President, to study this interface with the City and its improvement. The Vice President should regularly advise the President of steps that are being taken administratively, and of steps proposed to the President or others designated by the President.

10. Public Education

One of the most obvious areas of need for University cooperation with the City is that of the public school system with which we share a common concern for education. The University has a particular interest in public education in the City, because of the children of faculty and staff who may be enrolled in the system and because the best students in the public schools should be encouraged to attend the University. Such enrollment by local students is particularly significant because of the large minority population in Philadelphia and the University's current efforts to increase the minority presence on campus. In addition, quality public education is essential if the City is to attract people and businesses who can contribute to the economic base. The interest of both the University and the City would be served by an increased effort at orienting new faculty and staff as to options within the public school system available for their children. The Personnel Department and Office of Off-Campus Living should work with the School District in constructing such an orientation.

Greater personal involvement by members of the University community in the public schools should be encouraged. Institutional involvement, through educational outreach to area high schools and through the Graduate School of Education and the School of Social Work, for instance, should be considered. Invitations to participate in particular programs, such as the new International High School, the proposed High School for Finance, Management and Computer Studies in West Philadelphia and the existing Mentally Gifted programs at the Lea, Powell and Drew Schools, should receive personal and institutional support. The International Programs Office, the Wharton School and the Graduate School of Education, respectively, are well suited to organize participation in these particular programs. The University should also examine various schemes for discipline-based collaborative professional and curricular development with colleagues in secondary schools and community colleges. The College of General Studies, together with the Graduate School of Education, are well placed to provide administrative support for such a program. In addition, the City should be encouraged to look to the faculty of the Wharton School and the School of Public and Urban Policy for advice on solving the long-range financing problems of the system of public education.

Appendices have been compiled by the Educational Outreach, Graduate Education and Research Working Groups. These appendices are not published here due to space limitations. However, a limited number of copies is available at the Provost's Office, 102 College Hall. Contact Jacqueline Akins, Ext. 7227.