

Testimony

TO THE MARYLAND GENERAL ASSEMBLY

Presented by
Dr. C. D. Mote, Jr., President
University of Maryland
College Park
February 2001

GOOD AFTERNOON, ladies and gentlemen. I welcome the opportunity to be here today to speak to you on behalf of the University of Maryland, College Park, and to update you on our progress, our plans, and the exciting future we embrace. Across the state, the country, and the world, and to a variety of audiences, I have been carrying the message over the past two plus years that the University of Maryland is “on the move.” Today, I can tell you that the flagship has accelerated its pace and is on a steady course marked by greater achievements, greater demand by student applicants and greater expectations of itself. I am pleased to talk to you today about the way ahead: the course is indeed well-charted, promising that the year ahead will be even brighter.

First, I want to thank the General Assembly for its recognition of the importance of higher education to the future of the state, its commitment to the success of our institutions, and for your extraordinarily generous investment in our campus. I am happy to report to you that the results of your financial and visionary support have also been extraordinary. By virtually every measure of quality, the University of Maryland, College Park, has gained national recognition as one of the fastest rising comprehensive research institutions in the country, and we are moving quickly toward realizing your mandate to be ranked among the finest public research universities in the nation. We are now competing effectively with our peers, public universities like Illinois, Michigan, North Carolina, UCLA and Berkeley, for the best faculty and the best students. We are spreading a culture of excellence across the entire campus, and our achievements are gaining national visibility. None of this would have been possible without your support, without your appreciation of our impact on the future of the state and its citizens.

Spreading the Excellence

PERHAPS NO SINGLE INSTITUTION IS A GREATER ASSET for the state's future than this research university. The investment you have made here is paying large dividends in return. There have long been islands of academic excellence at the university, but we can now claim to be moving to national distinction in our programs across the board, in core academic disciplines and in professional schools and colleges as well. This is essential, for great universities are excellent in virtually every program they embrace. As word of our excellence spreads, our successes are multiplying.

We are now attracting faculty of the highest caliber to disciplines throughout the university, and I am proud to point to three stellar hires in this past month alone that will bring to our university faculty who are at the top in their fields.

- William Phillips, who won the Nobel Prize in Physics in 1997 for his work in atomic physics and will join our distinguished physics faculty, will help us create the world class research effort in atomic, molecular, and optical physics (AMO) and expand the collaboration between the university and the National Institute of Standards and Technology (NIST). Although Dr. Phillips has been an adjunct professor at the university for some time, he is the first Nobel Laureate to be appointed to a full-faculty position at Maryland. He will spearhead the hiring of top AMO scientists to join the university's group, while also continuing to work at the NIST Physics Laboratory, where he is a NIST Fellow and heads the Laser Cooling and Trapping Group. According to Dr. Phillips, the group's research will explore the newest areas of atomic molecular and optical science and also focus on fundamental questions. In recent years AMO studies of the interaction of light with matter have led to ways to "trap" atoms and molecules and cool them to near absolute zero, revealing important quantum-dynamic properties and new states of matter. These discoveries are opening up potential applications in high-resolution spectroscopy, atomic clocks, quantum information systems, and atomic-scale and nano-scale fabrication.

- David Broder, Pulitzer Prize-winning reporter, columnist and author, who is considered his generation's most influential journalist, will join our outstanding Philip Merrill College of Journalism. The executive editor of the *Washington Post*, Leonard Downie, Jr., called Mr. Broder "the finest political reporter of his time and perhaps in all of journalism history." David Broder's awards include the Pulitzer Prize for Distinguished Commentary in 1973, the National Press Club's

Fourth Estate Award in 1988, and the National Press Foundation's Distinguished Contributions to Journalism Award in 1993. He looks forward to making Maryland a national center for study of an issue he feels is of primary concern: how to rebuild the credibility of the press and our system of government.

- Benjamin Barber at Rutgers University, who is recognized as a leading thinker and theorist on democracy, will join our Department of Government and Politics and work with the Institute for Democratic Reconstruction, whose goal is to study ways to strengthen democracies around the world. This is a major global initiative in the College of Behavioral and Social Sciences that involves partnerships with other major research universities, including Yale, Brown, UCLA, Georgetown, Harvard, Duke and the University of Pennsylvania.

Not only is our standard of excellence spreading; it is permeating every part of our mission as a university, serving as a magnet to draw talented undergraduates and graduate students; fueling a phenomenal increase in research productivity and funding; driving new agreements with federal and state agencies and industry; and engendering pride and record levels of support from alumni and friends.

Building a Research Corridor for Maryland

OUR CONTRIBUTIONS ARE ESSENTIAL to the rapidly changing economy of this state. One of the most important ingredients for success in the knowledge economy is the contribution of the state's research universities to the creation of our high technology future. We are fortunate to have strong, and potentially dominant, research universities—the University of Maryland, Johns Hopkins University, the University of Maryland, Baltimore, and University of Maryland, Baltimore County—that can fuel the state's quest to lead in the coming economy. Every study of successful entrepreneurial clusters in this country underscores the necessity of principal participation of research universities in that achievement. Thanks to the increasing strength of our major universities, we have built a strong research-based corridor that attracts and fuels a burgeoning information-technology and biotechnology industry complex in the state.

The research enterprises of Maryland's universities match or better the size of such celebrated research enterprises as those in Boston and the San Francisco Bay Area. In 1997, for example, Berkeley and Stanford together spent \$750 million in research. Harvard and MIT together spent \$710 million. Duke, North Carolina and NC State spent \$700 million. In the same year, Johns Hopkins and the University of Maryland, College Park, together spent \$1 bil-

lion. Couple this strength with the especially close relationships our universities enjoy with major federal facilities and laboratories, and we represent a formidable partner for the commercial sector in the development of new ideas and technologies in this state.

Let me give you a few examples of the ways that a great research university partners in the developing high tech economy. The infotech industry would not even exist today if it weren't for university research. A recent presidential commission report stated, "Everything from the microchip to the Internet can be traced to fundamental university research bankrolled by the federal government years ago." The report recommended that the federal government double its funding of university research in information technology over the next five years. Just this past fall, after a nationwide competition, we received a grant of \$9.5 million of a \$90 million NSF fund created to support the most advanced IT research in the country. And that funding impacts research areas from engineering to computer science to geography to social sciences.

In addition to the IT funding, this fall the National Science Foundation awarded the university another \$10 million for research into new materials. Our Materials Research Science and Education Center, for which Professor Ellen Williams of Physics is the director, is the area hotbed of nanotechnology research. We have scientists studying the minutest effects of electron migration on the surface of molecules to understand how that phenomenon can be harnessed and applied to functioning machines—at the nanoscale.

These are only two examples of the opportunities opening before us. As president of the state's top public research university, I am serious, and my colleagues are serious, about the strong prospect of firmly establishing Maryland as a high-tech leader. I know that you, as political leaders, are equally serious. The Flagship university has committed in its strategic plan to move forward to achieve excellence in a number of areas which, when combined, will create a first rate, dynamic, high RPM environment that will benefit the entire state.

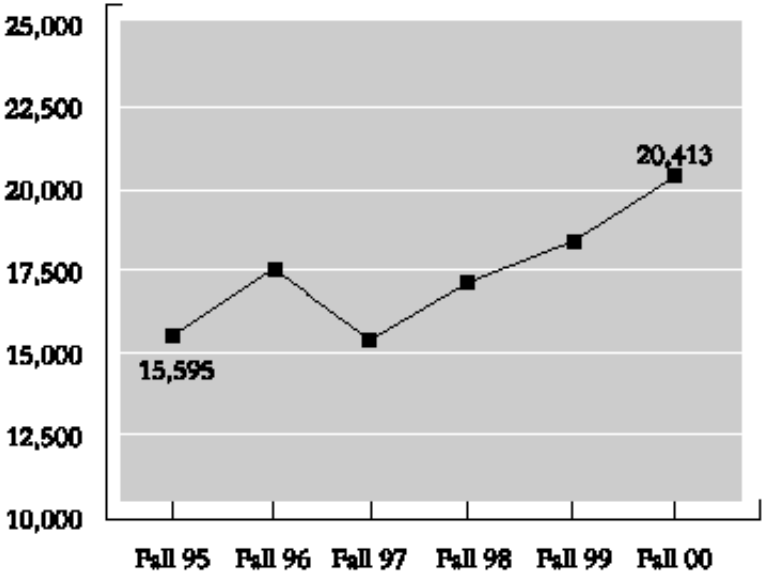
A Top University for Maryland's High School Students

ONE MEASURE OF A GREAT STATE UNIVERSITY is its reputation for offering a top quality education to students. The students we attract and the reputation of the programs we offer are a testament to our ongoing efforts to provide one of the finest, most comprehensive educations in the country. Increasingly, we are prized by the citizens of the state for the value we offer as an educational institution for the best and brightest of our young people.

The increasing distinction of our entering undergraduate students is both remarkable and a remarkable story. Our reputation is attracting better students, and more of them. Five years ago we had about 15,000 applicants for our 4,000 slots. This past year, we had over 20,000 applicants

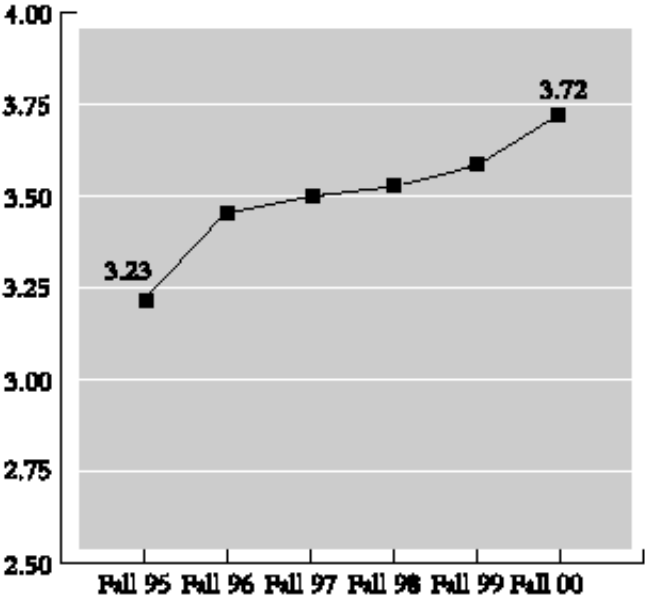
for the same number of slots. In 1995, we accepted two-thirds of the students who applied; this year, we accepted only 50%. Our selectivity is increasing as a consequence of the increasing talent of an applicant pool that grows larger each year and contains more and more students in the very top of their graduating high school class. That trend seems to be continuing this year.

Number of Applicants



Their mean GPA has risen to 3.72 in 2000, up from 3.23 in 1995.

Incoming Class Average GPA



According to the most recent *Survey of College Plans of Maryland's High Ability Students* conducted by MHEC, the University of Maryland, College Park, is the first choice for more of the state's very top high school graduates than all the private and public universities in the state combined. According to an article in the *Washington Post* last summer, about half of the region's valedictorians chose us, giving as their reasons for wanting to study at Maryland the quality of the programs and the quality of the students. Their opinion reflects the growing pride of the high school leadership, of their parents and friends, and other students of their generation in our university.

These are academically talented students, and funding from the state has helped us offer exciting undergraduate programs of high quality to match their abilities. Almost two-thirds of our entering students will be enrolled in special programs, among which are many that are widely recognized for their excellence and are viewed as national models: University Honors, Honors Humanities, Gemstone and College Park Scholars. We continue to expand these opportunities, and we have two exciting new additions. The Hinman Campus Entrepreneurship Opportunities Program, which is open to all majors and has a current enrollment of 86 students, is a cooperative program between the Smith School of Business and the Clark School of Engineering that encourages and incubates start-up companies and provides an Entrepreneurship Citation curriculum offered by the Smith School of Business. Another living-learning program, the Civicus Program sponsored by the College of Behavioral and Social Sciences, is in full operation, attracting students who have come to the university as a place to continue their commitment to community service and civic engagement. Community projects are a part of their learning experience, and this aspect of the initiative has had a lot of favorable response around the state. There is a new emphasis on and support for engaging students directly in research activities, and a Senior Summer Scholars Program has been designed to give students a special experience working with a faculty mentor that will give them a competitive edge when they apply to graduate or professional schools.

Not only are we increasing the number of special programs for our talented undergraduates, but we are also addressing the issue of their financial need. New emphasis is being placed on need-based aid, and I have asked the development office to set a goal of raising \$25 million to help the university substantially close the \$24 million annual gap between the need-based scholarship funding we provide and the funding level available at our peers. We have also initiated a special program, the Baltimore Incentive Awards Program, aimed first at nine Baltimore high schools to help Maryland high school students who have persevered in spite of disadvantages find the guidance and financial support necessary for them to enroll and succeed at Maryland. This is a program like one I helped create in California during the 1990's.

As the student body increases in the number of academically talented students, our campus is also becoming a much more diverse community. In 1989, 23% of our undergraduate students

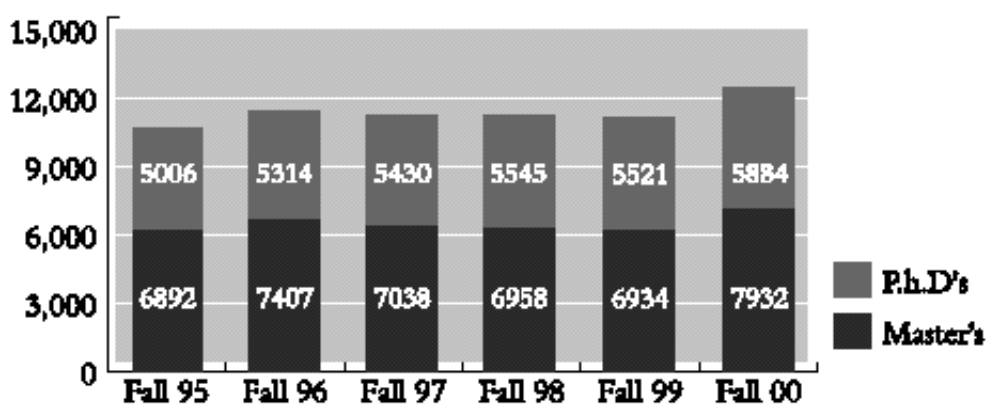
were students of color and in 2000, they numbered 33%. Just as our soaring quality measures span every scale from faculty to students and programs, our increasing diversity spans racial and ethnic minorities. It underscores our belief that racial and ethnic diversity and increasing academic achievement go hand in hand.

We are proud of the fact that our commitment to diversity has resulted in dividends for students and society. According to data from the Association of American Medical Colleges on the number of black students graduating from various universities who go on to medical school, for the year 2000, the University of Maryland, College Park, is the number one public university in sending African-American students on to medical school. We ranked eighth overall, and all of the schools ranked above Maryland are private institutions, five of them Historically Black Colleges and Universities.

Growing Excellence in Graduate Education

YOUR INVESTMENT IN SUPPORT for graduate students has also paid off. The last year has seen remarkable progress in the number and quality of students attracted to the University of Maryland's graduate programs. We have the largest graduate program in the state. Applications to our various graduate programs reached an all time high of almost 14,000, the most significant increase in a decade:

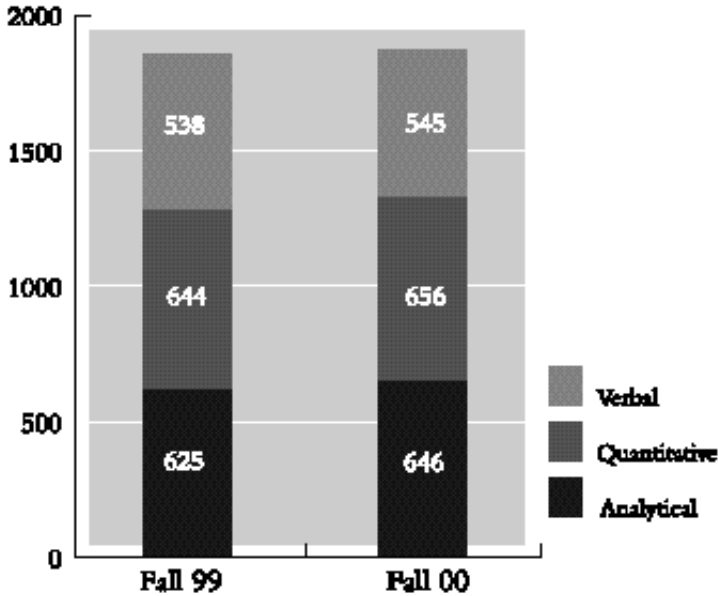
Number of Graduate Applications Fall '95-'00



The Fall 2000 entering graduate student population was both the largest and most talented ever to enroll at the university, with total graduate enrollment increasing significantly. Average GRE scores of entering students increased by 40 points over the previous year. In spite of restrictions on race-based awards, we have managed to keep steady the percent of students of color enrolling in our graduate programs at 15% of the total. The Quality Education for Minorities Network

recognized Maryland this year as a national leader in doctoral degrees earned by minorities in science and engineering. I should add that in December 2000, we granted doctoral degrees in mathematics to three African-American women, and we are very proud of the fact that in one year, the University of Maryland added to the national pool as many African-American women with Ph.D.'s in mathematics as all other of the 47 top public and private research institutions who report these data to the AAU produced over the four-year period of 1996-99.

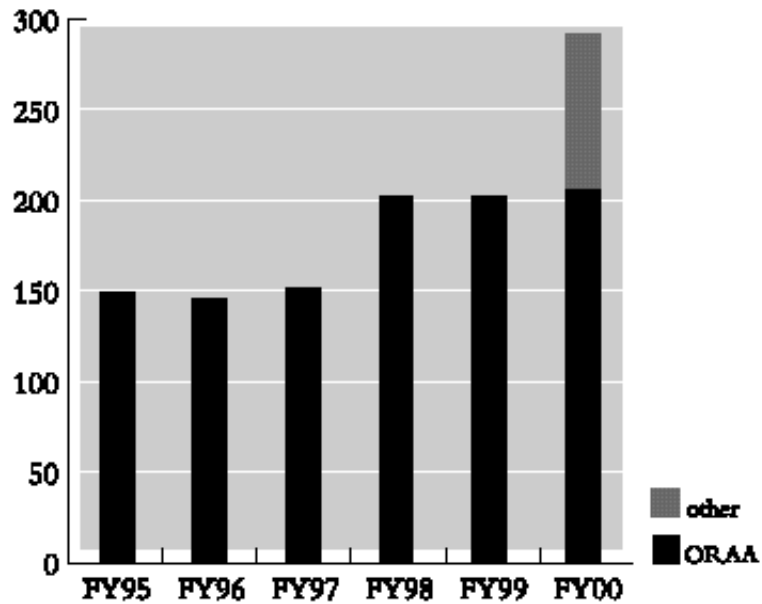
Mean GRE Scores of New Enrolled Students Fall '99-'00



Unparalleled Increase in Research

THE UNIVERSITY'S RESEARCH PROGRAMS CONTINUE TO GROW at a rate exceeding that of any of its peer institutions. Total new research awards totaled more than \$280,000,000 in FY2000. Through January 2001, new contract and grant awards are up almost 40% from the previous year, the largest such increase ever recorded at the university, and the total thus far is already greater than the amount we received in all of fiscal year 1997. As a result, the University of Maryland is rapidly joining the nation's elite institutions as a center for advanced research and development. We rank among the top 25 universities in the country in sponsored research expenditures and are second to Johns Hopkins in Maryland.

New Awards FY '95-'00 (millions of \$)



The quality of our programs and the reputation of our faculty have become magnets that attract major partners to our area. A desire for proximity to the expertise and creativity of our research programs has led to the following major groups transferring to our neighborhood: joining National Archives II (a \$250 million building) and the American Center of Physics are the FDA Center for Food Safety and Applied Nutrition (an \$80 million building housing more than 200 scientists, currently under construction) and Sun-Lucent Technologies at the College Park Metro station. Plans are under way for the National Security Agency to build a laboratory for telecommunications sciences at the university, and the Bureau of Alcohol, Tobacco, and Firearms, recognizing our premier leadership in fire technology and training, plans to locate a fire research laboratory near us.

The University of Maryland master-leased a 40,000 sq. ft. building adjacent to campus to obtain extra space, and within a month of signing the lease we attracted two major international technology partners into the building and we could easily fill triple the size of the space we leased with other technology partners, if we had the room. These partnerships will be announced formally within the next three weeks.

That is why I am an enthusiastic supporter of the initiative of Speaker Cas Taylor and DBED Secretary Iannucci to have the Pension Fund help finance research space adjacent to universities and federal labs in Maryland. Facilities drive location decisions, and the University of Maryland can attract even more technology partners to Maryland if we have space available near the campus.

Expanded Education Certification Programs to Attract Teachers

AN EXCELLENT WAY TO INCREASE THE NUMBER OF TEACHERS to address a statewide shortage is to offer multiple paths for teacher certification, and the University of Maryland's College of Education is offering new and innovative ways to address the growing teacher shortage problem in Maryland. The pathways offer students, and even experienced professionals, opportunities to gain the skills needed for the classroom at any time during their academic or professional careers. Many of the new pathways also address the need to strengthen the content knowledge of secondary school teachers, particularly in areas of great shortage, and the college's goal is to increase by 45 students per year the number of teachers prepared for secondary education it graduates by 2004.

Among the new pathways is a Fast Track master's degree program that enables students to earn a content area degree and a master's degree in education within five years, and a master's degree certification program that enables individuals who have already earned a content area (i.e., history, math, science) bachelor's degree to become certified to teach within one year.

With the full cooperation of the colleges and departments in the arts and humanities and sciences, and working closely with their deans, the College of Education has also created a program for students to complete dual majors. The departments within the arts and humanities and sciences colleges have reviewed and revised curricula so that students can complete a subject major and a secondary education major in an eight-semester sequence.

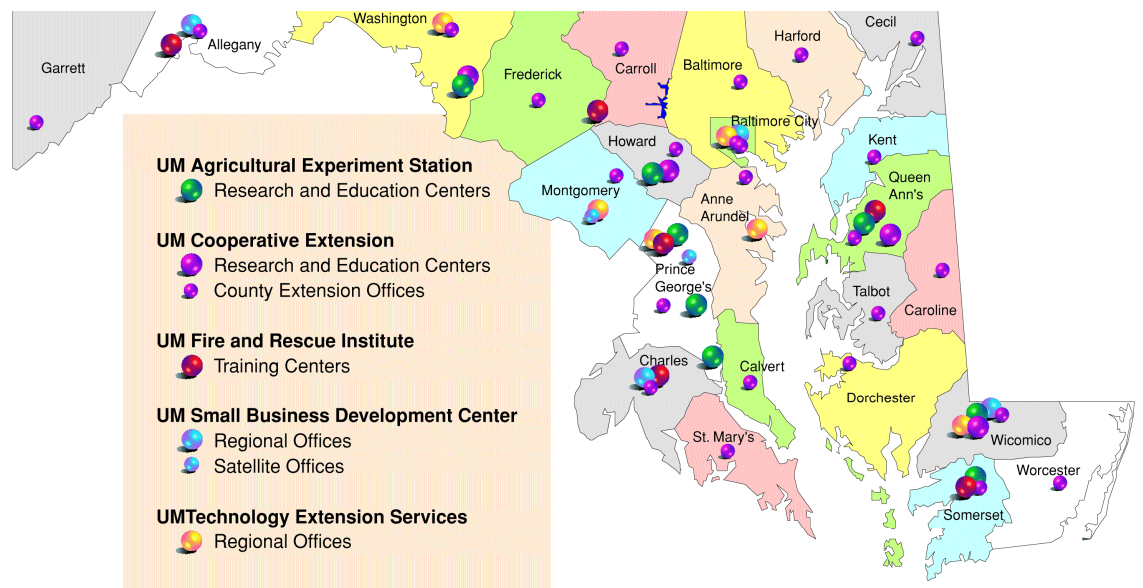
The college also is creating a citation option for sophomore students that would allow non-education majors to take selected education classes and receive a citation acknowledging their academic credits in education. Studies have shown that many students who explore the possibilities of teaching go on to obtain full education certification.

Through project LINC, funded through a grant to the University System of Maryland, the college is addressing the need to train teachers with special approaches suitable to urban schools and is preparing two cohorts of 25 math and science teachers each for Prince George's County over the next five years. College faculty and administrators are also meeting with Prince George's County this spring to explore outreach possibilities in coordination with the State's Resident Teacher Certification Program.

A Leading Partner with the State

AS THE FLAGSHIP OF THE STATE UNIVERSITY SYSTEM, the original land grant institution in Maryland, and the state's foremost public research university, the university fulfills a unique statewide role. We connect to business, to schools, to Prince George's County, to Montgomery County, to Baltimore, to every jurisdiction in the state; we connect to other universities in the state, to the Shady Grove Center, to the state's agricultural interests, to the technology councils, to the local communities, to arts organizations, to the media and to charitable foundations; we also connect to the biotechnology corridor along I-270, to BARC and to other major federal laboratories. We impact the society, the state and region through these connections. The following map illustrates how just five of our most valuable institutes and outreach programs engage us throughout the entire state.

University of Maryland Outreach



'eMaryland' is another example of the Flagship university's partnership with the state. One goal of the state's eMaryland initiative is to conduct 80% of the state's business online by 2004, thus becoming more "customer friendly" and improving efficiency and effectiveness. Another goal is to attract new high technology companies into the state—particularly in the area of online e-business solutions.

The University of Maryland is working closely with the state CIO and various government agencies to turn these goals into a reality. An important, and highly visible, component of the eMaryland proposal will be the creation of an online portal for one-stop access to all state information resources and services. The databases, which contain financial, legal and other

administrative information, will be integrated behind the scenes. The portal will reflect how citizens think, rather than the individual state agencies. The portal will also provide “back-end integration” to tie into the various state agency services and business processes. Through the online interface of the portal, users will be able to find what they need, at any time, from their desktop computers, and to conduct online much of their state business, which is currently conducted either by mail or by visiting the agency offices.

The university is also leading the Maryland Digital Library Program (MDL). MDL is a statewide project involving more than 50 public and private four-year colleges and universities, and community colleges—virtually all of higher education in the state is involved. MDL services support the education of 200,000 plus students and teaching faculty in our state from Frostburg to the Eastern Shore. Maryland universities and colleges have enthusiastically embraced MDL. By December 2000 more than 1,000,000 library searches had been conducted and 700,000 articles retrieved.

An original concept in higher education is being developed at Shady Grove to serve a growing population of underserved undergraduate students living principally in Montgomery County. The number of Montgomery County high school graduates will increase by approximately 40% over the next 10 years. Expansion of the Shady Grove Undergraduate Education Initiative is a direct response to this growing need. The University of Maryland has been selected to give programs based on two criteria: we have 1) high demand programs that cannot be accommodated on our campus due to space limitations; and 2) programs that are of strong interest to, and have been requested by, the Montgomery County community. Presently, the Smith School of Business is gearing up to serve 120 FTE students in Fall 2001 and an estimated 240 FTE students in Fall 2002. In Fall 2001 we will begin offering a degree program in Biology, in which we estimate that 30 FTE students will be enrolled. Both of these programs will provide upper level course work leading to a bachelor's degree. We are eager to participate in additional programs as the opportunities arise.

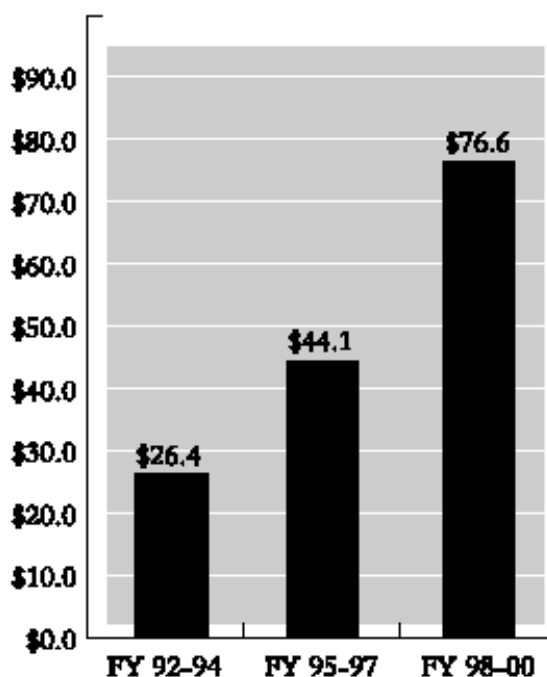
Our goal is to provide the students at the Shady Grove Education Center with access to the same high quality academic experience (and thus top-ranked faculty members) that they would receive if attending classes on the College Park campus.

Surge in Private Giving and Corporate Contributions

PRIDE IN THE UNIVERSITY and support of it go hand in hand. The growing pride in our accomplishments and absolute confidence in our future as a great university are nowhere more evident than in the surge of private giving to our institution.

The University of Maryland College Park Foundation was officially established on July 1, 2000, with a Board of Trustees composed of 45 outstanding volunteers who are highly accomplished in business, the professions and in civic life. The foundation has already proved to be enormously useful in taking the fundraising program to a higher level and increasing the visibility and reputation of the university. The foundation helped raise \$42 million in new gifts and commitments in its first six months, the best first-half of the year in fundraising in the history of the university. In December of this past year, the university booked more than \$26 million in gifts, the second strongest month in the university's history, and the number of alumni giving reached a record high in December 2000, with 8,891 alumni donors for the year to date, a 43% increase over where the university stood in December 1999.

Average Private Support for the University of Maryland



Gifts from individuals have been essential to the progress we have made, and we have several outstanding acts of generosity to celebrate. Last week we announced that the Regents approved the renaming of the College of Journalism to the "Philip Merrill College of Journalism" in recognition of Mr. Merrill's stature in journalism and his pledge of \$10 million to fund national preeminence for the college. Over the years, Philip and his wife, Eleanor, have distinguished themselves, both financially and by personal effort, in their support of the College of Journalism and many, many other initiatives in the state and throughout the country. At the same time, state investment in the College of Journalism has been crucial to its joining the elite journalism programs in the nation and has positioned us to dramatically enhance what already was one of the most distinguished journalism faculties in America. We have just recruited two

Pulitzer-Prize winners to our staff: David Broder, the prize-winning icon of political commentary, and Jon Franklin, two-time Pulitzer-Prize winner and one of the most respected science journalists in the nation, who will help the college create a new center for science and communications, a primary aim of which will be to help scientists do a better job of conveying their work to the public.

Especially welcome have been generous gifts in support of our Clarice Smith Performing Arts Center. Clarice Smith made an original \$15 million gift and this fall increased that amount by an additional \$3.5 million to support the costs of the grounds, construction and programs. The first performance, a concert in which faculty and students honored Mozart, took place on February 3 in the Joseph and Alma Gildenhorn Recital Hall. Thanks to the vision and generosity of such friends, we look forward to a truly great performing arts center that will greatly enrich the lives of Marylanders for many years to come. Generous support from the state and Prince George's County enabled the creation of this remarkable facility.

Among corporate gifts, a recent outstanding example is a gift of intellectual property and equipment valued at more than \$11 million from E.I. Du Pont de Nemours and Company. Because of this gift, our College of Agriculture and Natural Resources will be furthering the research and development pertaining to baculovirus technology that was begun by Dupont. The School of Public Affairs received several important gifts from foundations, including an additional gift of \$650,000 from Florence Brody for the Brody Forum in Public Policy, and another \$400,000 from the Ford Foundation for the Women in National Security Program.

Value Added

MY REPORT TO YOU CELEBRATES OUR MANY ACCOMPLISHMENTS, but it also is a testimony to the value we have added to the state's investment in us and our rationale for the funds we have requested this year.

Let me itemize for you some of our recent successes that also speak to the breadth of our excellence.

- An article in *The Chronicle of Higher Education* of May 5, 2000, listed the top 10 university recipients of NASA contracts in 1999: the University of Maryland, College Park, ranks 4th in this list, ahead of Berkeley, California Institute of Technology and MIT. (Johns Hopkins holds the number one position). We received \$38.5 million in awards from NASA and are able to hold such a prominent funding place because of the breadth of our research strengths. We have added a powerhouse of expertise in Earth Sciences to our traditionally strong space physics and astronomy departments, all of which are major recipients of

NASA funding. A few years ago, we invested funds in our burgeoning Earth Systems Sciences activities, and the payoff has been stunning. We have recruited some of the top scientists in the field, including Dr. Antonio J. Busalacchi, a professor in meteorology, who will serve as director of the UMD/NASA Earth Science System Interdisciplinary Center (ESSIC). Dr. Busalacchi is one of the world's foremost researchers in the areas of physical oceanography and the ocean's role in climate, with a remarkable record of achievement in scientific research, scientific management and international leadership. We recruited him to Maryland from his position as the chief of the NASA/Goddard Laboratory for Hydrospheric Processes. Under Dr. Busalacchi's leadership, the research faculty and grants in his area have more than doubled in the past three months. We have targeted support this year to continue our enhancement of this program.

- Thanks to the funds we have secured for recruiting and retaining star faculty, our Department of Geology, a key member of the Earth Sciences strength on campus, has garnered national attention for its success in bringing world-class professors to join the program. Prominent among these is Dr. Roberta Rudnick, who comes to Maryland from her position as Professor in Earth and Planetary Sciences at Harvard University. The consensus world expert on the lower continental crust, her grant support from the NSF over the past five years totals \$1M. Two stellar new colleagues joining us next year will be Clark Medal winner, James Farquhar, and a recently recruited young star, Dr. Steven Lower, a biogeochemist who uses atomic force microscopy and near-field scanning optical microscopy to study the way microbes attach themselves to the surface of a material. In attracting a researcher of his caliber we have added another outstanding biophysical scientist, working at the nanoscale.

- One of the initiatives we have funded with program enhancement money from the state in our College of Behavioral and Social Sciences is the Demography of Inequality Initiative, a research activity to address the dramatic social and economic changes—specifically, the multi-dimensional escalations of inequality—brought on by rapid technological changes and globalization. This interdisciplinary research and teaching initiative will study changing labor markets and income inequality; growth of the 24-hour economy and its social consequence; changing inequality in educational resources and outcomes; gender, race and ethnic segregation and discrimination in the labor force; the impact of changing family structure on parental investments in children; changing gender

relations and issues of time inequality; child care and family policy; and inequalities in developing countries. This was the top-ranked big impact proposal on campus in FY2000, and we created this initiative with enhancement funds of \$700,000. The Demography of Inequality Initiative has already received its first grant—\$750,000 over three years from the Russell Sage Foundation. This initiative builds on work and relationships already established with the Mellon Foundation, Census Bureau, Department of Labor, World Bank and others. Such success is not surprising. In 1998, the College of Behavioral and Social Sciences garnered *one-seventh of all the federal research and development funding for the social sciences*.

- From the enhancement funds that the state gave the university for FY2000, we allocated \$400,000 in base-budget funding to the Robert H. Smith School of Business to establish a Netcentric Research Laboratory that integrates financial trading, supply chain management, business logistics and electronic commerce into a modern information technology driven research center. Dean Frank and his colleagues have since leveraged that initial university investment into external funding for the Netcentric Research Laboratory: \$5.9 million in in-kind contributions of equipment and software from Sun Microsystems, Oracle, Manugistics and a host of smaller companies; \$2.0 million from the state to support the state's e-Maryland electronic commerce initiative; \$2.5 million in an award from the U.S. Department of Defense for a major research project aimed at improving defense logistics (this award is currently in the procurement stage); corporate support for about a dozen graduate students working on projects in the laboratory. And the Robert H. Smith School was recently ranked in the *Financial Times World Business School Rankings* 6th in faculty research worldwide, 23rd in the world, 19th in the United States, 6th among public university business schools, and the best MBA value in the United States.

- From an enhancement of \$250,000, the College of Education hired a research coordinator, along with other new staff, to assist faculty in developing proposals for research grants, and a financial officer to support the administration of grants. The result has been a spectacular increase in grants awarded. In fiscal '99 the college reached a then high point in awards of \$12.8 million. Through January of fiscal '01 the amount of grants awarded has skyrocketed to a total of \$17.4 million, with five months still to go in the year.

• Research on the neurobiology of learning, an important focus of the Linguistics Department at Maryland, received \$235,000 for study of how specific brain activity is correlated with learning, particularly the learning of language. The department has now recruited a new faculty member, Dr. Colin Phillips from MIT—the top program in the field. Dr. Phillips brings with him grants of about \$500,000 and potential for more funding from the National Science Foundation. His addition to our stellar faculty has led directly to ongoing negotiations with the KIT company of Japan for the gift of a state-of-the-art brain-imaging Magnetoencephalography (MEG) machine, worth \$3 million, now located at MIT. When installed, this machine will allow us to conduct research at the very cutting edge of the neuroscience of learning and give us the special opportunity to create a national center.

Growing Economic Impact of the University

THE UNIVERSITY OF MARYLAND HAS BY FAR THE LARGEST economic impact of any public institution of higher education in the state of Maryland. The total economic impact of the university in FY2000 is nearly \$2 billion. This economic impact includes both direct total university, affiliated institution, associated student and visitor expenditures and indirect spending associated with the spin-off effects generated by the direct expenditures. The university has an even greater impact on the state in a number of different ways. First, the university is key to economic development by providing an educated workforce. It has become an important engine of growth for state and local economies through the transfer of technology to the private sector and the creation of companies based on university-developed technologies. We rank among the top 25 universities in the country in sponsored research expenditures. University faculty, staff and students provide research services to leading federal and state government agencies, the private sector and foundation clients, both nationally and regionally.

Universities play a vital role in supporting economic development through technical assistance provided by faculty, staff and students to businesses. In fact, more than 1,000 Maryland businesses receive direct support from our campus each year. Several organizations at the university provide this technical assistance. The Engineering Research Center provides technical assistance, manages an incubator for technology firms, provides matching grants for university research to assist companies, and develops university research in areas of technical importance to Maryland businesses. The Business School's Dingman Center also provides assistance to entrepreneurial companies. The University of Maryland Center for Applied Policy Studies provides quality and productivity training to Maryland businesses and manages the state's Small Business Development Center program. All of these programs make Maryland a better place for businesses.

The University of Maryland is one of the state's largest employers and the state's largest organizations. The university directly employs a total of 16,759 workers in Maryland, while the university's capital construction expenditures created an estimated 660 construction-related jobs in FY2000. The total university operating, construction, student and visitor and affiliated institution spending supports an additional 20,000 jobs through indirect or spin-off employment, for a total of 37,418 jobs directly or indirectly supported by the university. These jobs represent more than one percent of all jobs in Maryland. There is a total of \$932 million in salaries and wages associated with these jobs. When this workforce is totaled with 33,500 students and campus visitors, we see that the entire organization has more than 50,000 people associated with it.

The University of Maryland's large number of undergraduates who receive degrees play a critical role in meeting Maryland's demand for skilled workers. We awarded 5,120 bachelor degrees (more than 24% of total bachelor degrees issued in Maryland) in 1999. Of those degrees, 442 were in engineering, 497 were in education, 974 were in business, and 1,005 were in social sciences. We graduated 29% of the undergraduate education majors, 31% of the business majors, 37% of the social science majors, and 51% of the engineering majors in 1999. The University of Maryland also graduated 86% of the undergraduate health majors, 82% of the architecture majors, and 70% of the agriculture majors. We graduated more bioscience majors than all other universities in Maryland combined.

We play an especially important role in providing advanced degrees in Maryland by offering master's degrees in 15 major classifications. The university awarded slightly more than 15% of all master's degrees awarded by public and private universities in Maryland in 1999. This total included 14% of the graduate business students, 16% of the graduate biological science students, 24% of the graduate physical science students, 44% of the graduate engineering students and almost half (49%) of the graduate mathematics students. We also graduated 63% of the graduate architectural students, 77% of the graduate agriculture students, and 100% of the graduate library science students.

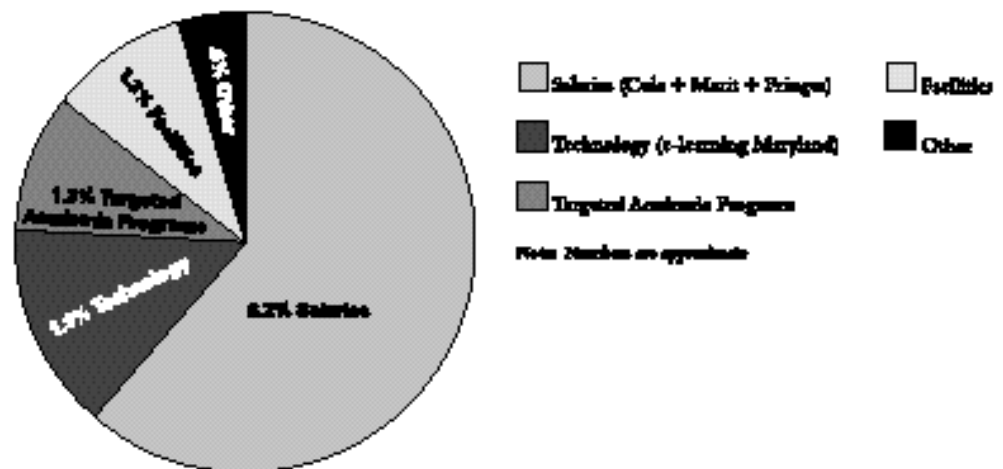
Finally, we play a vitally important role in granting doctoral degrees. We awarded half (50%) of all doctoral degrees awarded by public and private colleges and universities in Maryland in 1999. The university issued over one-fourth (28%) of the biological science doctorates, 57% of the engineering doctoral degrees, 64% of the physical science doctoral degrees, 65% of the mathematics doctoral degrees, 70% of the computer science doctoral degrees, and 93% of the educational doctoral degrees in Maryland in 1999. Additionally, the university issued 100% of all doctoral degrees in several programs (agriculture, business, communications and library sciences). The doctoral degrees that are awarded by the University of Maryland have a significant impact on the state's economy by providing advanced candidates for numerous high-wage occupations for which there is great demand by Maryland businesses, non-profits and government.

The Next Steps

IT IS CRITICAL TO CONTINUE THE MOMENTUM of this large organization moving forward briskly and confidently. If the momentum is lost, it can be very difficult to re-start and re-energize. We have all witnessed this phenomenon. Our commitments remain focused on strengthening our achievements in research and faculty, who are the backbone of the university and lead the march to eminence; strengthening targeted academic programs where we can make an impact and build distinction; enhancing our education programs; and maintaining and building an infrastructure appropriate to the success of a world-class research university. I would note that these areas are all interconnected: bringing outstanding faculty on board leads to top academic programs, stellar research, and a higher level of expertise on which our state's industries can draw. In fact, it is the only way to do it. We intend to strengthen our infrastructure because outstanding teaching, research and engagement with our partners requires appropriate up-to-date equipment and an appropriate environment for our work.

Our 13.3% increase in state funds will be allocated as shown in the chart below.

Allocation of University of Maryland's 13.3% State Funds Increase



In our requests for this year's budget cycle, we identify targeted academic programs for enhancement, and our principal academic thrust is in the biosciences. With due respect to the infocom industry and its key position today, this new century belongs to biology and biotechnology. We should note that 59% of all federal support for research is in bioscience and biotechnology. The NIH budget is \$20 billion and the new president has pledged to double it in his four years. There will be no major research university in this country that is not strong in biosciences.

Biotech needs universities more than infocom does, because bioscience is a very expensive and long-term endeavor. It requires teams of exceptionally well-educated and well-trained researchers and state-of-the-art laboratory facilities. There is a thriving biotechnology industry here in Maryland, and I have made a commitment to strengthen the University of Maryland's national position in biosciences, not only in biology and biochemistry, but also by building on our nationally ranked programs in engineering, computer science, mathematics, physics, agriculture and psychology. Research in the biosciences now goes far beyond biology and medicine, and the University of Maryland brings strength in computational biology, bioinformatics, bioengineering, neurosciences and biochemistry to the field, and in animal and plant sciences. Over the next five years, we will be hiring 30 new faculty members into the biosciences, building the base operating budget by at least \$5 million and supporting new facilities and laboratories to the extent we are able. We plan to use enhancement funds this year to recruit eight distinguished faculty members. These new hires will be focused in the areas of computational biology and bioinformatics, bioengineering, biological machines, neuroscience, virology, the cellular basis for development, and biodiversity.

We have already appointed an outstanding researcher, Dr. Norma Allewell, who joins us from Harvard, to serve as dean of the College of Life Sciences. Dr. Allewell has extensive experience in developing bioscience programs and is spearheading the effort in that college to increase our ties to major federal agencies such as the National Institutes of Health, and to local corporations, including Entremed, Human Genome Science and MedImmune, and state agencies such as DBED. She is also leading a review of the undergraduate and graduate curricula of each department to make Maryland a leader and to meet the demands of a burgeoning biosciences and biotechnology industry for workforce and research collaboration.

To continue to strengthen our School of Music, we have asked for enhancement funds to appoint three distinguished faculty and/or Artists in Residence, such as pianist André Watts, who will bring specialization in performance capability to attract national attention to the university's School of Music and make the Clarice Smith Performing Arts Center a crown jewel for the university, Prince George's County and the state.

These initiatives go hand in hand with our ongoing commitment to strengthen undergraduate education and prepare graduates to participate fully in the workplace. For example, there are almost 1,900 undergraduates majoring in computer science and more than 450 in computer engineering, and \$360,000 in enhancement funds will be directed to hiring additional faculty in these technology fields to meet the growing student demand and allow us to retain our position as one of the nation's premier research centers in these fields. We will apply enhancement funds to add three new programs to our extraordinarily successful living/learning communities, which offer academically talented undergraduates a focused and enriched curriculum in a residential setting. To ensure the continuing success and expand its size, we will also give

additional support to our nationally recognized and innovative Gemstone program for high achieving undergraduates, a program that brings together students from engineering and a range of disciplines in the social sciences and humanities to work with outstanding faculty on proposing solutions to national social and technical problems.

The students in these innovative programs need the proper tools and learning environments. Our plans call for enhancement funding to create new technology intensive, state-of-the-art classrooms and to provide support staff to maintain those classrooms, to develop faculty expertise in their use, and to support the Center for Teaching Excellence. Furthermore, enhanced support services, especially academic advising, financial aid counseling and career services, are in great need. Physically challenged students often need special services and equipment to be successful in the classroom. We will use enhancement funds for these important services.

Keeping up a first class IT infrastructure is an ongoing challenge, but a necessary one to address. The investments we are making have helped Maryland to create a system that serves the university, the state and the region. The University of Maryland's on-campus data network has been upgraded with inter- and intra-building improvements to support the ever-growing bandwidth requirements of a major research university, and our interconnections with the commercial and the research Internet are growing correspondingly. This growing capacity supports rapidly increasing use in teaching and growing access to worldwide data resources for students and researchers. Each one of our 9,000 dormitory beds has its own data connection, and 90% of the students have activated their connection and become IT users.

This capacity supports our major research activities, including important collaborations with other entities, such as NASA and NIST, and also such business and research partners as Avaya, Lucent and Sun. It supports new administrative uses, including new processes developed through Business Process Redesign, our new Financial Management System, and the Student Information System that we are beginning to install. Already students can apply, register, verify financial information, receive grades, sign up for meal plans, access the library, chat with their instructors and do a degree audit—all by use of this infrastructure. Efficiency is greatly improved. More importantly, students become immersed in the technologies they will need to use in the workplace, become more competitive, and some will bring to their employers new ideas about the use of cutting-edge technologies, learned from interacting with the environment on campus.

An important part of our IT infrastructure is the 45 technology enhanced classrooms and four teaching theaters, equipped to support instruction through networking, multimedia, and collaborative capabilities. A significant part of the funding we are requesting for next year, \$1,450,000, is committed to expanding the number of these facilities. We use the software package WebCT as the heart of our educational delivery system both in technology classrooms and in courses taught elsewhere on campus. In addition, we are sharing our expertise widely with other institutions, and now have become a WebCT Institute to facilitate these outreach efforts. As the

number of courses and students involved increases, we have had recently to upgrade our server capacity, and anticipate the need soon for another upgrade and a corresponding increase of our support staffs in order to keep up with the demand.

The strength of our information technology infrastructure allows us to provide important services to the state and community.

- We will house a site for I-Net, becoming a hub for a fiber optic network that will provide communications and educational programming throughout Prince George's County.

- The university will be the site of the Washington, D.C., aggregation point for the Mid Atlantic Crossroads (MAX) consortium. Major universities and government agencies in the region (e.g., Georgetown, UMBC, National Science Foundation, NIH, NASA/Goddard, Howard Hughes Medical Institute) will be accessing the Internet2 research network through this very high capacity connection.

- We are assisting in providing the fiber connectivity to support firms housed in the high-tech incubator located in Baltimore with needed connections to UMBC, NASA Goddard and UM.

The University of Maryland was a major player in the creation of the Internet. Working at the forefront of the new technology, we produced students and trained staff who brought their cutting-edge knowledge to the workplace and helped to drive the transformation that we are witnessing today. Our internal and collaborative research activities are still at that level, and are still important to the economic development of the state of Maryland, and we must continue to provide the infrastructure that allows that to happen.

We need to educate students to be comfortable with the use of information technology and train them in the use of the special tools used in specific disciplines. The university must provide an environment that encourages familiarity and facility with business processes that are at the state-of-the-art. It must provide disciplinary instruction that is at the state-of-the-art, and must use new teaching methodologies where these are shown to be more effective. The request for IT infrastructure support is to allow us to make all these things happen.

I cannot conclude my testimony on the importance of the university's technology initiatives without commenting on the analyst's proposed 75% reduction in the funding of the Regents technology initiative. The university has been a state leader in the application and use of information technology to improve connectivity to worldwide resources and services and to

apply technology to our workplace. These investments are costly and have required continual upgrade. The Regents have given their highest priority to a broad scale improvement in this area. Improvements are required in networks serving inter- and intra-building, in the modernization of student administration systems, and in the development of high speed external network systems for which the university is the major player in pulling together area laboratories and institutions. The Regents request and the governor's proposal are a modest beginning to attack a more than \$100 million problem. The proposed 75% reduction in funding takes the heart out of the plan and has a chilling effect on our ability to address what is arguably an essential step to assure directions that support quality education and research in the near-term.

The Role of the Flagship

LEADERSHIP IN THE STATE AND IN THE REGION is a responsibility that we have undertaken with great energy, commitment and success. In many ways, the futures of the state and the University of Maryland are linked inextricably, and our achievements will be coupled explicitly. We are in the knowledge business, and this is the knowledge economy. It is here to stay for the foreseeable future. In this period in which knowing things has become of primary importance, a research university of this caliber is irreplaceable. We educate one-third of the University System of Maryland students; the top faculty are here; the top programs are here. The top high school students want to come here. Our graduate students and faculty provide the highest level of expertise to state agencies and industries. Our impact on the future of the state is certain. We are profoundly grateful for the confidence you have shown in us, which has spurred our own confidence, and we ask for your continuing support.

I conclude my testimony with an appeal for support of the governor's budget proposals. In addition to the 75% cut in funding of the information technology initiative, the analyst recommends an additional cut of more than \$18 million to be allocated by the Regents. I fully agree that, if cuts are to be made, it is appropriate for the Regents to do that task. However, I believe the analyst's proposed cut in the governor's budget is too large. You have made remarkable progress in fulfillment of the policy pledges you made in response to the Larsen task force report of 1998 and SB 682. These goals have inspired our action and have been the major catalyst behind the achievements I have so proudly enumerated in this testimony. The policy goals established direction and pace for the restoration of the higher education share of the state budget. I believe a reduction of the magnitude being discussed in the governor's budget may impede the direction and pace of our progress toward excellence and prevent us from fulfilling the vital role of the Flagship university. I urge you to consider our achievements in support of the state's future when contemplating the value of your investment in us. Now is not the time to pull us back as recommended by the Department of Legislative Services.