The New NC State: Becoming the Nation’s Leading Land-Grant Institution
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THE NEW NC STATE:
Becoming the Nation's Leading
Land-Grant Institution

This report marks the culmination of nearly two years of planning for programs that will support NC State University’s emergence as a national leader among institutions of higher education. Specifically, it addresses how NC State can meet the challenges of driving the new economy through innovative research, while improving the quality of education offered to our students and engaging actively in the citizens we serve. The largest institution in the 16-campus University of North Carolina system, NC State is being shaped by changes driving the best academic institutions: rapidly changing demographics, the emergence of a knowledge-based economy, the transformation of teaching and research by information technology, and the effect of globalization on technology programs.

Recognizing the magnitude of these challenges, the senior leadership of the University met in Summer 1998 to prioritize actions that can move NC State University to the next level. The Executive Officers and Deans defined areas which hold the greatest potential for rapid improvement and agreed on new academic initiatives that transcend departmental or collegiate boundaries. They pledged to become nimble in addressing evolving opportunities and in conveying a sense of urgency for change within the entire campus community. All would become engaged in actively telling the NC State story.

Three University goals were endorsed:
- Building a diverse and inclusive campus community that celebrates and nurtures demographic and intellectual diversity;
- Fostering new partnerships internally and externally; and
- Adopting a new business model that embraces efficiency and accountability.

In the ensuing academic year, Chancellor Marye Anne Fox championed broad campus involvement in this planning. During her installation, she stated that the University must be prepared to ask tough questions when thinking about its future: Where are we going? What are appropriate benchmarks? How will digital technology influence distance learning and the need for life-long learning? How will we as a University respond to societal needs? Adequately addressing these questions requires strong leadership, careful planning, generous financial support, and the widespread interest of the broader community we serve.

COMPACT PLANNING

In January 1999, the Executive Officers and Deans of North Carolina State University agreed to develop a new planning process that relates budget decisions to successful strategic planning. Compact Planning, which involves a negotiated, written management agreement between an academic or administrative unit and the supervisor, provides a mechanism by which each unit can test its achievements against predetermined goals. In its Compact Plan, each University unit pledges to prioritize specific goals and objectives and match them with available resources or with plans to raise necessary resources. These goals, in turn, identify the approaches most likely to enhance the quality of the institution. This grassroots planning supports a campus-wide effort to develop an infrastructure that facilitates excellence, while developing an efficient business model that works.

Compact Planning provides a very important means for each member of the NC State campus community - whether staff member or senior professor - to contribute actively to defining how the three University goals apply to his or her home unit. The published Compact Plans are an efficient means for
communicating goals and strategies among campus groups. The campus community has resolved that adoption of a goal in a unit's Compact Plan will define the criteria for performance upon which future promotions and career achievements will be based.

The Compact Planning process is an iterative conversation across administrative boundaries. Having formulated goals internally, each unit head, whether in an academic arena or service area, proposes specific goals to the leader of the next administrative level, either a Dean or an Associate Vice Chancellor. An agreement is negotiated, with the final version being formally accepted as the short- and long-term strategy for the unit. Emphasis is placed on identifying the highest priority initiatives and accepting an implementation schedule. The process is repeated at the next level, and the strategies are integrated into the portfolio of University goals, with further discussions taking place as often as needed for broad campus consensus. A Compact Plan is not concluded with one document; it evolves as the University progresses toward its clearly defined goals.

NC State's Compact Planning started at the unit level during Summer 1999, with continuous iterations taking place through Fall 1999 and Spring 2000. All administrative units completed Compact Plans by November 1999, and the initiatives outlined in the plans were part of performance reviews during 2000. The academic units have taken longer to achieve consensus, with final versions from the first round completed in Fall 2000. The process has challenged faculty and staff to become involved in active planning and to feel confident that the administration is serious about aligning budgets with Compact Plan initiatives.

In order to assure objectivity in evaluating the planning goals, Chancellor Fox assembled a blue-ribbon panel of outside experts to critically examine whether the University is on the right path. The Commission on the Future of NC State included top-level leaders from education, government, and the private sector. Together, the Commission members critiqued our strategies for reinvigorating the University by identifying the issues that the administration and the NC State Board of Trustees must confront in order to take NC State to the next level. The Commissioners provided invaluable advice about whether the current Compact Plans facilitate long-range approaches to institutional excellence.

Chancellor Fox named as Commission Co-Chairs William Friday, an NC State graduate and President Emeritus of the University of North Carolina, and Norman Hackerman, President Emeritus of both Rice University and the University of Texas. These 'wise men' assisted the administration throughout the year in structuring the topics to be discussed at the Commission's meeting. Their leadership, along with a University-wide effort to identify other members to serve on the Commission, resulted in an impressive group of accomplished academic and business leaders to participate in the stimulating discussions on shaping NC State in a completely new and interesting way. Their names and affiliations are listed in Appendix 1. The Commissioners reviewed a detailed plan and discussed its major themes at a meeting held on June 12, 2000, on the Centennial Campus. This report highlights the candid and invigorating discussions.*
Achieving The University Vision and Goals Through Compact Planning
The agenda for the Commission on the Future of NC State included four themes that describe directions the University administration has proposed as necessary to position NC State as a national leader in defining the land-grant institution of the 21st Century. Facilitated discussions provided a thoughtful critique from the Commission participants.

AN EVOLVING MISSION

Chancellor Fox opened the first discussion session with an overview of North Carolina State University's current and historical mission: NC State is a Research I land-grant institution serving its students and the people of North Carolina through the active integration of teaching, research, outreach, and extension. During its 113-year history, NC State has been transformed. It began as an Agriculture and Mechanic Arts College that used applied science to train the state's farmers. Today it is a major research institution intensively focused on the discovery of knowledge across a range of academic disciplines and on the application of its inventions to support the economic growth of the region.

The evolving NC State should be a national model for the 21st Century land-grant institution. NC State is:

- A strong competitor in intercollegiate athletics in the Atlantic Coast Conference.
- NC State has a unique opportunity to excel in science, engineering, and technology expressed through the education of the whole student by including strong programs in the arts, humanities, and social sciences. This emphasis includes, as well, outstanding professional colleges in design, education, management, and veterinary medicine. While honoring traditional strengths in agriculture, natural resources, and textiles, NC State's programs address the frontiers of knowledge in solving interdisciplinary problems.

Many benefits derive from the scientific and technical base for the intellectual focus of the campus, attained by sharing responsibility for comprehensive scholarly offerings with our sister Research I school, the University of North Carolina at Chapel Hill. We share a passionate belief in the power of education, a commitment to scholarship and service to the community, and strong concern for the education and development of the students we serve.

ACADEMIC FOCUS AREAS

Chancellor Marcy Anne Fox and Provost Kermit L. Hall

Chancellor Fox reviewed NC State's Compact Planning process, illustrating its power by citing several specific examples. A campus-wide consensus has been achieved on new academic initiatives that transcend departmental or collegiate boundaries. The focus areas include Advanced Materials, Networking and
Information Technology, Genomic Science and Biotechnology, Environmental Sustainability, K-12 Education, and Global Competitiveness. Each of these initiatives has brought an enthusiastic response from both established and emerging business partners. Indeed, each has found concrete expression in the cooperative research and development neighborhoods on NC State’s Centennial Campus.

The Commissioners commended NC State for developing a useful and innovative way of planning its activities. They agreed that focus on these initiatives will move the University forward in an effective manner. In a letter to Chancellor Fox in advance of the Commission meeting, William Cavanaugh III, Chairman, President and CEO of Carolina Power & Light Company, wrote: “I concur with your view that NC State can evolve to a position of national leadership as a land-grant university and believe that a sound planning effort with measurable goals is a significant step in that direction.”
Academic Initiatives and Benchmarking
Provost and Vice Chancellor for Academic Affairs Kermit L. Hall defined for Commission participants how benchmarking against our peer institutions can help NC State achieve its goals. Our academic goal is to become one of the nation’s top 25 public teaching and research universities. The goal is ambitious, but he stressed that it is achievable. A goal to be among the top 25 provides the incentive to aggressively move forward the University community of scholarship and research. A discussion ensued about what it means to be a top 25 public institution.

Provost Hall asked the Commissioners to consider these questions: Against which institutions should we benchmark our progress toward this goal? Do national rankings matter? What should be objective criteria for defining rank? The Commissioners agreed that NC State’s choices of benchmarks and selection of peer institutions are critical.

The institutions defined as NC State’s peers by the University of North Carolina General Administration include: Carnegie Mellon, Case Western Reserve, Duke, Georgia Tech, Iowa State, Penn State, Purdue, Rutgers, Texas A&M, the University of California at Davis, the University of California at San Diego, the University of Georgia, the University of Illinois-Urbana, the University of Wisconsin-Madison and Virginia Tech. Some of the University of North Carolina administration-determined peer institutions do not share the programmatic breadth offered by NC State.

NC State is not alone in encountering difficulty in defining its appropriate peers. Said Commissioner John Wiley, Provost of the University of Wisconsin-Madison, “It is difficult to identify benchmark schools. The University of Wisconsin at Madison has an official set determined by its Board of Regents. Those schools are not, by and large, the institutions that we compete with for faculty. So, from our point of view, they are not the schools that we watch most closely. Think about developing a second set of benchmark institutions that are as closely matched to your program array as you can possibly arrange.”

BENCHMARKING INSTITUTION QUALITY

Provost Hall described benchmarks considered as appropriate measures for success of NC State’s programs. The Lombardi Center for Measuring University Performance at the University of Florida has recently defined characteristics of the nation’s most intensive research institutions. According to the Center, specific measures should be examined in order to improve the quality and productivity of a major national research university. These indicators give a reasonable estimation of the accomplishments and strengths of the best universities in the country. They suggest a top 25 ranking requires excellence in research studies, in private support, in faculty reputation, and in quality of undergraduate education.

RESEARCH

Most observers contend that research quality is the most important factor in defining the best institutions. Research quality often correlates
with quantity when peer-reviewed competitive research is being considered. With regard to total research expenditures, NC State ranks 17th among the top 25 public universities with over $250 million in sponsored research. The University’s peers average $263 million for research expenditures. Federally sponsored research expenditures place NC State 37th with nearly $80 million; the peer average reaches $129 million.

PRIVATE SUPPORT
The University’s endowment reflects the long-term strength of private support; annual giving indicates the current level of an institution’s private contributions to meet current expenses and to increase endowment. NC State’s $275 million endowment currently ranks 41st among public universities. Our peers average over $900 million in their endowments, with the endowments of our peer private institutions (Duke, Carnegie Mellon, and Case Western Reserve) being even higher. NC State’s annual giving is at $75 million per year, with peers averaging $107 million.

FACULTY REPUTATION
The faculty provide the most critical resource for a university’s success. The numbers of members in the National Academy of Sciences and the National Academy of Engineering are essential indicators when defining a top research university. NC State has 16 National Academy members. By comparison, our peer institutions have an average of 28 National Academy members. Significant faculty awards earned also indicate faculty distinction. Last year, NC State earned six major faculty awards, whereas the peer average was 19 awards.

Provost Hall asked Commissioners to recognize that NC State does not offer doctoral programs in the humanities, and only offers these programs in selected areas of the social sciences. Most of the institutions with whom NC State is compared have doctoral programs in those areas and some, such as Wisconsin, have extraordinarily strong programs.

Graduate training helps to provide an indicator that reflects the externally perceived quality of the institution and gives students the opportunity to show with their own credentials an important contribution to the institution’s quality. The average number of doctoral degrees awarded by our peers is 400. NC State is slightly below that average with 322, a ranking of 26th. Post-doctoral appointments supported at NC State in 1998 were 145; the peer institutions averaged 306.

By 2010, NC State aims to have 12 of its graduate programs ranked in the top 25 percent of the National Research Council’s ranking on faculty quality. Two of the University’s programs - Electrical Engineering and Materials Science - ranked in the top quartile of the 1993 survey, and NC State succeeded in improving rankings of several other programs. Ten programs moved up in percentile ranking, with notable improvements in the departments of Chemistry, Mathematics, Physics, Sociology, Chemical Engineering, Electrical Engineering and Mechanical Engineering.

UNDERGRADUATE EDUCATION
Student competitiveness measured by average Scholastic Aptitude Test (SAT) scores is another indicator of university quality. NC State’s median SAT listed in the Lombardi Report was 1155 for 1998 and the peer average was 1229. NC State reported having 16 Merit and Achievement Scholars; our peer average was 60.

The University’s first-year retention rate of 88% for undergraduate students is nearly equal to the rate of our peers (90%). NC
State's six-year graduation rate is 63%, slightly below that of the peer institutions (73%). Like many science- and engineering-intensive schools, NC State's four-year graduation rate of 26% is appallingly low. Improving student success, as measured by first-year retention and six-year graduation rates, is clearly important to NC State's future. The Commissioners also urged the University to pay close attention to developing strategies that encourage prompt graduation (i.e., within four years).

Enhancing diversity of the faculty and the diversity of the entering freshmen class are important considerations. Faculty presence from under-represented ethnic groups for 1999-2000 is at 14%, an average that is 3% below that of the peer group. Statistics show African-American freshmen enter NC State at a 9% level, 1% above the average for peer institutions. NC State does well in retaining its minority students through the first year; however, by the sixth year, only 51% of minorities graduate from the University, 8% below the peer average. The remaining 49% either transfer to other institutions or drop out of programs entirely, mainly because of insufficient financial aid, lack of interest in engineering or science, or inadequate academic preparation for college. Financial aid for the University's minority students is particularly critical, because they have a higher need level per capita than does the general student population.

Having identified the factors necessary to be included among the nation's leading universities, our strategy to achieve top 25 status is to:

- Maintain total research expenditures above $250 million per year;
- Increase median federally sponsored research from about $80 million per year to more than $120 million per year;
- Increase total endowment assets from about $270 million to about $500 million;
- Increase annual giving from about $75 million per year to about $90 million per year;
- Increase the number of National Academy members from 16 to more than 25;
- Increase dramatically the number of national and international awards to faculty from 6 to about 25;
- Maintain the number of doctoral degrees awarded annually at or above 325;
- Increase by approximately double the number of postdoctoral fellows from about 150 to 300; and
- Maintain or increase slightly the mean matriculated freshmen SAT average score at about 1200, while providing academic advising and financial support that enhances the likelihood of retention and graduation.

**PLANNING INITIATIVES FOR ACADEMIC AFFAIRS**

The Commissioners were presented with an overview of the goals of several academic units to illustrate their correspondence with University initiatives. Together the goals represent an opportunity to build a position of national leadership. They also reflect NC State's current strengths, and the Commissioners agreed that it makes good sense to strategically build on those strengths.

Within our Advanced Materials thrust, nanotechnology deserves prominent emphasis. The National Science Foundation has identified nanoscale science as a national research priority and as an area likely to produce significant breakthroughs in the near future. Today, NC State has many faculty who work at the forefront of this developing field, particularly in the area of microelectronics. NC State and several of its partners in the Research Triangle have already established a very strong national reputation in this important field. Our partners in Advanced Materials are: ABB,
Giant Semiconductor, Eastman Kodak, EPRI, Materials Analytical Services, Advanced Energy Corporation, and Lucent Technologies. Other companies that are members of materials research centers on NC State's Centennial Campus, but are not resident partners, include: IBM, Intel, Texas Instruments, DuPont, 3M, Procter & Gamble, Philips Research, Hitachi, Rohme & Haas, and Fairchild Semiconductor.

Information technology and networking is a second area in which NC State has a strong strategic advantage. NC State has recently developed an oversubscribed masters degree program in computer networking based on a multi-disciplinary approach that relates networking to a host of hardware applications. A subset of this area, E-commerce, is changing every aspect of business "from marketing to database management" while raising new issues about privacy, Web security and hardware/software engineering. NC State's College of Management, which recently gained accreditation, has already attracted 12 industry sponsors to its new emphasis on Web-based E-commerce offerings. This gives the University an E-commerce leadership advantage.

In another example of the University's leadership, the new (Fall 2000) NC State Honors Program includes a seminar course on Open Source Computing. Honor students enrolled in the seminar participate in hands-on projects using the Red Hat-based Eos/Linux environment as the primary platform. The program also features collaboration with IBM. Honors students will help develop a software package using Linux. The goal is to develop a software package for all NC State students. Faculty in Honors seminars will also be encouraged to incorporate this software package into their courses.

Genomic Science at NC State builds on a significant presence of biotechnology within the Research Triangle Park. The University has a strategic advantage in this area, especially in plant and animal genomics, because of its nationally recognized programs in agriculture, life sciences, and veterinary medicine. Faculty in forestry have also made major advances in genetics, while statistics faculty have made similar advances in bioinformatics. Multidisciplinary teams have been assembled on our Centennial Campus that include partnerships with industry and business, such as Paradigm Genetics, SAS, Glaxo-Wellcome and BASF. With the opening of a Genome Research Laboratory housed on Centennial Campus, new cross-departmental doctoral degrees in genomic science and in bioinformatics are now available. The state-of-the-art facility is fully equipped for modern genomic analysis, and provides a unique training experience in genomics for both graduate and undergraduate students. The genomic science and biotechnology initiatives represent a University investment of almost $10 million, which has enabled NC State to attract and retain top faculty. In addition, the University has been awarded graduate training grants totaling nearly $4 million from the National Science Foundation and the National Institutes of Health.

Several new undergraduate programs in the area of environmental sustainability have been created. Extensive discussions are underway to coordinate a wide array of research activities in environmental technology that address agriculture and water quality, as well as stewardship of our natural resources. With global competition for finite resources becoming more acute, the need to prepare young Americans for leadership in this area is critical.

With the recent opening of the Centennial Campus Magnet Middle School, NC State and the Wake County Public School System have created an excellent educational
community for young adolescents at a crucial time in their lives. Students have the opportunity to discover, integrate, and apply new advances in mathematics and science education in a dynamic global and technological environment. The College of Education is diligently working toward implementing the second phase of the project, a research and development center that will focus on student learning and be NC State’s center for school-based teacher education, innovative practice, and research and outreach to schools throughout North Carolina and the nation.

UNDERGRADUATE EDUCATION INITIATIVES

The Provost stressed the need for the University to continue its focus on undergraduate education, while building its national reputation on excellence in graduate education. At both the graduate and undergraduate levels, the recruitment, retention, and graduation of students are important. Developing students' communication skills has been accomplished through a very aggressive effort to develop programs on Writing and Speaking across the Curriculum. Those who employ NC State graduates say that they are superbly trained in analysis and technical issues, but should also be able to more effectively communicate. In considering the need for communication skills in the forestry/lumber industry, Commissioner Robert Jordan, President of Jordan Lumber Company, said, “We can find a technical person who effectively uses those skills, but if new employees do not have people skills, they are not going to be leaders. Without these skills, they might be great scientists, but they are not going to run companies or build on what other people do. When you talk about learning to write and to speak, it is critical that you also talk about helping students develop people skills. Their last best chance is here in strong, focused, academically challenging undergraduate programs. Businesses should not be called upon to teach these skills on-the-job.”

A center focusing on this issue was created in 1998 in the College of Humanities and Social Sciences to coordinate efforts to teach leadership through communication and interpersonal skills.*
Programmatic and Entrepreneurial Development On Centennial Campus
The third Commission session dealt with the University's Centennial Campus development strategies. Charles G. Moreland, Vice Chancellor for Research and Graduate Studies, and George Worsley, Vice Chancellor for Finance and Business, described to the participants the paradigm shift accomplished in the business-partnership model being employed on the Centennial Campus. On the campus, the University has worked hard to strike a balance among academic programs, corporate and government partners, and support services, such as restaurants and residential areas.

Vice Chancellor Moreland asked the members to look at the 1,192 acres of the Centennial Campus (which includes the College of Veterinary Medicine) as a concept, rather than as a real estate development. The partnerships on the Centennial Campus are a new way to provide a foundation for private-public research collaboration and, importantly, an innovative way to educate both graduate and undergraduate students at NC State. The concept underlying our Centennial Campus differentiates it from conventional research parks that have become common on many American campuses. Unlike most of those arrangements, private sector business partners are able to locate their operations on the NC State campus only if they are committed to establishing a long-term relationship with one of the University's programs. The cooperative relationships formed on our Centennial Campus may include research contracts or grants, support for graduate fellowships or undergraduate scholarships, well-paying student jobs or co-op opportunities, sponsored seminars, development of co-directed courses with industrial employees as adjunct professors, and/or consulting options for faculty.

Vice Chancellor Moreland stressed that early development of the Centennial Campus was financed by NC State, first through state-appropriated funds and later by dedication of indirect costs from sponsored research.

More recently, other buildings on the Centennial Campus have been financed through a range of options, from those constructed completely with state funds to those derived completely from private funds. Private sector investment has been encouraged, thus providing more opportunities for faculty or private sector partners to lease space. Many start-up companies, as well as some of the nation's largest corporations, have chosen to locate on the Centennial Campus. In just two years, the number of companies on Centennial Campus has grown from 23 at the end of the 1997-1998 academic year to 69 in June 2000.

NC State controls the direction of the new private sector development of Centennial Campus by insisting on strong connections with academic programs. As private developers come to the campus to construct new facilities, they seek corporate partners whose goals are synergistic with already established University programs. Future plans include much more aggressive private development. 1998 represents a turnover year, in part because of the opening of a small business incubator, as well as the completion of three Venture Buildings, the Lucent Technologies Building, and the NC State University Center for Toxicology. In addition to a signed letter of agreement for building a hotel and conference center, supporting plans include facilities for continuing education and a golf course that will support our Parks and Recreation curriculum, our turf grass management program and our men's and women's golf teams. Private sector investment in residential areas will offer an option to minimize commuting by University faculty and Centennial Campus employees. With the support offered by the University and Community College Bond, NC State will build.
additional academic facilities for Engineering on the Centennial Campus, freeing space on the Main Campus for cross-disciplinary rejuvenation. Centennial Campus is a vital part of the University's future. In many ways, these partnerships drive the University's programmatic collaborations.

The graph shows the sources of funding (private or University) for completed and planned projects on the Centennial Campus as measured by cumulative investment.

**CENTENNIAL CAMPUS PARTNERS**

The Commission's focus turned to the relationship between Centennial Campus partners and University programs, and how these partnerships provide a foundation for technology transfer and the economic development of North Carolina. The industrial partners comprise a good balance of small companies, divisions of larger companies, and start-up companies.

Currently, there are 18 large companies, 13 small companies, 20 start-up companies, five business services, seven non-profit organizations, and six government agencies for a total of 69 corporate and government entities on Centennial Campus. The University's research mission has long been characterized by a strong record of collaboration with government agencies, for example, with the U.S. Department of Agriculture and the National Weather Service. There are also 70 NC State research centers, institutes, labs, and other departmental units.

Our industrial partners tell us they choose to locate on the Centennial Campus for student and faculty interactions, for access to potential employees, for ease of discussion with consulting faculty, and for easier contracting for research projects with University faculty. Many employees of these companies are adjunct faculty who provide advice on program and curriculum development. Our partners consistently speak very highly of the quality of the NC State graduates they recruit.

**PROGRAMMATIC STRENGTHS**

At Centennial Campus, students develop important skills in applying their studies to the creation and dissemination of knowledge. The unique character of the Centennial Campus facilitates keeping pace with the latest research innovations as industrial and governmental researchers interact effectively with NC State students and faculty. Each of the six academic thrusts previously described finds special locations in neighborhoods on the campus.

"Build it, and they will come to partner with us."

Charles E. Morehead
Vice Chancellor for Research and Graduate Studies
NC State University

The first building on Centennial Campus housed the College of Textiles. New collaborations soon led to several industrial partnerships and a multi-million dollar, federally funded National Textile Center. Originally, the Textiles partners were non-
resident, but industry soon became interested in establishing more interactive relationships with the University's research centers and institutes. Partner interest was not limited to Textiles. As the University moved forward in building networking and information technology, private developers built appropriate facilities. Industry and University units leased space in the new buildings, and NC State established partnerships with the resident companies to build the desired programs in this area.

A need to expand plant and animal genomic science programs so that NC State could compete successfully for nationally competitive awards prompted the Deans and the Vice Chancellor for Research and Graduate Studies to fund the genomic science and the forest biotechnology laboratories on the Centennial Campus and to create a multi-disciplinary facility to house these efforts. Some new faculty have been hired and current members have been retained because of the blossoming partnership opportunities. Five of these outstanding research faculty from the Colleges of Agriculture and Life Sciences, Natural Resources, and Engineering have been awarded grants from federal agencies totaling $14 million to support research in biotechnology areas and genomic science.

The use of federal funding for University/Industrial Research Centers has enabled NC State to expand research in Advanced Materials on the Centennial Campus. For example, the Engineering Research Center for Advanced Electronic Materials Processing, funded by the National Science Foundation, was originally housed in a University-financed building on Centennial Campus (Research I). It is now located in the Engineering Graduate Research Center (EGRC) building along with other centers. During a period of ten years, the Center has received $25 million from the National Science Foundation and $20 million from industrial members. Today, it is supported by funding from the Semiconductor Research Corporation, the SEMITECH Center for Excellence, and industrial partners at $4.5 million per year.

Some others centers located in the EGRC are: the Analytical Instrumentation Facility, the Center for Advanced Computing and Communication, the Multimedia Laboratory, and the Power Semiconductor Research Center. Together, the total funding for these centers is approximately $7 million per year. Also located in the Advanced Materials Research cluster is the Nonwovens Cooperative Research Center of the College of Textiles. Funding for this National Science Foundation-sponsored industry research center totals $600,000 per year. NC State has three other National Science Foundation university research centers which give the University the largest number of centers of this type.

The NC State thrust area with the largest number of corporate partners is Information Technology. This focus area is mainly being promoted through partnerships with small companies and start-ups that are housed in the Ventures buildings on Centennial Campus. The Venture II building also houses the NC State Entrepreneurial Development Center, which is operated by the North Carolina Technology Development Authority (NCTDA). The NCTDA offers space and assistance in formulating business plans for start-up companies whose proposed products are based on NC State intellectual property. Faculty experts are often engaged as champions for directing this applications research and seeking venture capital support. Over the last two years, NC State has had nearly 20 companies emerge from University laboratories resulting in the creation of
hundreds of jobs. Some companies are started in collaboration with private sector partners. The Centennial Campus provides the outlet for the successful transfer of innovative, practical technologies to the marketplace which has helped to promote an entrepreneurial culture throughout the University.

The Fall 2000 opening of the Centennial Campus Magnet Middle School initiates the partnership efforts between the College of Education and the Wake County Public School System. The school, located in the Pre-College (K-12) Education neighborhood of Centennial Campus, concentrates on math and science education and draws on faculty expertise throughout the campus.

TECHNOLOGY TRANSFER

Vice Chancellor Moreland completed his presentation with details about NC State's Technology Transfer Program. NC State's effectiveness is ranked 3rd nationally, according to the Southern Growth Policies Board's Southern Technology Council. Only the Massachusetts Institute of Technology and Georgia Institute of Technology rank above NC State. Our Technology Transfer office works very closely with NC State faculty and handles all negotiations for the use of University intellectual property. NC State has been aggressive in supporting start-up companies, by assisting entrepreneurs in attracting adequate private venture capital to successfully convert University patents into marketable products. In addition, the University created a venture fund with $10 million support from the NC State Endowment. Selective investment of these funds in University-owned technologies has attracted a greater than 6:1 ratio of private to NC State investment in these pre-competitive technologies. All of these efforts have been supported through our partnerships with the NC State Entrepreneurial Development Center and NCTDA.

The Commissioners said they believe that the Centennial Campus provides NC State with enormous opportunities for success in modernizing its academic programs and in developing a unique model for collaborative research. Commission Co-Chair William Friday summarized the presentation by saying, “The Centennial Campus Concept is a unique, wonderful way to move the institution into the next century with great enthusiasm, great power. I do not have the slightest doubt about your momentum.”

James Ryan, Vice President for Outreach and Cooperative Extension at the Pennsylvania State University, said, “Here is an opportunity to forge exciting new policies and new directions. If we are really serious about partnership, we can be exploring new
win-win potentials together. The Centennial Campus provides an enormous opportunity for these partnerships. I hope NC State is bold enough to take full advantage of the partnership potential on Centennial Campus."

Duke University President Nan Keohane commented, "You have been very careful in avoiding the most dangerous pitfalls of being pulled into inappropriate behaviors that conflict with the academic mission of a great research institution. The opportunities that are now available on Centennial Campus are going to be very appealing to faculty members by primarily giving them new modes to seek research support, opportunities for industry partnerships, and involvement of students."

The Commission's discussion turned to the reasons that private businesses may want to enter partnerships with the University. Nathaniel Pitts, Director of the Office of Integrative Activities of the National Science Foundation, said, "Businesses want your students. Business leaders want access to these bright minds. They want access to professors who have good ideas and want quick access to the faculty who are familiar with the companies and their systems. You have a tremendous advantage here. Take advantage of it. Partnerships are full of challenges, but that is the exciting part."

National Humanities Center President and Director Robert Conner added, "Partnerships like those forming on the Centennial Campus are going to be tremendously important in producing the next generation of leaders for this society. Not just corporate leaders, not just academic leaders, but leaders whose insight into problems and their solutions are going to permeate every aspect of society."
Structuring the University to Maximize Community Engagement
Chancellor Fox introduced the fourth area: the University’s proposed initiatives to enhance the community outreach programs for the people of North Carolina. She began by describing an internal report of a year-long, campus-wide study by University Distinguished Professor Ellis Cowling. The study found that the University lacks appropriate structures for optimal support of University outreach programs. As a consequence, NC State may miss leadership opportunities for responding proactively to broad social problems in the state that rely on technical and scientific decision-making. The study also concluded that NC State needs a visionary, vigorous, articulate, full-time leader for campus-wide and state-wide engagement with the state’s citizens, as well as stable financial support for these activities. The Extension Operations Council had independently conveyed essentially the same conclusions to Chancellor Fox in December 1998.

THE ENGAGED INSTITUTION

From its inception, NC State has continually sought better ways to respond to the needs of the people of North Carolina. A high-level academic panel sponsored by the Kellogg Commission recently looked at universities that had a traditional land-grant mission and asked, “Has the environment for the land-grant institution changed since its conception over a hundred years ago?” The Kellogg Commission developed new taxonomy, recommending “engagement” to describe the highly desirable reciprocity of the interactive exchanges undertaken by land-grant universities with citizens of their respective states. “Engagement” better describes the give-and-take activities, rather than the traditional term “extension,” which implies unidirectional offering of research results to the community. “An engaged institution,” according to the Kellogg Commission study, “is one which responds to the needs of the students and the community, while enriching students’ service-learning experiences.” A major question remains: Can NC State identify the critical resources needed if its academic community is to work jointly with North Carolina’s citizens on problems of broad social importance?

The Chancellor highlighted the themes that emerged from the Kellogg Commission’s study: a clear commitment to the concept of “engagement”; active support for infusing engagement into the university’s academic enterprise; recognition of the diversity of successful approaches needed to achieve engagement; inclusion of community activities within the university reward structure; assurance of an appropriate structure to optimize opportunity for leadership and funding; and an embracing of accountability in the management of university engagement.

In order to achieve an expanded role for engagement that encompasses these themes broadly, NC State needs to define “community” to include private sector industrial leaders, non-profit organizations, and public schools, as well as traditional, largely agriculture-based programs. Although engagement with the community is much broader than traditional activities in selective plant breeding and animal husbandry, NC State must clearly affirm the importance and efficacy of Cooperative Extension. NC State has also participated in the last year in several other significant engagement activities, such as several urban planning projects through the College of Design. In addition, NC State faculty members from the College of Humanities and Social Sciences have written textbooks for the middle schools of North Carolina. There are many opportunities for engagement synergy in non-agricultural programs which could be more fully developed.
The Kellogg Commission also defined seven characteristics that guide engagement: responsiveness on both sides, with reciprocity in design and execution; respect for both partners, acknowledging both academic values and the needs of the community; neutrality and credibility consistent with a search for truth; accessibility, whether physical or virtual, to the problem-solving strengths of the university community; integration of research with the outreach and educational mission; an administrative structure that coordinates outreach activities and provides incentives for active faculty participation; and a viable plan to provide needed resources.

If NC State's engagement programs were to incorporate these characteristics, the University could transform its thinking about service to the community so that engagement would become a priority for the institution. Faculty, staff and students could develop career plans that include activities to ensure reciprocal engagement with community groups or partners in North Carolina. A plan would be required to encourage interdisciplinary scholarship that addresses engagement as a valid learning opportunity. To achieve this goal, NC State would need to develop incentives that encourage faculty to engage in such activities. Faculty and staff would have to be confident that their efforts would be recognized during evaluation for promotion and tenure and in other career opportunities. This, in turn, requires the University to develop new and stable funding sources to support these new obligations.

Like all land-grant institutions, NC State has both formal and informal interaction with the community. The formal structure involves the Cooperative Extension Service which is supported by the host county and by appropriated funding from either the U.S. Department of Agriculture (USDA) or the North Carolina Department of Agriculture (NCDA). These operations are program-centered cooperatives with each county in North Carolina. In most instances, cost recovery is attained through specific fees negotiated up-front. These agreements closely resemble a negotiated research contract.

In many cases, however, these continuing programs are also supplemented by short-term projects, which are entrepreneurial and are driven by participants on both sides of the proposed engagement. These activities are focused on a specific deliverable to be attained through a series of milestones set by the customer. Fees, grants, or contracts are used for funding. These informal activities provide the greatest opportunities for entrepreneurial growth and expansion. As such, there is substantial synergy potential between these new informal engagement activities and those undertaken with Centennial Campus partners.

**CURRENT STRUCTURE OF COOPERATIVE AND UNIVERSITY EXTENSION**

In the current administrative structure, an Associate Vice Chancellor for University Extension reports to the Vice Chancellor for Research and Graduate Studies, but has no line authority over budget or personnel. Instead, the majority of outreach funding is received from counties, USDA or NCDA. The projects are supervised by the Director of Cooperative Extension, who reports to the Dean of Agriculture and Life Sciences, who in turn reports directly to the Chancellor for these activities. The Associate Vice Chancellor for University Extension seeds new collaborations by providing incentives through a small grants program ($250,000) administered through the University.

In this structure, the University administration receives advice from two campus groups - the Extension Operations Council and the
University Outreach and Extension Committee - both of which involve field faculty and staff in decision-making. Formal Extension entities exist in each college, and there are six informal Extension efforts in which the financial structure is essentially fee-for-service. These formal entities include the NC Cooperative Extension Service through the College of Agriculture and Life Sciences, the Industrial Extension Service in the College of Engineering, Textiles Extension and Applied Research, and Humanities Extension. Informal Extension efforts are based out of the College of Design, the College of Education, the College of Natural Resources, the College of Management, the College of Physical and Mathematical Sciences, and the College of Veterinary Medicine.

Therefore, both local and national observers ask: How can a land-grant university better transform its current Extension programs into one in which there is a process of engagement? How can NC State better serve the citizens and communities of North Carolina? How can our institution better focus on the needs of those to whom it responds? How can the quality of the engagement be improved?

A MODEL FOR UNIVERSITY ENGAGEMENT

Chancellor Fox described the characteristics of one possible NC State Engagement model. It would be proactive in encouraging responsive and flexible collaborations, in the same way that activities on the Centennial Campus meet those criteria. It would be more entrepreneurial than the current model. Although it might rely on reallocation of existing resources within some colleges, Cooperative Extension budgets would remain intact and entrepreneurship would be the dominant technique for identifying new resources for adding value to current and expanded services. Support allocated to engagement would thus be an investment, rather than a yearly cost. An effective business model for engagement will encourage faculty and students to become involved because they will believe, inherently, that their careers and their education can be advanced by the rewards and recognition available through engagement activities. In addition, service learning opportunities available through engagement would not only strengthen their academic programs, but would enhance their positions as citizen-leaders.

The Chancellor described the benchmarking efforts undertaken in the past year to identify an administrative structure for engagement that might work for NC State. Two models (Pennsylvania State University and Oregon State University) were considered. Both models had a strong commitment by the top levels of university administration; an academically-qualified leader who participates actively in high-level administrative decision-making; sustained financial and staff support to develop entrepreneurial initiatives and strategic directions for engagement; a clear recognition of potential internal and external political barriers likely to be encountered in introducing such changes; and candid input from various stakeholders.

In accordance with the successful aspects of these models, NC State proposes elevating responsibility for engagement from the Associate Vice Chancellor level, with essentially no budget, to the Vice Chancellor level. The new Vice Chancellor for University Extension and Engagement would be an Executive Officer and would participate actively in ongoing University decision-making. The Vice Chancellor would also have responsibility for the primary coordination of Centennial Campus business development and for continuing education, including the direction of the McKimmon Center. He or she would have the background and experience deserving of an academic appointment with tenure. This restructuring
entails partial revision of the current job responsibilities for other Executive Officers and allows for the appointment of a new Vice Chancellor for University Extension and Engagement without the addition of another administrator. The administrative changes include:

- The Vice Chancellor for Research, Outreach, and Extension will relinquish direct supervision of University Extension and will assume responsibility for graduate program administration. With the new title of Vice Chancellor for Research and Graduate Studies, the incumbent will assist in coordinating Centennial Campus growth, rather than have direct oversight of the programmatic development of Centennial Campus.

- The vacant position of Vice Chancellor and Dean of the Graduate School has been changed: a new Dean of the Graduate School has been named and now has dual reporting responsibilities to the Provost and Vice Chancellor for Academic Affairs and the Vice Chancellor for Research and Graduate Studies; the vacant Vice Chancellor position has been changed to the Vice Chancellor for University Extension and Engagement.

- The Provost and Vice Chancellor for Academic Affairs has assumed responsibility for Study Abroad, in addition to co-supervision of the Dean of the Graduate School.

- The Director of Cooperative Extension would report directly to the new Vice Chancellor for University Extension and Engagement and would retain a direct reporting channel to the Dean of Agriculture and Life Sciences.

- The Vice Chancellor for Finance and Business would retain oversight of facilities development on the Centennial Campus.

**REACTIONS TO PROPOSED CHANGES**

Vice Chancellor Charles G. Moreland and Provost Kermit L. Hall, who are most directly affected by the changes, were asked to comment on the proposed administrative restructuring. Vice Chancellor Moreland stated, “I have always believed that the Extension staff members have been left out to some extent, and have not been given proper respect for their significant contributions to the University. As a land-grant University, we must balance our missions of teaching, scholarship, and service. NC State’s commitment to reach that balance requires that, in addition to a Vice Chancellor for Research and a Vice Chancellor for Academic Affairs, we must have a Vice Chancellor for University Extension and Engagement. The term ‘engagement’ is the right word for what we are trying to achieve. In addition, I favor bringing together the primary programmatic responsibility for the Centennial Campus under the direction of one person.”

Provost and Vice Chancellor for Academic Affairs Hall told the Commission: “For this model to work, there must be effective articulation between the academic mission of the University and the Engagement mission, such that they really do become reciprocal and reinforcing. Having a Vice Chancellor focused on University Extension and Engagement will be very positive. The institution will be more structurally aligned to its main ambitions at the Centennial Campus; will be better able to accomplish its historical role as a land-grant institution; and, perhaps most importantly, will be restructured in a transforming role, which will mold NC State into the land-grant institution of the next century.”

Chancellor Fox asked Commissioner Ryan, Penn State’s Vice President for Outreach and Cooperative Extension, to share with the group his experiences in incorporating
engagement into the outreach and extension activities of his university. He said, "Although we were looking for a structure in which any one of our outreach family members could be a one-stop office to allow access to all of the university resources, it became clear that outreach, engagement, and extension activities, while highly valued in the College of Agricultural Sciences and in the College of Medicine, were not as highly valued in many other colleges. So we began to look at a variety of ways to increase the interest, attention and support for faculty from these arenas. We have been at this for a short five years, so what we have developed is an action plan, a work in progress. We have made enormous strides, importantly because our President Graham Spanier takes every opportunity in addressing internal or external groups to be champions for this mission. I would encourage, whatever you do, that both the Chancellor and the Provost be active champions of this mission."

Ed Woolard, NC State alumnus and former Chairman & CEO of E.I. DuPont, shared his thoughts on the University's proposed restructuring. Woolard said, "This proposal has tremendous potential for students, for faculty, for the state, and for our University. You will need to be very thoughtful in whom you select to head this area because this person will need tremendous networking ability. Not only will he or she need to get along with many people and be able to identify new financial resources, but he or she must be able to convince people inside and outside that you are bringing something new to the table, adding value, and not just trying to seek power. To be successful you will need an engaging person who is very smart, and who can, with a blank sheet of paper, build something from the ground level."

COMMISSIONER ED WOOLARD

Professor Ellis Cowling, who conducted NC State's initial study on the potential of incorporating engagement activities into the University's structure, said: "It has been very exciting to listen to your endorsement of a vision that many of us have wished for for many years. I see in this proposal the potential for NC State to become an outstanding university, one more engaged with our society and one that demonstrates that the land-grant concept has adapted to modern times."
On The Right Track
Members of the Commission on the Future of NC State left the University's administration with words of encouragement and praise for the initiatives that are being undertaken in an effort to becoming one of the nation's best land-grant research intensive institutions.

The following section provides a representative sampling of their comments.

Commission Co-Chair Norman Hackerman:
"It seems to me that NC State has been dealt two major aces. One of them is an excellent Extension activity and the other is the Centennial Campus. Much of our enthusiasm for the new NC State is based on the successful expansion and enhancement of those two efforts. I heard no one say flatly that either of these should not be further developed. In fact, development of these areas as forecast in the presentations is highly desirable for the future of North Carolina State University. Both initiatives face challenges; there is no question about that. But then, if you did not have problems, the initiatives would not be worth fooling with."

Commission Co-Chair Bill Friday:
"This institution is probably at this moment coming face-to-face with its greatest challenge. NC State probably will not ever have a greater opportunity than it has now. North Carolinians have enormous respect for what happens here. I think they feel closer to this University than they do with any other institution because they have contact with us on farms, in the trades, in business, and everywhere. This institution has never failed the people of North Carolina when there was a problem to be met. That is where I think the acid test for the future can be found."

Commissioner Ed Woolard:
"I think this University has been, and is, great! When I speak to college students, which I do fairly frequently, they almost inevitably ask me, 'What did you do in your University days here? And how did you get to be the President of Dupont?' I say, 'What I learned in college is that it teaches you how to learn. What you learn at NC State is much less important than actually learning how to learn. A great college education teaches you how to solve problems, which is one of the important skills in life. It teaches you to communicate and to get along with people. That is what NC State did for me.' I was a fairly shy kid when I came here and I left feeling pretty good about myself. The initiatives proposed here provide a great opportunity for the current students to do the same thing, but in a new way."

Commissioner Nathaniel Pitts:
"North Carolina State University produces a lot of North Carolina graduates. I think this is a tremendous credit to this institution. That is why you are here; it is the main focus of what this institution is doing. I do not think you can ever forget that. The reason that NC State is tied so closely to the people in North Carolina is that the citizens feel they own this institution. They feel very comfortable with this institution, because it delivers great products and services and educates their sons and daughters so well."

Commissioner Larry Wooten:
"Goals are important; benchmarks are important; and national prominence is important for this University, but I can assure you that large numbers of the parents of students who are looking to come to NC State are not looking at U.S. News & World Report. They are looking at the quite evident success this institution has in educating their children. We should never, never apologize for our land-grant mission, and should, as we discussed here today,
enhance that mission. The people of North Carolina feel a great ownership of NC State through its outreach programs and other areas of this University. I want to see us continue that and to expand it. The proposed initiatives seem to be a great boon for rural North Carolina."

Commissioner Charles Hamner:
"I believe there are three areas that distinguish a university as something unusual or better than another. The first is its academic program and the leadership of the faculty. In this area, NC State has made great strides. The second deals with the operations of the university - its infrastructure, human resources, facilities, finance and business. These aspects should always be considered when proposing a transformation. Third, internal and external communications must be clear for efficiency and effectiveness. Careful attention to this area during a transformation will help to clarify what is going to happen, and what improvements are expected from the changes. NC State has done a great job of projecting its role in the future. Now you must continue to keep your constituencies and stakeholders well-informed."

Commissioner Enriqueta Bond:
"I really like the thrust areas that you have selected. Genomic science; environmental science; material science; computer science and networking; K-12 education, particularly as it relates to science education; and global competitiveness are wonderful themes on which to enhance the education of students. Your students are, after all, going to be the workforce of tomorrow. These areas are a wonderful cross-cutting means to expand their experiences."

Commissioner Burley Mitchell:
"As a kid, I remember that my uncles were very dependent on the information and interactions they had with Extension agents. They considered themselves, I think, NC State people, primarily because of the Extension service and the outreach programs that touched them out in fields where they worked. For that reason, I was really enthusiastic to see such an invigorating renewed outlook involving the enhancement of the outreach program by our staff."

Commissioner Bill Wulf:
"The challenge of structuring the duties of the Vice Chancellor for University Extension and Engagement is a tremendous responsibility. But, it is impressive that this administration is willing to explore this evolving area. I applaud you for that, and I encourage you to continue your efforts. There will be other necessary changes as the role of the University continues to evolve. You have a faculty who are personally committed to consider new ways to serve society. This is very precious."

Commissioner James Ryan:
"Quite simply, you are creating the future. I believe the land-grant university of tomorrow will be different from the land-grant university of the last 100 years, but it is a venture into high-risk territory. It requires boldness and courage. I just want to say how much I enjoyed being here to witness first-hand your exciting vision and the strong leadership of this administration."

Commissioner Bob Jordan:
"It is exciting to see what is going on. The vision you have discussed is your mandate. You need to continue to plan, to set goals, and to use more than one peer group. Use your strengths: the Cooperative Extension Service, the Centennial Campus, the alumni, the corporate and governmental partners, and the constituents."
Commission Referee Nils Hasselmo, Association of American Universities:
"You have taken on the important task of defining the University in terms of its fundamental characteristics and its fundamental circumstances, including institutional competition. You have capitalized on your land-grant role and have extended that role by emphasizing new developments in genomic research, as well as identifying new tasks for the Cooperative Extension Service. You have dealt with the many 'instrumentalities' that have to be addressed if a plan is to succeed". 

Commissioners Charles Hamner and Enriqueta Bond
Moving the University to the Next Level
North Carolina State University is on an exciting journey. There is an incredible opportunity ahead to achieve the University vision of building a diverse campus community that values partnerships and embraces accountability. We intend to become one of the nation’s best universities by integrating teaching, research, and service in order to better serve the citizens and communities of North Carolina.

Appropriate benchmarks and initiatives will allow us to monitor educational and scholarly progress. The Centennial Campus concept allows the institution to experiment in creating partnerships in ways that most other institutions cannot easily realize. Active participation in engagement will also extend our traditional role in agriculture to link the University with individual North Carolinians, with businesses, with community and governmental agencies, and with volunteer organizations in addressing the numerous economic, educational, environmental, and social challenges faced by our state. NC State must lead efforts for change if we are to meet these critical needs.

Numerous challenges lie ahead for our University. Confronting these challenges boldly and creatively will provide NC State its best opportunity for success. We are fortunate to have had the opportunity, in the Commission on the Future of NC State, to receive feedback and guidance from a distinguished group of individuals, with many levels of expertise, on the principal issues facing the University.

Commission members provided a series of recommendations for the future of NC State. Our primary objectives in the years ahead will be:

- Establish partnerships with peers in industry, neighboring universities and service providers on the Centennial Campus;
- Foster efficient technology transfer for NC State inventions; and
- Establish and empower a Vice Chancellor for University Extension and Engagement.

The following list of recommendations detail the map for NC State to attain these objectives and focus our efforts in the years ahead.

I. University Vision and Compact Planning

- Implement a capital plan that anticipates and addresses future enrollment pressure and ensures an adequate appropriated renovation and repair funding program for University facilities.
- Provide financial resources for an active recruitment program for non-traditional students and for those from underrepresented groups.
- Support an active University-wide diversity initiative that will provide a welcoming, inclusive environment for all students, faculty, and staff.
- Improve the retention and graduation rates of NC State students at the second, fourth, and sixth year.
- Use the performance measures in Compact Plans to guide decisions on discretionary investments in academic and service units.
- Involve the Board of Trustees in annual review of current University Compact Plans.
- Develop a financially sound plan for all auxiliary enterprises, including intercollegiate athletics, housing, arts programs, and recreational sports, that is consistent with competitive programs of peer institutions.
- Seek means to recognize and financially reward EPA and SPA employees for their efforts to achieve the University vision.
II. Academic Initiatives and Benchmarking

- Aim for inclusion among the top 25 American public research institutions as determined by rankings based on objective criteria.
- Argue for inclusion on our list of University of North Carolina peers those institutions that share the following characteristics: public; land-grant; no medical school; Division IIA intercollegiate athletics; strong engineering programs; endowment less than $500 million. Aspirational peers should differ by no more than two of these characteristics.
- Adopt policies that monitor and improve relative academic performance by benchmarking the following criteria: total research expenditures; federal research support; endowment; annual giving; number of National Academy of Sciences/National Academy of Engineering members; number of national and international faculty awards; number of doctoral degrees granted; number of postdoctoral fellows; and mean SAT scores for matriculating freshmen.
- Strengthen the faculty by increasing the number of endowed professorships and chairs in each college to retain our strongest faculty and recruit nationally recognized leaders.
- Actively support nominations of our best faculty for national and regional disciplinary awards, including election to the National Academies of Sciences and Engineering.
- Continue support for the D.H. Hill and disciplinary libraries consistent with achieving an ARL ranking among the top 25 public research universities.
- Develop new degree programs and certificates that cross departmental and college lines consistent with academic initiatives identified in Compact Plans.
- Provide administrative support for each of the collectively identified interdisciplinary initiatives.
- Highlight the important role the humanities and social sciences play in all of the academic programs of the University, especially through emphasis on writing and speaking across the curriculum.
- Help faculty develop new techniques for improved student learning through the Faculty Center for Teaching and Learning.
- Encourage faculty to participate in curriculum innovation employing Internet resources for synchronous and asynchronous courses or course enhancement.
- Cooperate with the Research Triangle Institute, Duke University and the University of North Carolina at Chapel Hill in identifying joint offerings through distance education.
- Insist on high standards and provide appropriate academic support for student-athletes.
- Clearly articulate to the public the areas in which the University wishes to excel and communicate how today’s accomplishments will improve the University in the future.

III. Centennial Campus Concept

- Increase the number of students working directly with NC State faculty and Centennial Campus affiliates as a means to enhance their academic skills and as a new resource for on-campus financial aid.
- Support construction on the Centennial Campus as a means to redefine the mission of the land-grant university consistent with the 10-year Physical Master Plan.
- Coordinate research directions on the Centennial Campus and Cooperative Extension as vehicles to expand and enhance NC State’s outreach agenda.
- Foster technology transfer of NC State
intellectual property by active cooperation between the Office of Technology Transfer and Industry Research and investors, such as NCTDA, the Kenan Institute for Engineering, Technology & Science, and the Longleaf Foundation, by assisting with Centennial Campus incubation of startups that are based on NC State intellectual property.

- Extend the Centennial Campus concept to development of a BioPark on land adjacent to the College of Veterinary Medicine.
- Provide a Centennial Campus Affiliates Benefits Program that encourages active participation of Centennial Campus employees in the intellectual life of the University.
- Monitor and manage conflicts-of-interest and conflicts-of-commitment as a routine part of operations of the Centennial Campus.

- Incorporate active and innovative service through engagement with North Carolinians as one criterion for faculty evaluation for promotion, tenure, and salary increases.
- Strengthen existing solid relationships in each county with NC State Cooperative Extension Service staff and NC State alumni.
- Investigate the role of the Internet in assisting NC State as it improves communication among its students, faculty, and constituents, especially in our Engagement activities.
- Expand the number of programs offering academic credit for intellectually stimulating service-learning opportunities.
- Expand the Engagement initiative, maintaining the feeling of ownership the people of North Carolina have with NC State.

IV. Structure for an Engaged University

- Establish and empower a Vice Chancellor for University Engagement and Extension.
Conclusion

The NC State community greatly appreciates the guidance offered by members of the Commission on the Future of NC State. The discussions and counsel will assist the University leadership in the years ahead as we position North Carolina State University to be the nation’s leading land-grant institution. To all Commission participants, we express our gratitude for your willingness to join us as we embark on this exciting journey.
Appendix 1

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Former Chairman and CEO
E. I. DuPont de Nemours & Co.

Larry Wooten
President
North Carolina Farm Bureau Federation

William Wulf
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Appendix 1 cont.

UNIVERSITY ADMINISTRATION

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Chancellor

Kermit L. Hall
Provost and Vice Chancellor for Academic Affairs

George Worsley
Vice Chancellor for Finance and Business

Charles G. Moreland
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