



The UNIVERSITY of NORTH CAROLINA *at*
CHARLOTTE



UNC Tomorrow

Phase I Response

--May 1, 2008--

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Introduction

In 2002, the UNC Charlotte Board of Trustees approved a vision statement for the University that is entirely consistent with the goal of UNC Tomorrow of ensuring that UNC “becomes more proactive and responsive to the needs of our state.” Our vision is “to be North Carolina’s most energetic and responsive university, offering unparalleled educational opportunities for nearly 25,000 students seeking the highest quality undergraduate, graduate, and continuing personal or professional enrichment in the liberal arts and sciences and selected professions. The goal of UNC Charlotte is to be a publicly supported Doctoral/Research University – Extensive in North Carolina early in the 21st Century. UNC Charlotte will be known especially for the individual commitment of each member of its collegial and diverse faculty and staff to extending educational opportunity and ensuring student learning and success, both at the graduate and undergraduate levels; its nationally and internationally recognized capacity for research and scholarship; and its willingness to join its resources in collaboration with those of other institutions to address the major educational, economic, social, and cultural needs of the greater Charlotte region. UNC Charlotte has a special responsibility to build the intellectual capital of this region.” In our Phase I response to the UNC Tomorrow Commission report, we describe the efforts of our University community to fulfill this vision and in doing so, address the Commission’s recommendation.

As our region has grown, so has our institution, both in size and aspiration. The report reflects this growth in new programs that are under development or proposed for the near future. These include refinements of our approach to teaching 21st century skills, aggressive programs to promote access to higher education, and the establishment of new centers and institutes that provide the matrix in which students and faculty can integrate research and education in a wide range of disciplines and provide service to the community through the development and application of new knowledge. The centers range from EPIC, focused on the power industry to the Center for the Study of the New South, designed to help us understand our heritage and build our future. We also note our close cooperation with Charlotte-Mecklenburg and other school systems to prepare and sustain the best possible teachers for North Carolina. The report includes new structures that have been created or planned to better serve our students and our community: a University College to support our General Education program that builds the foundation for 21st century skills; a new College of Arts and Architecture to enhance our role in arts and culture; a proposed School of Public Health to expand our research and educational capabilities in this critical area. We also describe new degree programs, both in the liberal arts and sciences and in the professional schools, which we believe will be needed to prepare students for the future. During the preparation of the report, we have discovered new opportunities for collaboration across our institutional divisions to promote better stewardship of the environment and across the UNC System for acceleration of economic transformation. Throughout, the report illustrates our strong institutional connection to our region and the commitment of our faculty and staff to provide excellent education for our students.

A. Global Readiness

- *UNC should educate its students to be personally and professionally successful in the 21st century and, to do so, should enhance the global competitiveness of its institutions and their graduates.*

A.1. 21st Century Skills

UNC Charlotte's undergraduate curriculum is organized to prepare students with the intellectual skills they will need for success in their careers and in their communities in the 21st Century. Both the General Education curriculum, revised in 2002-03, and specific degree programs are designed to graduate students who can communicate effectively, think critically, solve problems, and work collaboratively, and who possess the multiple literacies outlined in the UNC Tomorrow Commission Report: global, cultural, scientific, environmental, digital, and financial. Most of these skills, rather than being tied to a single course, are intrinsic in the academic education at all levels of the curriculum from introductory courses for general education to advanced courses in the major and graduate programs. In addition, students also learn and practice these skills in extra-curricular activities that are woven into the academic fabric of the curriculum: internships, service learning programs, and student organizations reinforce the skills and provide opportunities for integrated application of multiple skills.

A.1.1. Existing Academic Programs Addressing 21st Century Skills

Written and Oral Communication Skills: All undergraduates at UNC Charlotte develop their written and oral communications skills within the General Education program by taking:

- A two-semester first-year composition course sequence (one-semester for qualified students)
- Two courses designated as writing intensive, including one course from the student's major
- One course that develops oral communications skills

In addition, most undergraduate courses at the junior and senior level (3000 and 4000) require writing as a critical element in the curriculum. For example, in the Colleges of Education and Health and Human Services, require students to accumulate a portfolio of written work between the freshman and senior year that provides a basis for both self evaluation and assessment. For advanced students in many majors, there is the option to pursue departmental/college honors, a process that involves the preparation of a thesis based on original research and often an oral defense.

Critical Thinking: Courses meeting requirements for the General Education program (and particularly the four courses in the interdisciplinary liberal studies part of this curriculum that are foundational to our General Education program) involve critical thinking: students are called upon to assess evidence, pursue lines of inquiry, and develop arguments as they design and implement research strategies, assess and weigh evidence, and, depending upon the context,

make informed decisions or develop original arguments and interpretations. These skills are developed as students advance through the curricula of different programs. Thus, these skills tend to be best articulated in the capstone experiences characteristic of many undergraduate programs.

At the graduate level, development of these same skills culminates in the research leading to a master's thesis, project, or portfolio; doctoral dissertation; and/or comprehensive exam. Some students have the opportunity to develop these skills to a high level by participating in departmental or college honors research symposia at which students can present the results of their original work. For 15 years, UNC Charlotte also has held an annual Undergraduate Research Conference showcasing research and creativity. We also hold a university-wide Graduate Research Forum that gives graduate students opportunities to present their research. Graduate conferences in particular disciplines, for example, the annual CriticalMASS symposium, provide additional opportunities for graduate students to present their results. CriticalMASS is planned and executed entirely by students in the College of Architecture's Master of Architecture Student Society (MASS). The event attracts professionals, faculty, and graduate students from various universities throughout the Southeast to participate in a focused discussion and critique of the architectural design-research being generated by graduate students in this region. Each year, a summary of the event is published as a book.

Problem Solving, Creativity, and Innovation: These skills require students to have mastered the foundational knowledge in their discipline, and thus these skills are primarily developed in upper level coursework in undergraduate majors and in graduate programs. The teaching of these skills, however, is not done in any single course. Rather, they are distributed broadly throughout the curriculum of each program, developed incrementally as students advance. That said, in undergraduate curricula, problem solving and creativity are likely to be most evident in the capstone experience that is required in a number of the programs at UNC Charlotte. Examples for undergraduates vary by discipline, but include:

- Research seminars in humanities, sciences, and social sciences departments in the College of Liberal Arts and Sciences
- Creative venues such as exhibitions and performances in the fine arts departments (Art and Art History, Dance, Music, Theatre) in the College of Arts and Architecture
- Research-based experiences in science laboratory courses
- Policy analysis in the Belk College of Business
- Clinical placements such as those in the Colleges of Education and Health and Human Services
- Design seminars for students in Architecture, Computing and Informatics, and Engineering

An example from The William States Lee College of Engineering illustrates how an undergraduate program at UNC Charlotte addresses these goals. In a year-long capstone design course student teams address real-world engineering design challenges provided by regional industry and are challenged to develop an innovative solution. Student teams prepare a requirements document, brainstorm potential solutions, and then use a selection technique to

settle on a final design. Projects range from human powered vehicles to rolling roadways and clamp testing machines.

Teamwork, Collaboration, Work Ethic, and Professionalism: The closely related skills of teamwork and collaboration, and work ethic and professionalism are developed in the upper level curricula of majors and graduate programs. The emphasis on teamwork and collaboration is more evident in the professional colleges and degree programs than it is in liberal arts majors. The former often have professional practice courses, project-based courses, or professional work experience in the form of internships or clinical placements that is required of all majors. For example, The William States Lee College of Engineering motorsports engineering program exhibits education in teamwork, collaboration, and professionalism with several student race teams (Legends team, FSAE team, mini-Baja team, drag team, and human-power vehicle team). Each team functions much like any NASCAR team. Students organize the business, engineering, and race-day functions common in automotive racing. The program develops teamwork and develops motorsports professionalism for students preparing for a career in racing. In the technical writing program in English, team projects are also the norm and run through the entire program. Students work on real client projects that involve writing, collaboration, presentations, and international foci, engaging students in almost every one of the 21st century skills.

Within the liberal arts majors, however, numerous opportunities exist for students through internships, research with faculty, as well as those individual courses in which group work is one of the assessment tools used. Particularly significant examples are the Chemistry Club, North Carolina Student Legislature and the League of Arab States. Moreover, new opportunities are being developed. For example, UNC Charlotte's participation in the community-wide Crossroads Charlotte initiative is predicated on the involvement of students enrolled in a freshman seminar in group research or service projects on topics associated with the city and its people.

Financial Literacy: UNC Charlotte has no formal academic program that develops all students' financial literacy, although the topic is addressed for entering freshmen students during the SOAR orientation program and in some sections of freshman seminar.

Information and Digital Literacy: As an integral part of the first year composition course that is required of every undergraduate, instruction in digital literacy occurs in the form of training by library staff associated with library research. Information and digital literacy in this case means giving students the ability to find, assess, and use reliable resources on the Internet. The ability to develop an awareness of what students need to know about information security and personal privacy (knowledge analogous to the expectations about financial literacy) is not addressed.

In addition, teaching students how to evaluate the quality and reliability of digital and Internet information is incorporated into the curricula of most undergraduate majors and graduate programs. In a number of instances this training is quite deliberate and focused, particularly given the increasing reliance of the academic community upon on-line sources of information. Such training, at the undergraduate and graduate level, often

involves library faculty working in collaboration with those in the disciplines to develop program specific training. Academic units are increasingly using information technology in the business practices; for example, the Graduate School is now promoting the digital submission of all master's and doctoral theses.

UNC Charlotte's historic commitment to interdisciplinary research and education effectively supports the development of inherently interdisciplinary majors that prepare students for work in fields that are increasingly dependent on sophisticated uses of digital technology. A prime example is the BS program in Financial Services Informatics just developed by the College of Computing and Informatics (CCI) in collaboration with Charlotte's major financial institutions: Bank of America, Wachovia, and TIAA-CREF. The approach of marrying in-depth knowledge of information technology with another discipline is also evident in collaborations being systematically developed between CCI and the social sciences and health sciences. In the College of Liberal Arts and Sciences, the Center for Humanities, Science, and Technology also supports this interdisciplinary integration in research and education.

Science, Mathematics, and Environmental Literacy: UNC Charlotte students are well served in basic science education through formal requirements for two science classes within the General Education program, one of which must be taken with a lab, and two mathematics or related courses. Except in specific programs that have an environmental focus, there is no expectation that environmental literacy will be developed in undergraduate majors or graduate programs. Issues related to environmental literacy may be covered in science courses or in the curricula of the six courses that students may take to complete a social science requirement. Students who enroll in laboratory courses or participate in laboratory research receive training on proper handling and disposal of chemicals and other substances.

Global Awareness: UNC Charlotte students are required to take one course addressing global awareness as part of their General Education Liberal Studies requirements. This course examines both the phenomenon of globalization as well as introducing students to the study of cultures other than their own. Several majors within the College of Liberal Arts and Sciences including International Studies, Latin American Studies, History, and Political Science have explicit expectations that students will study issues from a global perspective.

In addition to programs that intrinsically involve an awareness of global issues, many programs at the undergraduate and graduate level require foreign language study as a related requirement and others, most notably the College of Arts and Architecture, are noted for their emphasis on study abroad. A number of programs also have developed partnerships with area institutions to foster awareness among students of the increasingly global character of the city and region. For example, an active partnership exists between the College of Health and Human Services and the Latin American Coalition in Charlotte.

A.1.2. Extra-curricular Programs Fostering and Supporting 21st Century Skills

Written and Oral Communication: Outside the classroom, students have numerous opportunities to practice written and oral communication and receive feedback from advisors: for example, student organization leadership, student news and literary publications, and service

as orientation counselors and campus guides. Students from the Producing Readiness of Diverse University Cohorts in Education (PRODUCE) program sponsored by the NSF-funded Lewis Stokes Alliance present research projects at national conferences. Students preparing for employment conduct mock interviews through the University Career Center. Students also receive additional training on written and oral communication through the Writing Resource Center and through workshops offered by the University Center for Academic Excellence. UNC Charlotte offers a robust experiential learning program (internships, co-ops, community service) that provides students with the opportunity to practice oral and written communication in the work environments. More than 500 students registered for experiential learning courses through the University Career Center during 2007-08. In addition, the Career Center placed 250+ students in internships and 2000+ students in community service activities. Neither of these figures includes the substantial number of students who participate in internships and service learning under departmental and college auspices.

Critical Thinking and Analytical Skills: Students have opportunities to hone critical thinking and analytic skills by participating in supplemental instruction in science, engineering, business and social sciences, or by completing self-assessment inventories about career and personal interests. In the past two years, a partnership between Academic Affairs and Student Affairs has launched a Common Reading Experience that permeates the freshman experience. Freshmen who read a common book prior to the fall semester participate in small group discussions with faculty to critique and analyze the work over the course of the semester. Authors of those selected books have given campus lectures and met with students.

Problem-Solving, Creativity, and Innovation: Student government organizations, peer mentoring programs, and experiential learning program (internships, co-ops, community service) provide students with the opportunity to practice problem-solving, creativity and innovation in various environments.

Teamwork, Collaboration, Work Ethic, and Professionalism: These organizations and programs as well as our intramural sports and Venture (outdoor) programs provide opportunities to practice teamwork and collaboration as well as encouraging the development of a work ethic and professionalism. The Division of Student Affairs offers extensive programming in leadership development for students participating in more than 200 student organizations.

Financial and Environmental Literacy: Because student organizations must develop and manage budgets in order to receive student fees, these programs support the development of financial literacy. Students in the Belk College of Business have the opportunity to participate with graduate students in the Student Managed Investment Fund that manages a portion of the University endowment.

Outdoor programs, student organizations with an environmental focus, campus clean-up days, and the campus recycling initiative strengthen environmental literacy; these efforts are enhanced by presence of and programming offered by the McMillan Greenhouse and the Botanical Gardens at Van Landingham Glen, as well as by student participation in the work of campus offices including the Environmental Assistance Office (discussed in *Section F. Environment*) and the Campus Recycling Program.

Global Awareness: UNC Charlotte supports global awareness through a well-developed Office of International Programs that oversees:

- Study abroad programs: 36 programs serving 450 students per year
- Faculty programs including UNC Charlotte faculty sent abroad as program supervisors and visiting scholars working at UNC Charlotte
- The English Language Training Institute that serves 100 students per year with intensive language instruction
- Events and programs on campus, including the annual International Festival that brings more than 10,000 people to campus for a celebration of world cultures

In addition, UNC Charlotte's award winning Model United Nations organization provides an ongoing opportunity for students to develop international awareness as they take on the role of a particular country for a mock UN session and travel globally to compete as team members. Faculty participation in study trips to Mexico sponsored by the UNC Center for International Understanding have led to robust collaborations with organizations in Mexico and increased student study trips and course offerings in Mexico by UNC Charlotte faculty in Education and Nursing.

A.1.3. New Initiatives

The inventory above indicates that the education that students at UNC Charlotte are receiving does develop the 21st Century skills enumerated in the UNC Tomorrow Commission's Report. The Report does, however, challenge the faculty to consider ways in which its curricula could be improved to better address the development of those skills through new initiatives and programs as well as a sharper focus on existing aspects of our educational program. In considering its response to the imperatives outlined in section 4.1.1 of the Commission report, UNC Charlotte has identified three major initiatives that are intended to address the most important of the enumerated skills in a comprehensive manner. This approach will allow the campus to focus attention upon a limited number of primary initiatives and develop those to their fullest potential. In addition, UNC Charlotte plans secondary initiatives to address other aspects of the Commission's recommendations.

Our primary initiatives include the following:

1. Communication and Critical Thinking Across the Curriculum

Probably the most urgent need identified by our inventory and assessment of the educational programs and curricula at UNC Charlotte is to improve existing efforts to develop communication, critical thinking, and problem solving skills among our students. This is, arguably, the most important aspect of the UNC Tomorrow recommendations, and although UNC Charlotte's faculty devotes considerable energy to this effort, there is no question that students would benefit from additional focus on these skills. To this end, the campus is in the process of considering a series of interrelated initiatives. These discussions pre-date the UNC Tomorrow Commission but are completely consonant with the recommendations in the Report.

We plan to do the following:

- *Explore mechanisms to link one or both of the first-year composition courses that all students take to other classes in the General Education curriculum. Such a linkage benefits both courses: students in the composition class write about something they are learning about in the other course, enhancing their appreciation of the role that writing plays as part of the learning process; students in the General Education course have the chance to further develop their knowledge and understanding of the material by working on it in the composition class. Both local and national research shows that integrating elements of the curriculum, particularly in the first year, enhances student learning, retention, and engagement. (These linked classes would also be the basis for a much more robust first-year experience for new freshmen.)*
- *Use the dialog between composition faculty and those in other departments who are teaching General Education classes in the model outlined above as the basis for reviving a Writing Across the Curriculum (WAC) program on campus and broadening the focus to include oral communication skills across the curriculum (CAC). The CAC program would promote faculty development efforts around writing and oral communication. In particular, it would provide expertise and leadership to encourage faculty to develop writing assignments that could be used in a variety of different course settings and to design those assignments in ways that directly develop critical thinking, problem solving, and information literacy skills. The goal of the CAC program is to move writing and speaking out of the ‘ghetto’ of specific composition and writing/oral intensive requirements to make written and oral communication’s role more explicit as an integral element in critical thinking and problem solving.*
- *Consider how and to what extent the efforts of a CAC program could be beneficial to graduate education.*
- *Consider how and to what extent the efforts in both composition and CAC need to be adapted to the expected increase in the numbers of students for whom English is a second language.*

Timeline: An initiative of this nature will only be successful if there is broad buy-in from faculty and departments. The tenor of faculty comments at the on-campus UNC Tomorrow session suggest that faculty will be supportive of these efforts but considerable study and discussion will be needed to develop the details of both the planned course linkages and the CAC program. These will take place during the 2008-09 academic year, and if the discussions are fruitful, we plan to begin implementation in Fall 2009.

Cost: For *linked sections*, \$75,000 - \$110,000 largely to create the incentive structures to reward faculty for the additional effort that this type of teaching will involve. UNC Charlotte plans to allocate a proportion of its campus initiated tuition increase allocation towards this effort and it expects to generate savings by reducing dependence on part-time faculty. This cost is in addition to the

allocation of faculty lines generated by enrollment increase to service these general education courses.

For CAC, \$100,000 to fund a full-time director and faculty course–release fellowships.

Assessment methods: See below, initiative #3

Accountability measures: Implement an integrated composition program that serves one half of all entering freshman by 2011 subject to faculty approval of any curriculum changes. Create a CAC program (with integrated or parallel support for oral communication) by Fall 2010 with programs serving 5% of faculty and 50% of departments.

Responsible officers:

Dean of University College

Dean of Liberal Arts and Sciences

2. Capstone Experiences

In our survey of existing curricula in majors and graduate programs at UNC Charlotte that addressed critical thinking, problem solving, teamwork, and professionalism, a significant correlation exists between those programs that could articulate how students developed these skills and those with robust capstone experiences. This was particularly true at the undergraduate level, but was also evident in graduate education. For this reason, UNC Charlotte plans to embark upon an analysis of capstone experiences in its undergraduate and graduate programs with the intent of exploring whether capstone experiences can be developed if they are not present and how those that do exist can be improved. No single model of a capstone experience can serve the needs of all disciplines, but some of the common features that should be explored the extent to which a capstone experience can be:

- Incorporate critical thinking and creativity skills, perhaps by means of a problem-based assignment as an element in the course
- Incorporate written and oral communication activities
- Incorporate collaborative work
- Involve service learning, original research, or work experience of some type

It is important to stress that this initiative does not intend to limit the teaching of these skills to the capstone course but rather to use students' experience in a capstone as a way to synthesize the learning they have done throughout the curriculum of any given academic program.

Timeline: Conduct a review during 2008-09; where additions or improvements are identified, programs will prepare new curricula during 2009-10 for implementation in Fall 2010. Initiate a curriculum revision process by Fall 2010 to improve capstone experiences in 50% of programs where need was identified. Review all existing capstone experiences by the end of the Spring 2010 semester.

Cost: Unknown, but not likely to be significant. The review itself will be conducted by faculty committees in each program and college. Changes to the capstone curricula within each program can be accomplished by reallocation of faculty teaching assignments.

Assessment methods: Assessment of student learning in the capstone courses will be integral to assessment programs in each major. National Survey of Student Engagement (NSSE); Collegiate Learning Assessment (CLA); Postgraduate Survey

Accountability measures: Performance on defined learning outcomes and CLA; evidence of engagement on the NSSE; student and employer satisfaction on postgraduate survey.

Responsible officers: Deans of each academic college

3. Assessment Revision

Several of the skills itemized in the UNC Tomorrow Commission's Report are covered extensively in the education that UNC Charlotte's students receive, but student learning of these skills is not captured particularly well by existing assessment practices either in General Education or in academic programs. Surveys, such as the National Survey of Student Engagement (NSSE) which is used regularly at UNC Charlotte, addresses the participation of students in activities that may foster these skills, but does not address actual outcomes. This is particularly true of some of the more diffuse skills such as critical thinking, problem solving, and teamwork, all of which are taught in multiple settings within the curriculum. The fault is not the existing assessment practices themselves but rather the way that the imperatives in the Commission's recommendations have brought into focus features of the existing curriculum that now need to be assessed more explicitly. To address this need, UNC Charlotte plans two complementary initiatives:

- *The system-wide adoption of the Collegiate Learning Assessment (CLA) provides one mechanism that will allow UNC Charlotte and its faculty to assess these particular skills. In order to do so, a faculty team will need to study the structure and results that the CLA generates and then propose any necessary revisions to the curricula of General Education courses or courses in the major so as to better prepare students.*
- *A second tool that will allow UNC Charlotte and its faculty to assess these skills will require us to examine the requirements and structure of courses in the General Education program. From that assessment, we will select courses in each academic program to develop with a view to developing a curriculum for these classes that more explicitly addresses student learning outcomes for 21st century skills. This initiative is complementary to the proposal above for a CAC program since the ability to support faculty in designing writing and oral communication assignments for their classes that do involve critical thinking or problem solving will generate examples of student work that can be used as part of an assessment of student learning.*

Timeline: Review to take place in 2008-09. Any revisions to curricula to be developed during 2009-10 for implementation in Fall 2010.

Cost: Unknown but small. The analysis will be done by faculty committees with the assistance of assessment professionals in the Office of Institutional Research; any changes to the assessment process that are implemented will replace or refine work that is already being carried out.

Accountability measures: Develop assessment measures covering this broader array of student learning outcomes for a sample of the student body by Fall 2010, scaling up to all students by Fall 2011.

Responsible officers:

Dean of University College

Deans of the academic colleges

Director of Assessment, Office of Institutional Research

Our secondary initiatives include the following:

1. Financial Literacy

As noted, students at UNC Charlotte do not have access to formal programs designed to develop financial literacy. However, in recognition of the need to address skills in this area, several offices (Financial Aid, Enrollment Management, Academic Services) are considering how and where UNC Charlotte might direct students to a free, national educational website with this information and representatives from these offices are developing a publication for all students. In the longer term, UNC Charlotte plans to explore the need for a formal program of instruction in financial literacy and, if the need is there, to explore the best format for such training.

Timeline: Review to take place in 2009-10. Any new curricula to be developed during 2010-11 for implementation in Fall 2011.

Cost: The most obvious solution, incorporating some financial literacy units into the curriculum of freshman seminar, will not require any significant new resources unless a third-party product is adopted. Funding will come from CBTI .

Assessment methods: Assessment tools relating to financial literacy will be developed if a dedicated curriculum is implemented.

Accountability measures: If a need is identified, a curriculum program addressing financial literacy will be in place to serve 50% of all new freshmen by Fall 2011.

Responsible officers:

Associate Provost for Enrollment Management

Associate Provost for Academic Services

Dean of University College (Director of General Education)

2. Environmental Literacy

As noted above, UNC Charlotte students develop their environmental literacy only tangentially, as such issues come up in courses in the curriculum. UNC Charlotte will therefore conduct a study on the desirability and feasibility of altering curricula in existing courses and/or the requirements themselves to ensure that environmental literacy is developed. If a need is established, the response could include changing the curricula of existing courses or developing new options, particularly for students who do not intend to pursue a science, technology, engineering, or mathematics degree. Examples include courses in Public Health on environmental issues and public health and courses in the new interdisciplinary minor in Humanities, Technology, and Science. The UNC Charlotte Urban Institute has developed tools that are available to both students and public users that offer up-to-date scientific data and analyses of air, water, land quality, and other key environmental conditions. As described in *Section F. Environment* of this report, opportunities exist for collaboration with the Environmental Assistance Office as well as other Divisions of the institution to promote enhanced student awareness and understanding of environmental issues and sustainability. These collaborative opportunities will be fully explored.

Timeline: Review to take place in 2009-10. Any new curricula to be developed during 2010-11 for implementation in Fall 2011.

Cost: Approximately \$20-50,000 for course development or redesign to be funded with campus based tuition increase

Assessment methods: Adaptation of existing assessment programs for courses in the sciences

Accountability measures: If a need is identified, a curriculum program addressing environmental literacy will be in place to serve 50% of all new freshmen by Fall 2011.

Responsible officers: Dean of University College

3. Information and Digital Literacy

As noted above, students at UNC Charlotte have limited engagement with formal programs designed to develop digital literacy. However, most of our students arrive with a broad knowledge of information technology. What they lack is discernment. Any plan to improve digital literacy must begin with an understanding of what students already know. In order to address this aspect of the UNC Tomorrow commission report, University College plans to explore the need for a formal program of instruction in information and digital literacy and, if the need is there, to explore the best format for such a program of instruction.

Timeline: Review to take place in 2009-10. Any new curricula to be developed during 2010-11 for implementation in Fall 2011.

Cost: Approximately \$20,000 for course development and design funded by enrollment increase funds

Assessment methods: Assessment tools relating to information and digital literacy will be developed if a dedicated curriculum is implemented.

Accountability measures: If a need is identified, a curriculum program addressing information and digital literacy will be in place to serve 50% of all new freshmen by Fall 2011.

Responsible officers:

Dean of the College of Computing and Informatics
 Dean of University College
 University Librarian

A.2. Global Competitiveness

- *The UNC Tomorrow Commission recommended ensuring the global competitiveness of UNC institutions, especially research programs, and increasing partnerships with other higher education institutions nationally and internationally*

A.2. Existing Programs

UNC Charlotte supports the UNC Tomorrow Commission's recommendations on global competitiveness by continuing to hire the best faculty through national searches to ensure the highest quality of curricula, research, and scholarship; and by providing up-to-date facilities and infrastructure to support their work.

1. Internationally competitive research programs are built on internal and external partnerships

We strategically develop research programs, interdisciplinary research centers, and corresponding Ph.D. programs. Our emphasis has been on applied research and economic development, in areas where we believe we can be competitive on an international scale. Because of our applied focus and economic relevance, industry funding accounted for 25% of total research expenditures in FY07, among the highest in nation. Current examples of our approach include the following:

- *The eBusiness Technology Institute is part of UNC Charlotte's College of Computing and Informatics. The Institute helps improve information privacy*

and security solutions for web-based banking and intelligent data analyses. To educate the next generation of cyber defenders, the College established the Center for Academic Excellence in Information Assurance, one of only 50 programs recognized by the National Security Agency, where students learn to defend networks against all forms of digital danger.

- The new *Center for Optoelectronics and Optical Communications*, which conducts research in design and fabrication of photonic devices, integrated optical circuitry, assembly and packaging of optical systems, optical materials, methods for precision optical metrology, and optical imaging and inverse methods for wavefront synthesis. The center has successfully allied with the Massachusetts Institute of Technology, Duke University, The Carolinas MicroOptics Triangle, and the North Carolina Photonics Consortium. A respected leader in the discipline, the center has received Defense Advancement Research Projects Agency (DARPA) grants totaling more than \$16 million in the past seven years.
- The *Center for Precision Metrology*, focused on precision engineering and measurement including research in manufacturing processes and quality assurance for mechanical parts to within a millionth of a meter. Center faculty are leaders in developing national and international standards for metrology. New state-of-the-art facilities include clean rooms and multiple metrology labs. The center's products, which have included high speed machine parts, specialized sensors, aerospace industry applications, have attracted companies such as Caterpillar, Mitutoyo, and Boeing as collaborative partnerships. The Center also includes a group focused on motorsports and automotive research with collaborative partnerships with area race teams and NASCAR. The center has been recognized as a National Science Foundation Center of Excellence in New Industry Collaboration and in Nanoscale Science and Engineering.
- UNC Charlotte *Bioinformatics Research Program* that will be one of the largest in the country. The effort is led by computational biologists and bioinformaticists in the College of Computing and Informatics. Other participants are from the Departments of Chemistry, Biology, and Mathematics, and the Research Division of the Carolinas Medical Center. The focus of the program is on genetic factors in disease and gene regulation, although we define Bioinformatics more generally as the discovery, development and application of powerful computational tools to extract knowledge from complex biological data. Currently, our faculty work on a variety of projects including genetic factors in ovarian and hepatic cancer, new approaches to the analysis of microarray data, and the use of systems analysis techniques to understand gene-gene interactions. The Bioinformatics Program will be located in a \$35M, 70,000 sq. ft. Bioinformatics Building under construction on the Charlotte Research Institute Campus of UNC

Charlotte, as well as in facilities at the North Carolina Research Campus in Kannapolis.

2. International partnerships that support instructional programs and global awareness

UNC Charlotte offers specialized courses of study that directly relate to the overall global awareness of our students such as International Studies, Latin American Studies, Islamic Studies, and International Public Relations. We have also established a Freshman Learning Community, “The Global Village,” specifically focused on international topics.

The University is engaged in longstanding international partnerships with universities on six continents. These partnerships have fostered a variety of faculty and student exchange programs, research collaborations, guest speakers, and joint programming with partner institutions. Some of the programs and projects that have resulted from these institutional level agreements include:

- Long standing collaborations and faculty and student exchanges with Kingston University in England in a wide range of disciplines
- Annual seminars on K-12 education in Charlotte or Ludwigsburg, Germany, that have led to student and faculty exchanges and joint research projects with German colleagues
- Expanded research initiatives in international health and/or health disparities with the Latino Health Initiative in Charlotte
- Establishment of an archeological site in Jerusalem for excavation by students and faculty
- Foreign language immersion programs, offered primarily in Latin America
- Summer programs in art history and classics in Greece and Turkey
- Art programs in concert with the Wroclaw Academy of Fine Arts, Poland
- Joint symposia in optoelectronics with the National University of Science and Technology of Pakistan

College Level Internationalization Plans: Our current focus is on college level internationalization plans. Each of our seven colleges has been challenged to develop a broad based internationalization plan that is specifically integrated with the college’s fields of study and designed to increase the opportunities for international understanding by both faculty and students. For example, in the Belk College of Business internationalization efforts include faculty and students at all levels:

- Global issues are addressed in many junior and senior level courses in accounting, economics, finance, marketing, and management, as well as in graduate courses.
- A specific international business undergraduate major exists.
- To enhance curricular efforts, the college annually provides approximately \$50,000 in scholarship funds for undergraduate students to study abroad. Undergraduates in the insurance and risk management program are funded for a trip to Lloyds of London. In the MBA international business course,

- students form teams with students from Mannheim University to study specific issues facing German firms in the US or US firms in Germany.
- The Belk College of Business Global Programs teach several MBA programs in Asia (Taiwan, Hong Kong, and Beijing), and a joint MS in Applied Economics with Copenhagen Business School.
 - College faculty traveled to Puebla, Mexico, with the UNC Center for International Understanding to gain knowledge of Hispanic culture and transform attitudes toward Hispanics working in North Carolina.
 - College faculty members have leadership roles in the NC World Trade Association, the UNC China Committee, the Mayor of Charlotte's International Cabinet, and the newly formed NC-China Business Association.
 - The Belk College is actively pursuing partnerships with several additional universities, including the University of Lyon, the European University, and Beijing Normal University, and is seeking EQUIS accreditation (through the European Fund for Management Development).
 - With the addition of a technologically advanced classroom in our new Center City Building, the Belk College will explore options for integrating virtual classrooms into existing curriculum to engage Belk students in discussions with students from other countries over the course of a semester.

A.2. Improvements and New Initiatives

To increase the competitiveness of our existing research programs and to expand into new strategic areas, additional facilities are planned.

1. Energy Production and Infrastructure Center (EPIC)

UNC Charlotte proposes to create the Energy Production and Infrastructure Center (EPIC) in order to serve the large and growing energy cluster centered in Charlotte and the southeast region. Energy production and infrastructure will be a dominating factor in the economy of the next century. The supply of energy in both the southeast and globally must rise dramatically during the next decade to meet growing needs.

Energy production includes fossil fuels, nuclear, and numerous alternative technologies such as fuel cells, wind, solar, and bio-sources. Infrastructure refers to the engineering structure needed to support power generation and distribution. There is a severe shortage of trained engineers capable of servicing and replacing an aging fossil fuel and nuclear infrastructure as well as developing future infrastructures for wind, solar, and biofuels. The importance of this link between energy production and infrastructure and its growing importance to the region has been widely identified by the power industry. EPIC will fill critical gaps and move the industry forward.

The William States Lee College of Engineering, the Charlotte Research Institute, and our many regional industrial partners collectively have the insight and knowledge to dramatically increase the supply of trained engineers as well as the efficiency and reliability of the next generation of power plants and distribution systems. A strong

foundation is already present in the departments of Electrical & Computer Engineering and Civil & Environmental Engineering, and there are excellent long-standing relationships between the college and the local power and construction industries. Two of the major industrial sectors in the Charlotte region are the power and construction industries and both play a central role in the energy enterprise; Duke Power, AREVA, EPRI, Parsons, Shaw and numerous construction companies are headquartered in Charlotte.

Key elements needed to support this initiative include engineering education and research in energy production and infrastructure. Infrastructure for the EPIC program will be substantially addressed by the EPIC building at a cost of approximately \$76M. To date the NC legislature has appropriated \$19M for this effort and UNC Charlotte has requested the remaining funds with the highest priority. Educational and research programs will require the addition of at least 10 faculty members with related infrastructure, staffing, and operating resources.

Industry needs extend well beyond engineering education and research. For example, skilled technicians, new companies in the energy supply chain, and integration of industry efforts are all needed to ensure growth in the energy cluster. EPIC and the Charlotte Research Institute will work to convene all partners in this effort and serve as a focal point for the region.

Timeline: Planning is underway. Expected date of completion, 2012

Cost:

Construction - \$76.2 M
 New faculty - \$1M/year
 Operations and equipment- \$300K/yr
 Other costs - \$850K/yr

Funding: State appropriation, industry, federal grants

Assessment methods: Monitoring of student retention and graduation, research expenditures, industry partnerships, intellectual property development, and technology transfer.

Accountability measures: Partner investment; NSF/DOE funding; faculty publications in tier-one refereed journals or conference proceedings; and production of baccalaureate, masters, and doctoral students; increases in intellectual property disclosures, patents, and startup business.

Responsible officer: Dean of the Lee College of Engineering

2. Motorsports

We will expand the Motorsports facility that houses the research programs and

motorsports concentrations in the Department of Mechanical Engineering and Engineering Science in order to create stronger collaborative programs with industry, recruit additional students into the program, expand external funding for research and development, and leverage to a greater degree our economic development activity in this critical area. Our goal in building our motorsports and automotive engineering labs is to mirror the shops of the country's best race teams. A priority for our labs is that they be stocked with industry-standard motorsports equipment. Such state-of-the-art equipment provides our students with the tools they need to learn the basics of motorsports and automotive engineering, and most importantly, to develop this expertise before graduation.

Cost: \$10 million

Funding: F&A receipts, industry

Assessment methods: Monitoring of student retention, graduation and placement; research expenditures; industry partnerships; intellectual property development, and technology transfer.

Accountability measures: success in recruiting industry partners and in attracting external funding for research and development in support of the NC motorsports industry.

Responsible officer:
Dean of the Lee College of Engineering

3. PORTAL Project

The PORTAL Project is designed to provide new space for increased commercialization opportunities for University technology and specialized facilities to allow us to expand Department of Defense and defense industry funding. The construction of a new building on the Charlotte Research Institute Campus will enable us to move the Ben Craig Center University Incubator to campus, providing 25,000 sq. ft. of space. To increase defense related research, we will build a 10,000 sq. ft. Sensitive Compartmented Information Facility (SCIF), as a component of a new PORTAL building.

Cost: \$30-50 million, construction; \$1.5 million/year, operating

Funding: F&A receipts

Assessment methods: Monitoring of research expenditures; industry partnerships; intellectual property development, and technology transfer.

Accountability measures: Growth of University startup businesses and increased licensing activity of University intellectual property. Increase in DOD and defense industry funding, and by the lease of SCIF space to defense

industry, thereby increasing the presence of defense industry in North Carolina.

Responsible officer: Executive Director of the Charlotte Research Institute

4. New Ph.D. programs

New Ph.D. programs will complement strategic research initiatives and support global readiness. These programs include the following:

- **Bioinformatics and Computational Biology.** The biological sciences have changed dramatically in the last two decades. The widespread use of high-throughput technologies to generate massive databases has caused biology to become, to a great extent, an information science. *Bioinformatics* and *Computational Biology* are disciplines that have emerged in response to the need to utilize these new complex datasets to solve difficult, important biological problems. Bioinformatics applies principles of information sciences and technologies to make the vast, diverse, and complex life sciences data more understandable and useful. Computational biology uses mathematical and computational approaches to address theoretical and experimental questions in biology. The proposed program will provide students with a rigorous foundation in scientific computation and an understanding of the biological context for development and application of bioinformatics and computational biology methods. It will train students to develop and apply the appropriate methods to solve important problems in the biological sciences and will instill research, writing and critical thinking skills by teaching rigorous, scholarly inquiry and research methods.

Cost: \$1.2 million in additional faculty positions and \$250,000 for graduate assistantships

Funding: Enrollment expansion funds, federal grants

Assessment methods: Monitoring of student retention, progression, and graduation, student and faculty scholarly productivity

Accountability measures: Strong student demand for admission; placement of graduates in positions in academia and industry; student publications; national fellowships

Responsible officer: Dean of the College of Computing and Informatics

- **Global Studies:** The proposed Ph.D. in Global Studies offers the advanced research skills and theoretical knowledge necessary to address the complex problems and questions of globalization. Given the importance that events and processes worldwide are having on the social, political, economic and cultural dynamics of people's lives, people in our region and state and throughout the nation need scholars with the advanced knowledge and skills necessary to tackle the immerging issues, challenges, and

opportunities that globalization presents. This program will be *taking to scale successful existing UNC programs that focus on global awareness and global education*. In this interdisciplinary program, students will develop an in depth understanding of transnational interaction and globalization processes by developing specialized knowledge in one of three focal areas: sustainability and development; human rights and security; or the construction of identity. Students will also be required to develop mastery of a traditional discipline within the humanities or social sciences to bring depth of understanding to the interdisciplinary problem.

Cost: \$250,000 in graduate assistantships

Funding: As part of the strategic plan for the College of Liberal Arts and Sciences, the college has given priorities in hiring faculty who have credentials in areas that contribute to Global Studies. The college will reallocate part-time resources to support graduate teaching assistantship funding.

Assessment methods: Monitoring of student retention, progression, and graduation, student and faculty scholarly productivity

Accountability measures: Strong student demand for admission; placement of graduates in positions in academia, government, and industry; student publications and presentations; competitive fellowships awarded

Responsible officer: Dean of the College of Liberal Arts and Sciences

- Translation Studies:** The proposed Ph.D. in Translation Studies offers both the study and application (theory and practice) of language use across cultures within an increasingly globalized, multi-lingual and multi-ethnic world. The first pairing of languages for translation and study are English and Spanish, the major languages used in the Charlotte region of North Carolina, within the State of North Carolina, the United States and across the Americas. English is the second most spoken language in the world while Spanish is the fourth. This Ph.D. proposal responds to UNC Tomorrow's focus on research programs that are globally relevant and significant. This program will increase student understanding of and proficiency in English and one international language (Spanish) as well as developing students' global cultural awareness. The 21st century is an age of heightened transnational interaction and increasing globalization, where the need to communicate and understand one another is critical both within our state and abroad. This Ph.D. prepares highly skilled scholars to address the English/Spanish translingual, transcultural, and biliteracy issues in pedagogy, research, curriculum development and discipline-related leadership and service. Building on the successful graduate certificate program in Translation, and the M.A. in Spanish and English at UNC Charlotte, this program explores the connections among languages, literatures, and cultures and the questions and problems that occur when one desires to communicate across cultural and linguistic borders.

Cost: \$150,000 for graduate assistantships

Funding: The College of Liberal Arts and Sciences and the Department of Language and Culture Studies will reallocate vacant positions and funds for part-time instructors to support additional faculty and graduate assistantships for this program. The college and the department also plan to develop a Center for Translation Studies to give students practical benefit of experiences working on large contracted translation projects. These resources will eventually become large enough to fund graduate teaching assistantships.

Assessment methods: Monitoring of student retention, progression, and graduation, student and faculty scholarly productivity

Accountability measures: Strong student demand for admission; placement of graduates in positions in academia, government, and industry; student publications and presentations; competitive fellowships awarded.

Responsible officer: Dean of the College of Liberal Arts and Sciences

5. New partnerships for internationalization of academic programs

As the colleges develop plans for internationalization, a variety of new experiences are becoming available to our students. One example of the many new disciplinary initiatives being developed is the Department of Music's study-abroad program in cooperation with the Music Conservatory of Vicenza, Italy. The Conservatory is an impressive school of music, housed within a 9th century monastery campus, but modernized with excellent practice rooms, classrooms, lecture halls, and rehearsal spaces, and a large music library. Students will interact closely with people of another culture, experience first-hand the places that are integral to our history, and gain a world view that places our own heritage, culture, and country in perspective. The program will also give students the opportunity to study and interact with young artists, teachers, and arts organization from the European Union, with the goal of encouraging and promoting their career through performance opportunity and experience in Europe. This will also provide the University with a stable base of operations conveniently located in Europe, thus providing UNC Charlotte faculty with additional opportunities for professional scholarly and creative activity.

Cost: \$12,000/year start up for Years 1-5 and then fully supported by participant fees after Year 5

Funding: College of Arts and Architecture; Enrollment Growth; Participant Fees

Assessment methods: Monitoring level of participation and indicators of student success and engagement and by evaluation of performance in collaboration with our international partner.

Accountability measures: Student participation, satisfaction, and engagement; student retention, graduation, and placement.

Responsible officers:

Chair of the Department of Music

Dean of the College of Arts and Architecture

B. Access to Higher Education:

- *UNC should increase access to higher education for all North Carolinians, particularly for underserved regions, underrepresented populations, and non-traditional students.*

This section highlights the major areas of activity designed to increase access to higher education: transfer students, distance education (including online offerings), accessibility through scheduling and program offerings, accessibility for students with disabilities, recruiting and responding, and retention.

UNC Charlotte has unique needs and initiatives for increasing access related to the rapid growth of the campus population and the traditionally large size of the transfer population. For years, we have had the largest transfer population of any of the UNC campuses. In Fall 2007, we enrolled 2,033 new transfer students; 1,714 from NC and 319 from out-of-state. By comparison, we enrolled 2,955 new freshmen in that term. The percentage of non-traditional students who seek primarily evening courses has declined, but still constitutes approximately 20% of the student body. Graduate students now exceed 21% of the student body. As elsewhere in the state, we are also experiencing a steady increase in Hispanic enrollment, although in absolute numbers, this group is still small.

In order to improve access to higher education at UNC Charlotte, we must consider alternative means of delivering courses through distance education, online courses, 2+2 programs, hybrid courses, and revised systems of scheduling on-campus courses, including summer session. We have many 2+2 programs in place with community colleges, but we offer relatively few online courses and have only limited off-campus degree completion programs. Campus accessibility, literally, must be improved for students with disabilities affecting their mobility. We must improve systems of recruiting and responding to applicants as well as undertaking new retention efforts. Finally, we must review our inventory of programs to ensure that we are responsive to the needs of our region.

B.1. Existing Programs

B.1.1. Transfer students: increase numbers and decrease time to graduation

UNC Charlotte's success in providing access to baccalaureate degrees for transfer students results from specific articulation agreements with 44 of the 58 NC community colleges for more than 15 different degree programs, and a good process for ensuring accurate handling of all transfer students' application materials. We have provided online tools for transfer students to help them understand how their credits will transfer, run "transfer only" orientation sessions prior to fall and spring semesters, and have added a transfer advisor to the University Advising Center to serve as a first stop for incoming transfer students. Admissions counselors visit major feeder schools monthly.

To improve the access and success of transfer students, we need to:

- Increase the number and availability of 2+2 degree programs, both face-to-face and online, with a special focus on secondary teacher education programs in mathematics and science and in nursing.
- Collaborate with community colleges that are major feeder institutions to study the transfer population by major to determine what factors lead to timely degree completion and where there may be obstacles (e.g., Were students required to take unnecessary additional hours? Were students unprepared in some areas and needing additional work?).
- Increase the efficiency of application processing by investing in an imaging system to link the Admissions Offices and the Registrar to reduce staff time on paper work and increase staff availability for direct assistance to students.
- Address the financial aid needs of transfer students. While state and federal aid accessibility for transfer students is adequate, institutional aid (both merit and need-based) is extremely limited. Transfer students entering in the spring term receive almost no institutional aid as the funds are already expended. We need to seek additional funds for scholarships and investigate the management of college-based scholarships to ensure that transfer students have access to adequate financial aid.

Timeline: Imaging software purchase and installation, 2008-09; Study of transfer population, 2008-10; increase 2+2 agreements, 2008-09 and ongoing

Costs: Imaging software \$75,000; Study of transfer population \$20,000; increased Admissions staff and transfer advisors, \$150,000; financial aid is addressed in *Section B.1.6. Retention and Graduation.*

Funding: Enrollment increase funds, campus initiated tuition increases

Assessment methods: We have assessed the strength of the transfer program by monitoring the growth of the articulation agreements and the number of students served. The EASE survey has been used to assess transfer student integration into the University during the first semester.

Accountability measures: Retention, progression, and graduation of transfer students; unmet financial need of transfer students.

Responsible Officers:

Associate Provost for Enrollment Management
 Dean of the Graduate School
 Deans of all academic colleges

B.1.2. Distance Education

Distance Education at UNC Charlotte can generally be characterized as well organized and supportive of faculty and students. Financial support for faculty exists when departments commit to continued involvement in distance education programs and the Center for Teaching and Learning provides assistance in course design and technology for online learning. UNC Charlotte is well positioned to be an active participant in online instruction.

Distance education offerings at UNC Charlotte have typically been programs designed to address the need in this region and across the State for more nurses and teachers. For example, during 2007-08, online program offerings have included:

- Five Graduate Certificate programs (all in teacher licensure)
- A Master's program in community health nursing
- An RN to BSN undergraduate program
- BS programs in engineering technology (Fire Science and Electrical Engineering Technology)
- 40 stand-alone online courses in 17 different disciplines

Face-to-face distance programs have also focused on areas of high need. We have offered:

- The Master of School Administration
- The Master of Education programs in elementary education, reading education, and middle grades education
- The Graduate Certificate in Information Security and Privacy
- The Lateral Entry Teacher Institute with licensure courses in Middle Grades, Secondary, and Special Education
- One 2+2 completion program, the BA in Elementary Education on site at Stanly Community College
- A graduate leadership course requested by child advocacy agencies
- Two honors courses offered in Washington, DC

We also have a growing number of hybrid courses offered that are partially online and partially face-to-face. These courses allow for efficient use of classroom facilities and also facilitate degree completion by working adults.

Expanding the scope of offerings and improving the process for admission to online programs can improve our distance education offerings. Specifically, we need to offer a 2+2 completion program at Stanly County Community College for the undergraduate B-K licensure program and develop online Master of Arts in Teaching (MAT) programs for middle grades, all secondary education areas, and special education. We also need to automate the process for coordinating admission to online certificate and MAT programs between the Graduate School, College of Education, and the Office of Distance Education to ensure availability of classes.

Timeline: Increase face-to-face and online programs in high need areas, 2008-09 and ongoing. Improve coordination between offices for improved service to online students, 2008-09.

Costs: \$100,000 for stipends for faculty to prepare and offer online courses the first time. Improved coordination between offices, unknown but probably modest.

Funding: Enrollment increase funds, internal reallocation

Assessment methods: Monitoring availability and student enrollment in distance education programs

Accountability measures: Retention, progression, and graduation of students in distance programs; satisfaction of students in courses; program availability.

Responsible Officers:

Associate Provost for Enrollment Management
Dean of the Graduate School
Deans of all academic colleges

B.1.3. Summer School and Summer Bridge Programs

UNC Charlotte offers a wide range of classes in summer school and has increasingly promoted the development of online classes to allow students greater flexibility in completing summer course work. We have also promoted summer bridge programs for entering freshmen. The *University Transition Opportunity Program (UTOP)* has been focused primarily on entering students from underrepresented minority groups and has a demonstrated record of success in improving freshman to sophomore retention. *Freshman HeadStart* allows newly admitted students to easily move up their date of admission to allow them to take summer school courses prior to the usual beginning of the freshman year in August. Students are encouraged to take a course to benefit from smaller summer school classes and easy access to advising and to learn to navigate the campus. Special summer enrollment options are also made available to professional educators. We will continue to expand summer offerings and encourage early enrollment.

Funding: These programs are funded by tuition and fees

Assessment methods: Monitoring enrollment and indicators of student success; EASE and other student surveys

Accountability measures: Student retention, progression, and graduation

Responsible officers:

Associate Provost for Metropolitan Studies and Extended Academic Programs

B.1.4. Access for Persons with Disabilities

The Office of Disability Services at UNC Charlotte serves more than 550 students with disabilities. Like many universities nationwide, UNC Charlotte is experiencing growth in the attendance of students with severe disabilities. Sophisticated assistive technology though, allows students with disabilities to have more autonomy and better prepares them for the demands of a highly technical, global work environment. Indeed, research suggests that individuals with severe disabilities who are facile with assistive technology have better employment outcomes after graduation from bachelor's degree programs than students who are not assistive technology users.

Over the last five years, the Office of Disability Services has increased the amount of assistive technology available for classrooms and for test taking. Typical assistive technology includes

text enlargement, reader, and voice-activated software programs. Recognizing the importance of emerging assistive technology, UNC Charlotte purchased an Eye-gaze Response Interface Computer Aid (ERICA), which allow individuals with quadriplegia to operate a computer by using eye movements.

Opportunities for Improvement. Students with disabilities who have full access in the Office of Disability Services do not have equal access in the campus library or our growing number of computer labs. Currently, there are only two partially accessible computer stations in the library for all of the individuals with disabilities to share. The two stations need to be made fully accessible and we need to add additional stations. Based on our enrollment and projected growth, seven additional stations are needed. We also need to update and standardize the assistive technology available on accessible computer stations throughout the campus labs so that each of our 28 labs has at least one fully accessible station.

Timeline: We will add approximately 10 stations/year over the next three years, as enrollment increases.

Cost: \$6,700/station for 37 additional stations

Total: \$247,900

Funding: E&T fees

Assessment methods: Surveys of students with disabilities

Accountability measures: Retention, progression, and graduation of students with disabilities.

Responsible Officers:

Director of the Office of Disability Service
Chief Information Officer, ITS

B.1.5. Recruiting and responding to applicants

- **High school students**

The Undergraduate Admissions Office currently recruits very heavily throughout North Carolina. We participate in the CACRAO (Carolina Association of Collegiate Registrars and Admissions Officers) fall recruitment weeks across North Carolina. In addition, the Admissions Office visits our top 100 North Carolina feeder high schools for private visits in the fall and again in the spring and we participate in numerous college fairs and programs hosted by high schools and community organizations, including the Hispanic Scholarship Foundation's Steps to Success. On campus, we host four open house events (EXPLORE) annually which attract as many as 2,500 per event. We also conduct information sessions and campus tours six days a week. To reach students directly, we purchase the names of high school juniors and seniors from the College Board to begin mail and e-mail communications early in the recruitment cycle. Our

total recruitment team consists of one graduate assistant, two contract Admissions Counselors, six Assistant Directors, two Associate Directors, and a Director.

Through these efforts and a creative, innovative Admissions website, we are able to reach out to students across the state in person and make face-to-face and virtual connections with students, parents and counselors. This type of relationship building is critical to the efficient operation of the admissions process.

- **Transfer students**

UNC Charlotte enrolled 2,033 new transfer students in Fall 2007 and an additional 843 new transfer students in Spring 2008, more than any other institution in the system. With nearly 5,000 transfer applications to review throughout the year, we have developed a model transfer admission process that has been recognized around the country. We regularly visit Central Piedmont Community College (CPCC), Rowan-Cabarrus Community College (RCCC), Gaston College, and Guilford College, and we attend a variety of Transfer Fairs at community colleges across the state. We focus our outreach efforts on those community colleges that send us the most students, though we try to accommodate most requests for visits. We see anywhere from 30-40 transfer students in our office as walk-in appointments each day and work one-on-one with transfer students to give them personal attention. We are able to process applications through the use of technology so that students can not only view their admissions status online, but they can also use our transfer credit evaluator to see which courses will transfer prior to their official evaluation. Upon admission, each student has immediate access to a transfer credit report online.

In response to a study of the transfer experience conducted in 2007, we have added new staff positions including,

- An additional full-time admissions counselor to focus specifically on transfer student recruitment.
- A transfer specialist in the University Advising Center to help admitted students get started on their programs of study and provide for a smooth hand off to departmental advisors.
- A coordinator for new student programs for transfer students in the Dean of Students Office.
- An Assistant Director for Transfer Career Programs in the Career Center.

We have also made programmatic changes including,

- A complete redesign of the Transfer Orientation Program.
- Establishment of a chapter of Tau Sigma, the transfer student honor society. (Tau Sigma inducted 105 members in spring 2008.)
- Introduction of Transfer Seminars for fall 2008 that will include an oral communication element.
- Creation of a Criminal Justice Learning Community designed for transfer students.
- Planning for General Education sections reserved for transfer students.

Increasing numbers of transfer students challenge our staff to continue to provide the personal service that we believe is important to student success. We work closely with CPCC, which sends us more transfer students than any other institution. Orientation coordinators are working

with CPCC to provide early orientation programs for transfer students and we have begun hosting a listserv for CPCC students that gives transfer tips and deadlines. We have partnered with CPCC to host focus groups with recent CPCC transfer students to gain feedback about their experiences as we work to improve the transfer process for future students. We are exploring a variety of other initiatives to increase our communication and outreach with potential transfer students. A new addition to our online transfer credit report allows students to not only see which classes will transfer from their past institutions and their equivalents, but also plugs general education courses into a grid so that students can easily see what they have left to complete while at UNC Charlotte.

- **Graduate students**

Graduate programs at UNC Charlotte have a history of being developed in response to community and regional needs. Enrollment statistics for Fall 2007 showed that 77.1% of the 4790 graduate students were in-state residents and 70% (3349) lived within a 60–75 minute commuting distance. Clearly, graduate programs attract students from the local region we most directly serve. The Graduate School and graduate program coordinators visit colleges and universities, including minority-serving institutions, to recruit prospective students. Programs also use newspaper, television, radio, and direct mail to recruit students. Advertisements in professional journals and diversity publications as well as attendance at recruitment fairs for underrepresented minority students are used to increase the diversity of the graduate student population. Students are provided web-based and print materials containing information needed for decision-making. Several departments have established NSF-funded Research Experiences for Undergraduates (REU) programs to increase undergraduate student interest in graduate programs. The Graduate School hosts information sessions and orientation sessions for all programs of study. An online application system has increased the efficiency of processing applications, since individual programs make recommendations for admissions.

The Graduate School has worked closely with the College of Education to streamline the processing of applicants to the Lateral Entry Teacher Institute. Fast track programs to certification and graduate certificate programs that enable teacher candidates to access financial aid have been developed through this collaboration. The College of Education has hired a teacher recruiter who is currently focusing on career changers in a major recruiting campaign.

Opportunities for Improvement. As our enrollment grows, so does the number of visitors to our Admissions Office, the number of files to be processed, and the number of calls and e-mails from students, parents and counselors. In order to expand our recruitment efforts and maintain quality of service, we will need to maximize the effective use of technology and add additional staff members. This is particularly true as we see increasing numbers of Hispanic students in the pipeline. We have recently hired a Graduate Assistant, Switchboard Operator, and an Assistant Director who speak Spanish. We have greatly increased our communication flow to include outreach to not only students, but also their parents, and counselors. We will need to hire a Hispanic Recruiter to adequately meet the needs of this growing population. More staff is also needed in Financial Aid to handle email and telephone inquiries as well as face-to-face counseling of undergraduate and graduate students. For both undergraduate and graduate

students, establishing residency is often a difficult and time-consuming process. We have a plan in place to address this issue as well.

New initiatives

1. *Imaging.* The University must invest in an imaging system to speed up the processing of a growing number of applications at both the undergraduate and graduate level. (See *Section B.1.1.* previously for details)
2. *Call Center.* The Division of Enrollment Management is establishing a call center to be phased in over the next several semesters to better manage the volume of calls to the Admissions Offices, Student Accounts, the Registrar, and Financial Aid. The Call Center will provide improved service and reduce redundancy in the admissions and matriculation processes. There will be a redeployment of some staff and a training of more student workers to manage this support system.
3. *Financial Aid.* Over the next 5 years we will need to hire more staff in the Office of Financial Aid or develop more cross-trained staff or student workers to advise students about aid. The needs of the Financial Aid Office will be monitored closely as the Call Center is developed. The Financial Aid Office will also work closely with the colleges to maximize the use of available scholarship and work study funds.
4. *Residency Office.* To more efficiently serve students seeking North Carolina tuition benefits as part of the admissions process, we have consolidated our undergraduate and graduate offices and have created a single Residency Appeals Board. Staff resources will be redeployed to other student services in Admissions.
5. *Hispanic Recruitment.* A Spanish-speaking recruiter will be added to support the growing number of applicants from the Hispanic population. In addition, closer working relationships will be established with the Latin American Coalition and the Hispanic Scholarship Foundation to address the needs of Hispanic students and their parents.

Timelines: New initiatives are either ongoing or will be initiated during the 2008-09 academic year.

Costs: *Imaging* was discussed previously in *Section B.1.1.*

The Call Center: \$200,000 in startup funds and \$300,000 in recurring funds for a Director, student workers, and telecommunications staff.

The Residency Office: \$170,000 in staff costs; Spanish speaking recruiter, \$41,000 in salary and benefits.

Total: \$711,000 + imaging

Funding: Reallocation and enrollment increase funds

Assessment methods: Student surveys; monitoring applications, admissions, and matriculation

Accountability measures: Student satisfaction; enrollment; growth in minority enrollment

Responsible Officers:

Associate Provost for Enrollment Management
Dean of the Graduate School

B.1.6. Retention and Graduation

- **Undergraduates**

We have established a wide range of programs to improve retention, including on-going data gathering and analysis each year by Student Affairs Research to determine risk factors, followed by data-based efforts to improve targeted areas of risk through improved academic advising, student engagement, Freshman Learning Communities, and the new University College. For example, our studies revealed that living on-campus during the freshman year significantly increased retention when compared with living in the various student apartment complexes within one mile of campus, corroborating national studies indicating multiple positive outcomes for on campus residency during the freshman year. In terms of retention, the highest one year retention rate (83%) for freshmen in 2006 was reported for those students who lived on campus during their first semester. The group with the lowest retention rate (70%) was those freshmen who lived within one mile of the campus. These new students living adjacent to the campus (typically not with parents or family members) also reported that they were more likely to work, worked longer hours, studied for classes less frequently, were lonelier, and less likely to have family who support them emotionally or who understand the demands of their academic commitments. Addressing the need for more on-campus housing will take time. In the interim, these data have helped us focus greater attention on this group of students and direct additional programming to them to increase their engagement with the campus in an effort to mitigate the effects of off campus housing. Specific initiatives ongoing or under consideration include:

- *University College* and the *University Advising Center* are new in 2007-08. Their enhanced attention to the needs of students with undeclared majors and freshmen-at-risk should promote better retention as advisors work to help students select a suitable major and identify key behaviors for study and campus engagement that are associated with student success. The undeclared students have been the most at-risk population for non-completion of a degree, along with freshmen who do not accurately calculate their probable grades along the way in their first semester coursework.
- Increased offerings of *freshman seminars*, including “Crossroads Charlotte” seminars focused on integration of service learning into the seminars, have been scheduled (See also *Section G. Outreach and Engagement*.)
- *Transfer seminars* to promote better induction of transfer students are in design.
- The Faculty Council has placed more emphasis on faculty submitting *mid-term grade reports of unsatisfactory progress*, since the data show significant improvement for students receiving these reports.

- More *freshman learning communities* have been added to increase student engagement since the national and campus data show the important relationship of engagement to retention.
- A cross-functional team of staff and faculty has been examining processes and problems with *advising*. Recommendations will stress that more information about requirements be presented consistently and accurately on the web and through the various advisors in departments and advising centers.
- The retention data make a strong case for an *on-campus residence requirement* for all new freshmen that do not live with the parents or family members during the first year.
- The *49er Finish Program* identifies and works with students in good standing who are close to completing degree, but who have not registered for two years to help them complete their degrees.

The largest barrier to long-term retention is unmet financial need. On the UNC Charlotte campus, a 2006 review was conducted with state supplied data *that demonstrated that the remaining unmet financial need (after grants) of UNC Charlotte students exceeded the average of all UNC System institutions*. The shortfall was most acute in the bottom two family income quintiles. Student need is substantial and will take five or more years to have a significant impact through private fundraising. In the interim, we will seek to maximize the use of those funds that are available. The recent addition of staff to the Office of Student Financial Aid has increased the award of scholarship funds by over 10%. Study of mechanisms to improve the distribution of federal work study money and other state and federal programs is underway.

Timelines: ongoing; advising improvements recommendations, Fall 2008; residency requirement proposal is currently under discussion at the university for possible implementation in Fall 2009

Cost: Implementation of increased freshmen seminars and learning communities, \$250,000; The total amount needed to bring UNC Charlotte students to the system average of unmet need after grants is estimated to be \$9.9 million dollars.

Funding: Campus initiated tuition increases; fees; enrollment increase funds; philanthropic fund raising; legislative increases in student aid

Assessment methods: EASE survey of first semester freshmen and transfer students; NSSE; monitoring of retention, progression, and graduation data

Accountability measures: Freshman to sophomore retention; four and six year graduation rates; unmet financial need; student debt at graduation

Responsible Officers:

Associate Provost for Enrollment Management

Dean of University College

Vice Chancellor for Student Affairs

Vice Chancellor for Development and Alumni Affairs

- **Graduate students**

As the number of full-time graduate students increased, especially since doctoral enrollment has grown, the needs of graduate students have become more apparent. Because of the acute lack of tuition waivers at UNC Charlotte, beginning in 2005 we reallocated internal resources that now total in excess of \$4 million to address graduate student support through the Graduate Student Assistance Plan. The plan has resulted in increased degree production, increased retention, and greater student success. For the first time this year, two of our students were awarded NSF Graduate Research Fellowships in chemistry and computer science, and two other students received honorable mentions. For the past three years, students in biology and physics have been selected to attend the meeting of Nobel Laureates in Lindau, Germany. Several other students have been awarded prestigious national fellowships this year. These students and others like them are important contributors to the intellectual capital of our region.

We have reached the limits of what we can do with internal reallocations given our other needs; however, retaining talented students in the state for graduate education and attracting students from out of state requires support. We have established a position to assist students and faculty in competing for external fellowships and training grants and were awarded our first training grant last year. New funds will be needed to support the growth of our graduate programs.

We have also established a professional development program for graduate students to prepare them in the skills of grant writing, professional publication, professional communication, and pedagogy—the equivalent of the 21st century skills needed by undergraduates. As our programs continue to grow, we need to establish a Center for Graduate Student Life to house the professional development program and to prepare students effectively for job searches. A proposal has been developed and is under consideration.

Timeline: Additional student support, ongoing; identification of space for the Center for Graduate Student Life, 2008-09; establishment, 2010

Costs: Graduate student support \$1.5 million; Center for Graduate Student Life: start up costs, \$250,000; additional staff support, \$90,000 salaries and benefits

Total: \$1,840,000

Funding: Expansion budget; campus based tuition increases; philanthropy

Assessment methods: Monitoring graduate program national program rankings, applications, admission, matriculation, and graduation rates; student success

Accountability measures: Qualifications of students matriculating; time to degree; placement; program rankings

Responsible officer: Dean of The Graduate School

- **Scheduling**

We also recognize that degree completion depends on access to the courses. Growing enrollments have challenged our capacity to serve incoming students, particularly transfer students who enroll in late summer or in January. For newly admitted students, we have addressed these challenges in several ways:

- By creating a University College and its component University Advising Center, we are increasing our focus on early success, particularly in General Education courses. We have been able to show increasing levels of satisfaction with course schedules among our entering students.
- The Office of Adult and Evening Students is collaborating with University College to identify degree programs that can be completed most easily by non-traditional students and will be working with departments to increase the scope of programs by taking advantage of hybrid courses, distance education courses, the University of North Carolina Online, and summer programs.

Course availability is also an issue for continuing students. Some smaller programs offer undergraduate courses on a cycle of once a year or once per two years; students who miss the cycle may be delayed in terms of graduation or background completion for a teaching license. We will continue to address these issues with more online and hybrid classes, Friday/Saturday or Saturday/Sunday scheduling, as well as summer and evening offering. Some unique, specialized programs such as the BS in Respiratory Therapy will be offered completely online. The completion of our new Center City Building (perhaps as soon as 2010) will also increase our capacity to reach working adults in Charlotte. Our present facility is filled to capacity in the evenings, and space is needed for programs in business, nursing, health administration, and social work.

B.2. New Program Offerings

The curriculum at UNC Charlotte is characterized by a wide variety of courses offered throughout the day and evening in several formats, maximizing the use of classrooms and laboratories. In addition to ensuring that we can offer programs that are in our current inventory, we need to reassess the scope of our offerings to effectively meet community needs. We have continued to focus on the areas defined in our Academic Plan: Urban and Regional Development; Business and Finance; Children Families and Schools; Health Care and Health Policy; Applied Science and Technology; Arts and Culture. Areas in which we will conduct feasibility studies or develop new programs within the next five years include: urban education, public health, kinesiology, nursing, business education, interdisciplinary science education, applied physics, and fine arts. We have completed feasibility studies on doctoral programs in *bioinformatics*, *global studies*, and *translation studies*. These have been submitted as requests to plan (See *Section A.2. Global Competitiveness*). We have also determined that a need exists for a doctoral program in *Criminal Justice*. This request is under development.

- **Professional Education**

School of Public Health. Because of the growth in the Charlotte region, it is time to

consider additional opportunities for professional education. A new School of Public Health is described in *Section E. Health*. We are in discussion with UNC Chapel Hill about the nature of our collaboration in medical education in Charlotte. This will be addressed in Phase II when preparation of the health professions workforce is considered.

School of Law. Our 2004-09 Academic Plan indicated that it is appropriate at this point in time that UNC Charlotte declare its intention to develop a School of Law. Our stated goal in achieving Doctoral/Research University – Extensive status is built on the recognized premise that the vitality of the region depends on the presence of a major university. No public law school exists in the region. UNC Charlotte will best meet the need for legal education because of our unique mission to respond to the region's educational needs and our established relationships with the community.

North Carolina is underserved by legal professionals, and as a center of commerce, Charlotte needs a strong legal community. Our long-range enrollment plan indicated that one of the areas in which Charlotte will continue to show strong employment growth is the legal profession. The growth in technology driven businesses, the development of the North Carolina Research Campus, the continued strength of banking, finance, insurance, and real estate in the region is paralleled by UNC Charlotte's own development of programs in these areas. We have an opportunity to develop significant programs in areas such as intellectual property, finance, and real estate. Because of our existing programs, joint degree programs in law and business, health, or real estate would be possible. We propose to undertake a feasibility study for a School of Law.

Timeline: Feasibility study, 2008-09 academic year

Costs: \$50,000 for the study

Responsible officer: Provost

C. Improving Public Education

- *UNC should be more actively involved in solving North Carolina's public education challenges.*

C.1. Existing Programs

The following are examples of programs at UNC Charlotte (and collaborations with other institutions) that respond to the recommendation for more active involvement in public education:

C.1.1 Improving the quality of teacher education

UNC Charlotte Professional Development Schools Network: Teacher education programs at UNC Charlotte are characterized by a commitment to continuous improvement and responsiveness to the changing needs of North Carolina's public schools. Existing tools that support continuous improvement include the accreditation process of the National Council for Accreditation of Teacher Education (NACTE), which requires a thorough assessment system of programs and students; the program approval process of the North Carolina Department of Public Instruction, which reviews every teacher licensure program; and the commitment to collaborate with public schools in providing preservice teacher education. The shared work with public school partners is reflected in the UNC Charlotte Professional Development Schools (PDS) Network, which is a partnership with public schools in Charlotte-Mecklenburg, Cabarrus County, and Kannapolis City Schools.

The focal charge of the PDS collaborative is authentic professional preparation of candidates (at all levels and in all programs); university and P-12 school faculty development; beginning, novice, and experienced teacher support; action/inquiry based research aimed at the improvement of professional practice; and improved student achievement.

Comprehensive Assessment System: In schools and colleges of education, the term "candidate" is used to refer to college students who are preparing for teaching careers; this term distinguishes college students from the pupils in P-12 schools with whom they work. The College of Education Comprehensive Assessment System is designed to collect data, analyze findings and make judgments about candidate, program, and college performance and operations. Candidates' performance data are reviewed to provide feedback to the candidates for individual improvement (formative data) and summative data is used to make decisions about candidates' progress in the program. Programs are reviewed in the aggregate to make judgments about the efficacy of the specific teacher licensure programs and to guide program improvement.

Re-visioning Programs in the College of Education: Re-visioning current programs across the College of Education will occur, in response to recent mandates approved by the NC State Board of Education. During the 2008-2009 academic year, all initial teacher licensure programs will be planning to "re-vision" their programs, with the goal of fostering future-ready teachers prepared to work in 21st century schools. Reports on this re-visioning will be sent to the NC Department

of Public Instruction by the end of June 2009, with the goal of implementing these newly “re-visioned” programs no later than the Fall 2010 semester.

C.1.2. Increasing the number of education-degree graduates and alternative completers

Growth of Teacher Education: UNC Charlotte teacher education programs are growing rapidly due in part to the enrollment and program completion targets established by the UNC General Administration. Enrollment in undergraduate programs has grown 37% since 2002. In the 2005-2006, the most recent year for which verified data is available, UNC Charlotte recommended 512 new teachers for the North Carolina teaching license, the 3rd highest number in the state. *UNC Charlotte was first in the state in the production of mathematics teachers and special education teachers and second in the production of science teachers and middle grades teachers.*

UNC Charlotte has established graduate-level routes to teaching careers for college graduates from other fields. With the support of a one-time legislative appropriation, UNC Charlotte has developed online delivery for the Master of Arts in Teaching in the teaching fields of highest need:

- Special Education - General Curriculum
- Middle, Secondary and K-12 Education (MDSK) (licensure in mathematics, science, social studies, or English/language arts)

Lateral Entry Teacher Institute: To increase access to teacher education, UNC Charlotte offers the Lateral Entry Teacher Institute (LETI) – in the teaching fields of highest need: Special Education and Middle/Secondary Education. Lateral Entry Teachers are college graduates who are hired for classroom positions but who have not completed a teacher education program; they are required to complete coursework for the teaching license within the first three years of employment. This intensive summer program, offered at a community-based site, allows Lateral Entry Teachers to prepare for the start of school while earning credits toward the professional license.

Master of Arts in Teaching: With non-recurring funds from the NC General Assembly, UNC Charlotte has launched an aggressive marketing campaign to recruit more second career professionals into teaching careers and to enroll in the Master of Arts in Teaching. Marketing efforts include a media campaign, public outreach to chambers of commerce and related groups, and campus events. This campaign is called “Pathway To Teaching;” the campaign’s website is PathwaytoTeaching.com.

C.1.3. Increasing the geographic distribution of education graduates

Southwest Education Alliance: Urban school districts, with a number of high need schools, experience substantial difficulty in recruiting and retaining highly qualified teachers. A UNC Charlotte strength is its commitment to and experience with Charlotte-Mecklenburg Schools, one of the nation’s largest school systems. Additionally, the college serves as the headquarters for the Southwest Education Alliance (SWEA), the Regional Education Services Agency for the 13 school systems in closest proximity to UNC Charlotte. Through the SWEA, UNC Charlotte has the opportunity to stay in close communication with the regional systems and work proactively and collaboratively in addressing personnel needs.

Teacher Cadet Partnerships: As a strategy for addressing the teacher shortage in this region, Teacher Cadet Partnerships have been established with 25 high schools in the region to support those school systems in “growing their own” teachers. Teacher Cadets programs involve academic coursework for high school students who are considering teaching careers. The University partnership involves assigning a faculty liaison for each Teacher Cadet high school class, holding campus events that include coaching for high school students about college applications and financial aid, and providing professional development for Teacher Cadet teachers.

On-Site Master’s Programs: UNC Charlotte maintains a strong agenda of educational outreach, including the delivery of on-site master’s degree programs in high need fields and under-resourced areas. Distance education efforts include both online delivery and face-to-face instruction at geographically distant sites. Current distance education initiatives include the following:

- M.Ed. in Middle Grades Education – Cabarrus County
- M.Ed. in Elementary Education – Kannapolis City
- M.Ed. in Reading – Lincoln County
- M.Ed. in Curriculum & Supervision – Charlotte-Mecklenburg (Focus Schools)
- Masters in School Administration – Gaston County
- Masters in School Administration – Rowan County
- Academically/Intellectually Gifted Add-on Licensure (web-based)
- 2+2 Baccalaureate Completion program in Elementary Education – Stanly Community College/Stanly County

C.1.4. Enhancing professional development programs for public school teachers and administrators

With leadership from the Center for Mathematics, Science, and Technology Education (part of the Math and Science Education Network), the College of Education’s Office of Educational Outreach, and the College of Liberal Arts and Sciences, UNC Charlotte offers an array of systematic professional development offerings for educators:

Professional Development School Network: PDS (referenced above) uses a school-based, self-study process to determine professional development goals which lead to long-term professional development initiatives planned and delivered by university and school-based faculty. Recent areas of focus include beginning teacher induction, lesson plan studies based on models from Japan and Singapore, and adolescent literacy development.

Summer Institutes for Teaching Excellence (S.I.T.E): This program was developed by university faculty in mathematics, science and STEM education to address areas nominated by the North Carolina Department of Public Instruction as needing the most content development. This work is part of the NC Mathematics and Science Education Network.

Advanced Placement (AP) Summer Institutes: UNC Charlotte, in conjunction with the College Board, offers one week, 30 clock hours classes offered to prepare teachers to teach Advanced Placement classes in their high schools. The UNC Charlotte AP Institutes serve over 300 teachers each summer.

The UNC Charlotte Writing Project: UNC Charlotte is a site of the National Writing Project, which works with teachers of all grade levels and all subjects on effective ways of teaching writing. Housed in the College of Liberal Arts and Sciences, the UNC Charlotte Writing Project offers numerous institutes and conferences for teachers:

- An Invitational Summer Institute for exemplary teachers of writing
- A two-week summer institute for teachers to learn more about teaching writing
- A fall and spring conference featuring exemplary teachers from area schools and national leaders in writing instruction
- Saturday Seminars on various topics of teaching writing; advanced institutes on teaching in urban schools, teacher research, and technology
- Summer writing camps for children in grades 2-12
- Staff development to area schools

More than one hundred area teachers are active teacher consultants for the UNC Charlotte Writing Project, and they work not only with teachers in their schools and districts but with hundreds of teachers from all over North Carolina who attend Writing Project conferences and institutes or attend staff development opportunities.

C.1.5. Mechanisms for applying faculty expertise to pressing public education challenges

The IHE Performance Report: This report is submitted to the NC State Board of Education each June, requires each school/ college of education to report on significant service of the institution to public schools, including evaluation data which examines the service's impact on student learning outcomes.

Linking Tenure and Promotion to Public Service to Schools: The College of Education criteria for reappointment, promotion, and tenure require evidence from each faculty member of "service to practitioners and communities" and provide guidance to faculty members in linking the teaching, research, and service agendas around pressing issues of importance in schools and communities.

Sustained Service Award: The College of Education presents an annual award to a faculty member (in the college or in the broader university community) for Sustained Service to Public Schools. Strong examples of service to schools include:

1. *ReadWriteServe's Student-to-Student Programs:* RWS brings UNC Charlotte students to high need partner schools and community organization in the Charlotte region. The program includes:

- *America Reads at UNC Charlotte:* Work-study college students serve as literacy tutors in elementary schools. Literacy PALS is a volunteer literacy tutoring program that connects UNC Charlotte students with community partners.
 - *Literacy for Democracy:* This program is established in economically disadvantaged communities to improve children and adolescents' literacy through service learning with university pre-service teachers.
2. *The UNC Charlotte Pre-College Program:* This program focuses on students in grades 6-12 who are traditionally underrepresented in the Science, Technology, Engineering, and Mathematics (STEM) areas to bring them to campus and to expose them to a rigorous and enjoyable program with the desired outcomes of college attendance and careers in STEM disciplines. The program currently enrolls 150 students. Additionally, the program offers a research experience for high school juniors and seniors, with support from the scientific community at UNC Charlotte.

The UNC Charlotte Institute for Social Capital: ISC is conducting a series of studies that examine student absenteeism and high school drop-out, using data from Charlotte-Mecklenburg Schools, Communities in Schools, and the Mecklenburg County Department of Social Services. Participation in these and other ISC research programs is encouraged by small grants to faculty across the University for use of the Institute's novel collaborative database to address questions of interest to partner agencies that provide service to children and youth. A university-wide effort, the database is developed and managed by the College of Computing and Informatics and faculty from Social Work, Education, Criminal Justice, and Public Health Sciences participate in the work. In addition to financial support, faculty receive recognition by being named ISC Scholars or Senior Scholars, their work is promoted through ISC organized symposia, and they are supported in seeking extramural funding to extend their work. (See *Section H. Outreach and Engagement* for additional information on the ISC).

C.2. Improvements and New Initiatives

C.2.1. Major Initiatives

1. Expand Assessment Plan in Collaboration with the UNC General Administration

Our current campus-based assessment system provides very useful data on the success of our students in classrooms during their pre-service clinical experiences. Additionally, the NC Department of Public Instruction conducts an annual survey of graduates, their mentors, and their employers on their program satisfaction and how well prepared they were to handle the challenges of today's classrooms. What is missing, however, is reliable data about our graduates' and alternative licensure completers' success in P-12 classrooms as measured by teacher retention data and student achievement data.

The UNC General Administration, in cooperation with the NC Department of Public Instruction and UNC faculty, is developing a plan to access teacher retention data and to link student achievement data to individual teachers. Such information will provide a much

more comprehensive assessment system and will enable the individual campuses to understand more deeply the strengths and needs of their teacher education program.

Timeline: Data will be shared with the campuses, beginning in May 2008.

Cost: No additional costs are projected for the campuses at this time. The sustainability of the data management and analysis may require investments in the future.

Assessment Methods: Data reports will be issued to the campuses from UNC General Administration. Campuses will review data for the purposes of program improvement, with campus-specific results reported in the college's Annual Report.

Accountability Measures: UNC Charlotte will set benchmarks for teacher persistence of UNC Charlotte graduates and their impact on student learning that meet/exceed national levels.

Responsible Officers:

Alan Mabe, UNC Vice President for Academic Planning and University-School Partnerships

Alisa Chapman, UNC Associate Vice President for Academic Planning and University-School Partnerships

Scott Jenkins, UNC Associate Vice President for Institutional Research
UNC Deans Council for Teacher Education
Campus Institutional Research Directors

2. Expand Foreign Language Capacity of Teacher Candidates

The UNC Tomorrow Commission Report calls for an increasing in the number of public school teachers with foreign language proficiency in response to the changing demographics in North Carolina and preparing North Carolina's school children for success in a global economy and an interconnected world. The College of Education and the Department of Languages and Culture Studies in the College of Liberal Arts and Sciences will develop a tactical plan to strengthen the foreign language capacity of teacher education graduates. Specific initiatives may include:

- Adding Japanese as a teaching field in the Master of Arts in Teaching program.
- Increasing recruitment for the Spanish track in the Master of Arts in Teaching program.
- Exploring the development of a teacher licensure program in Language Immersion (that is, the teaching of the standard course of study in the elementary grades in a second language such as German or Spanish).
- Exploring a requirement for coursework in Spanish for all teacher education candidates

Timeline: The tactical plan will be developed during 2008-09; curriculum proposals will be submitted in 2009, with implementation in Fall 2010.

Cost: New faculty positions in Language and Culture Studies and College of Education, number and type to be determined by the collaborative planning process. A preliminary estimate is for five new positions @ \$72,000 each.

Total: \$360,000 plus benefits

Assessment methods: Record of curriculum changes that relate to increased foreign language capacity of teacher candidates (e.g., addition of Japanese to Master of Arts in Teaching; establishment of Language Immersion teaching license; establishment of coursework in Spanish for teacher candidates and changes in degree requirements to reflect foreign language expectations)

Accountability measures: Number of candidates recommended for foreign languages, ESL, or Language Immersion teaching license at UNC Charlotte will increase by at least 5% each year. (Report on UNC Production of Teacher Education Graduates and Alternative Licensure Completers)

Responsible Officers:

Dean of the College of Education

Dean of the College of Liberal Arts and Sciences

3. Expand Professional Development Schools Network by Developing “Teaching Schools” in Partnership with Charlotte-Mecklenburg Schools

The UNC Tomorrow Report calls on UNC education-degree programs to ensure that UNC education graduates are fully prepared for the challenges (e.g., student behavior and safety concerns) of today’s classroom environment and for new education paradigms (such as cultural and global awareness). These goals are best met by providing candidates with excellent real-world clinical experiences in public schools, beginning in the freshman year and growing in time commitment and complexity throughout the baccalaureate program culminating in a full-time student teaching semester. UNC Charlotte has developed special partnerships with several public schools (called Professional Development Schools) that work in conjunction with the University to provide supervised clinical experiences which link theory to practice.

Our growing teacher education programs require us to increase the number of public schools in our Professional Development Schools network, and the growing Charlotte-Mecklenburg school system must build 59 new schools in the next decade. Charlotte-Mecklenburg Schools has invited the College of Education to plan collaboratively for new public schools in the University area that will be known as “Teaching Schools.” This new iteration of the Professional Development Schools network will have the advantages of dedicated space for University faculty liaisons and classrooms which can be used for university academic classes

so that teacher candidates can attend lectures in a public school setting and immediately apply what they have learned in public school classrooms through linked field assignments.

Timeline: Review of Teaching School models to take place in 2008-2009. New Teaching Schools will open in 2011.

Cost: Construction cost will be borne by Charlotte-Mecklenburg Schools, with a shared space agreement with UNC Charlotte. The preliminary budget for the Teaching Schools project:

One faculty coordinator (12 mos./\$95,000)

Six doctoral students to serve as site coordinators (\$18,000 each = \$72,000)

Stipends for master teachers to co-teach and supervise student teachers (\$60,000)

Professional development funding for university-school teams (\$80,000)

Total: \$303,000

Assessment methods: Evaluations will be conducted jointly by university faculty and public school partners. The impact of the Teaching School model will be examined in contrast to other clinical teaching models utilized at UNC Charlotte.

Accountability measures: Candidates will be evaluated on their effectiveness in instructional planning and delivery, handling behavior challenges, responding to diverse learner needs, and having a positive impact on student learning.

Responsible Officers:

Dean of the College of Education

Faculty Coordinator, Professional Development Schools network

Planning Director, Charlotte-Mecklenburg Schools

CMS Department of Curriculum & Instruction and Department of Human Resources

UNC Charlotte Master Plan Committee

4. Launch math/science teacher recruitment initiative at UNC Charlotte.

UNC Charlotte has developed a math/science teacher recruitment plan that includes:

- Workshops for faculty in STEM disciplines for teacher recruitment
- Clarifying advising processes and materials
- Examining curriculum initiatives such as the University of Texas UTeach efforts and seeking funds for replication (UTeach is a program/curriculum tailored to math and science majors to prepare them for the teaching license)
- Adding new faculty positions as science and mathematics education champions to promote and deliver teacher education in these disciplines

- Fully implementing recruitment of second career professionals to science and math teaching careers, with increased advising and mentoring for the career changer population
- Expanding online delivery options for math/science teacher preparation, especially for career changers

Timeline: The Board of Governors 2008 short session budget request includes a request for “UNCC Lateral Entry and Teacher Education Support Programs.” If funded, the plan will be implemented in its entirety in the 2008-2009 academic year. If not funded at this time, we will implement the low cost aspects of the plan (e.g., clarifying advising processes).

Costs:

Six new faculty positions in teaching fields of highest need @ \$72,000 each (\$432,000)

One new Office of Field Experiences supervisor to coordinate early clinical experiences and student teaching at a distance (statewide effort) (\$72,000)

One new senior program manager in the Office of Distance Education (\$64,000)

One technical assistant for online course deliver/modification (\$64,000)

One new teacher recruiter (\$53,000)

Two new admissions counselors (one in the Graduate School, one in Undergraduate Admissions) @ \$44,000 each (\$88,000)

One clerical support staff (\$32,000)

Two graduate assistants at \$18,000 (\$36,000)

Total: \$841,000 plus benefits

Funding source: legislative appropriation

Assessment methods: Measures of mathematics and science faculty engagement in teacher education; evaluation of recruitment strategies in mathematics and science teaching (e.g., funnel reports: inquiries, applications, acceptances, enrollments); evaluation of effectiveness of advising; completion of curriculum revisions that both streamline and elevate teacher education in mathematics and science.

Accountability measures: The number of candidates preparing for careers as teachers in mathematics and science in both traditional undergraduate and alternative licensure programs will increase by at least 25 candidates each year, as measured by the UNC Report on Production of Teacher Education Graduates and Alternative Licensure Completers. The number of program completers as defined by the recommendation for the North Carolina Teaching License will increase by at least 25 candidates each year.

Responsible officers:

Dean of the College of Education

Associate Dean for Teacher Education, College of Liberal Arts and Sciences

Director of the Center for Mathematics, Science, and Technology Education
Relevant Department Chairs

5. Expand 2+2 Baccalaureate Completion Programs at Community College Sites

The 2+2 baccalaureate completion programs deliver the junior and senior year coursework from UNC Charlotte to community college allowing community college students to complete a UNC Charlotte degree that builds on their first two years of university preparation. We have established two 2+2 expansion goals in addition to continuing the current baccalaureate completion program in elementary education at Stanly Community College:

1. *Establish on-site Bachelor of Arts in Special Education* in collaboration with the Developmental Disabilities, Nursing, and Human Services and Early Childhood Education Programs at Central Piedmont Community College's Central Charlotte campus. Expand this model to other community colleges in the region.
2. *Establish on-site Bachelor of Arts in Child and Family Development* in collaboration with the Wachovia Early Childhood Education Program at Central Piedmont Community College's Harris Campus, leading to Birth-Kindergarten teacher licensure. Expand to other community colleges in the region.

Timeline:

Conduct collaborative planning between UNC Charlotte and Central Piedmont Community College in 2008-2009

Recruit eligible community college students and provide advising in 2008-2009

Launch programs at CPCC in Fall 2009

Expand to at least one additional community college site for each program in Fall 2011

Costs: Two clinical assistant professor positions @\$60,000 each to coordinate site-based programs

Total: \$120,000 plus benefits

Funding: Enrollment increase funds

Assessment methods: Establishment of articulation agreements; recruitment and enrollment of cohorts of students; students' success in program completion and employment; evaluation of effectiveness of UNC Charlotte–community college partnerships.

Accountability measures: Initial cohorts of the 2+2 baccalaureate completion programs in special education and in child and family development will enroll at least 25 students each, with at least 80% completion rates.

Responsible Officers:

Dean, College of Education
Chair, Department of Special Education and Child Development

6. Establish the Charlotte Teachers Institute, a partner of the Yale Teaching Initiative

The UNC Charlotte College of Liberal Arts and Sciences is designing the Charlotte Teachers Institute to provide content rich seminars to Charlotte-Mecklenburg (CMS) teachers as part of their professional development. The Institute will be a partnership among UNC Charlotte, Davidson College, and Charlotte-Mecklenburg Schools and will be a formal partner with the Yale Teaching Initiative.

Timeline: The Charlotte Teachers Institute is entering its implementation phase in Spring 2008. A Program Director will be hired by July 2008. Seminars, developed with K-12 teachers and taught by faculty from UNC Charlotte and Davidson, will be offered by Summer 2009.

Costs: Start-up costs are minimally \$150,000 to fund the Program Director, support staff and office support; Seminars will be offered at the projected cost of \$7,500 per faculty member

Total: \$150,000 + number of teachers x \$7,500

Funding: Enrollment increase funds for the program director and operational support. Teacher stipends will be the responsibility of Charlotte-Mecklenburg Schools. While costs for the institute will increase as more seminars are taught, private gifts and sponsored research opportunities will be sought to defray the costs.

Assessment methods: Number of seminars offered; number of participants; teacher and faculty ratings on effectiveness and impact of seminars; teacher persistence as related to seminar participation; Yale Teaching Initiative evaluation of the Charlotte Teachers Institute.

Accountability measures: Teachers who complete Charlotte Teachers Institute seminars will have a persistence rate that surpasses the district/state averages and will demonstrate job satisfaction and engagement in advanced learning opportunities (e.g., graduate degrees, National Board Certification) that surpass district/state averages.

Responsible officers:

Dean, College of Liberal Arts and Sciences
Associate Dean, College of Liberal Arts and Sciences

7. Participate in the Support for New Teachers Initiative of UNC General Administration

The UNC General Administration, with the UNC Council of Deans for Teacher Education, has developed a plan to support, monitor, and mentor all new graduates and those who

complete their licensure during their first three years of service until they earn a continuing professional license. Funding will create non-tenure track clinical faculty to provide mentoring to teachers in school systems in each university's service region. This work will include classroom visits, e-mentoring, and campus-based professional development activities and will be done in partnership with the North Carolina Center for the Advancement of Teaching and P-12 Public Schools.

Timeline: Funding for this initiative is included in the 2008 Board of Governors short session budget request. If funded, the program will be launched in 2008-2009.

Costs: The budget request is for \$2.7m to fund this initiative across the fifteen campuses. Distribution of funds will be based on teacher education productivity of the campuses.

Total: \$2.7m

Funding: General administration

Assessment methods: Teachers' satisfaction ratings of support efforts. Teacher persistence rates across UNC campuses in comparison with state average and in comparison with teachers from other programs (e.g., out-of-state, lateral entry).

Accountability measures: Teachers who participate in the New Teachers Initiative of the UNC General Administration will have higher persistence rates than other teachers in North Carolina and express greater satisfaction and efficacy in their work.

Responsible officers:

Alan Mabe, UNC Vice President for Academic Planning and University-School Partnerships

Alisa Chapman, UNC Associate Vice President for Academic Planning and University-School Partnerships

UNC Deans for Teacher Education

C.2.2. Minor Initiatives

1. Provide staff support for the America Reads project of the ReadWriteServe program.

America Reads at UNC Charlotte provides work-study college students with the opportunity to serve as literacy tutors in high-need elementary schools. The project is related to work-study funding on campus, meeting the requirement that 7% of federal work-study funding be directed toward community service. The project is currently managed by a volunteer faculty member and could be expanded to additional elementary schools and to middle schools with stable staff support.

Timeline: America Reads is an on-going project. As soon as staffing support becomes available, additional tutors and elementary school sites will be identified.

Costs: One Project Coordinator (\$45,000), One Graduate Assistant (\$15,000)

Total: \$60,000

Funding: Campus

Assessment methods: Number of tutors engaged in America Reads; number of children who are supported by tutors; efficacy of tutoring in impacting school success; impact of tutoring on UNC Charlotte federal work-study budget.

Accountability measures: The number of UNC Charlotte students who participate in AmericaReads tutoring will increase by 100.

Responsible officers:

Chair of the Department of Reading and Elementary Education

D. Economic Transformation and Community Development

- *The UNC Tomorrow Commission found that “UNC should be more actively engaged in enhancing the economic transformation and community development of North Carolina’s regions and the state as a whole.*

D.1. Existing Initiatives/Programs

UNC Charlotte has organized its approach to economic transformation and community development principally around major university-wide institutes and centers with a mandate to provide a link between specific groups of community stakeholders and the university, create a matrix for education at all levels, and translate university discoveries into products that can enhance and enrich the community and state. The goal in forming university-wide centers and institutes is to be problem oriented rather than discipline focused and to simplify connections to the University’s intellectual and physical resources.

D.1.1. The Charlotte Research Institute (CRI)

The Charlotte Research Institute is the portal for business-university partnerships at UNC Charlotte. CRI supports the work of interdisciplinary research centers and laboratories with a focus on applied science and technology. In the Charlotte region, CRI works in the community to accelerate the growth of small businesses and University startups. More generally, CRI develops intellectual capital through collaborations with industry, government and academia. New business and research ventures, university partnerships with regional and national enterprises, and CRI spin-off companies all draw research and businesses to the region and spur economic growth.

Innovation, entrepreneurship, and business growth are strongly supported by CRI’s Ben Craig Center and Business Incubator (BCC). The Incubator Program, Education and Community events, and Advisory services offered by the BCC offer full support for dozens of companies each year. The BCC focuses on community businesses and University startups that benefit most directly from proximity to expertise, services, and equipment that only the BCC and the University can provide. Over the past 21 years, BCC has worked with a diverse mix of companies to create over 1,100 jobs, over \$149 million in venture capital, 98 graduated companies, and \$104 million in annual economic activity. In addition, programs offered by the Small Business and Technology Development Center at Ben Craig benefit hundreds of small businesses each year

Science and engineering ventures at CRI are driven by the internationally known results of its research centers in Precision Metrology, eBusiness Technology, and Optoelectronics. CRI’s research vision continues to grow as emerging research initiatives, including bioinformatics, biomedical engineering systems, and translational research, develop at UNC Charlotte. With facilities housed in three new custom-designed

buildings on the Charlotte Research Institute Campus, CRI helps companies initiate new partnerships at UNC Charlotte by offering a variety of opportunities to engage talented faculty and make use of specialized resources available only at UNC Charlotte.

Examples include:

- A very strong industrial affiliates program for Precision Metrology with corporate members that include Boeing, Caterpillar, Intel, Mitutoyo, Cummins Engine, Corning Cable, Western Robotics, Veeco, and United Technologies, as well as government laboratories such as the National Institute of Standards and Technology and Lawrence Livermore National Laboratory
- A growing Biomedical Engineering Systems research center that collaborates with medical device companies and medical facilities that include OrthoCarolina and the Carolinas Medical Center Transplantation Group and Organ Recovery Systems
- A post doctoral funding program that regularly adds 6-12 applied researchers to federal and commercially funded research programs
- A Summer Faculty Program that funds new research initiatives
- Biology core facilities used for medical device and vaccine development
- Clean room facilities used for optoelectronic device development
- The Five Ventures business plan competition, the Charlotte region's most dynamic early-stage business development competition. Five Ventures offers training, seminars, matchmaking, one-on-one coaching and over \$100,000 in cash and donated services to entrepreneurs interested in starting a high-growth business
- The Charlotte Regional Biotechnology Conference that serves the Charlotte Region and the North Carolina Research Campus (NCRC) in Kannapolis on a yearly basis, bringing together faculty researchers and biotechnology companies in the region to foster partnership opportunities

In addition, CRI regularly works with local and regional economic development agencies to align goals, enhance recruitment efforts, and add resources and value for business startup and growth. As part of this business development effort, CRI opened the first office at North Carolina Research Campus in Kannapolis in 2006 and continues to work on business recruitment, startup, and growth for the NCRC.

To further improve the connection of the university to regional economic development, CRI launched the Open for Business project designed to better understand how to address industry needs, make the University's research and services more accessible to industry, and create a model for university-industry collaboration. Ideas under study include developing a unified integrated university portal for businesses, creating a Center for Entrepreneurship in the Belk College of Business, implementing a marketing campaign directed to business, and developing a package of research and technical advisory services for corporations, particularly in the areas of mechanical engineering and optics.

Funding: This effort is funded via user fees, state sources, industrial partners, federal funding, and an endowment with costs expected to grow with inflation.

Assessment methods: Effectiveness is assessed through monitoring the amount and percentage of industrial research funding, feedback from partners, and feedback from the CRI Board of Directors.

Accountability measures: Industry sponsored funding; partnerships established; patents, licenses, a new start up companies.

Responsible Officers:

Directors of research centers
Director of The Ben Craig Center
Executive Director of the Charlotte Research Institute

D.1.2. UNC Charlotte Urban Institute

For nearly forty years, the UNC Charlotte Urban Institute has provided economic analysis and technical assistance to communities in the Charlotte region experiencing economic transformation (See also *Section F. Environment*). Recent examples of the Institute's work include:

- The quarterly Charlotte Regional Economic Barometer that the Institute provides for the Charlotte Regional Partnership
- the facilitation of a community dialogue on economic transition and community development for disadvantaged neighborhoods near the NC Research Campus in Kannapolis
- A community visioning process for the Town of Badin in Stanly County which is struggling to reinvigorate its economy after the closure of the Alcoa smelting facility there

Funding: The Institute's work is supported by state and external funds.

Assessment methods: Effectiveness is measured through community public opinion surveys and client satisfaction evaluations.

Accountability measures: Funded projects; satisfaction of clients; publications and reports.

Responsible officer: Executive Director of the UNC Charlotte Urban Institute

D.1.3. The Office of Technology Transfer

The Office of Technology Transfer (OTT), part of the Office of Research and Federal Relations, promotes a culture of invention, application and innovation among students, faculty, and industrial partners. In addition to managing invention disclosure, patenting, and licensing processes, the office works closely with faculty, students, and outside partners to bring inventions to application in the local region and beyond. UNC

Charlotte has routinely been ranked in the top three universities for patents and startups/\$10 million of research by the Association of University Technology Managers and was one of ten institutions selected as the focus of a major case study in the 2007 report, “Technology Transfer and Commercialization Partnerships,” produced by Innovation Associates for the National Science Foundation to identify best practices. As stated in the report, “UNC Charlotte has outstanding technology transfer outcomes, particularly in patents and startups. In FY 2005, UNC Charlotte filed 56 patent applications, placing it first nationally relative to research expenditures. In FY 2005, it had 28 active licenses. Despite modest research expenditures, UNC Charlotte has generated a substantial number of startups in the past several years. From FY 2000-05, the University has launched 19 startups; and in FY 2005 alone, it launched three startups, placing it third nationally relative to research expenditures.”

Funding: OTT’s support comes via state sources, industrial partners, and federal funding and is expected to rise with inflation

Assessment methods: Surveys, participation in national benchmarking efforts

Accountability measures: Effectiveness is assessed through growth in invention, licensing, and business startup metrics and survey results

Responsible Officer: Executive Director of the Office of Technology Transfer

D.1.4. Other Campus-wide Initiatives

Across the UNC Charlotte campus there is a broad effort to offer university expertise for economic and community development. Examples of initiatives include:

- Design and analysis centers in Business, Geography, and Architecture assess and support regional economic development. For example, The *Center for Real Estate* in the Belk College of Business analyzed commercial real estate development in the region’s economically-depressed business corridors.
- Business and architecture students affiliated with the *Charlotte Community Design Studio (CCDS)* of the School of Architecture completed design studies and analysis for a conference center in Gastonia. CCDS completed a four-year cycle of leadership institutes for elected officials focused on Urban Open Space Development.

Industrial solutions organizations in various colleges make state of the art research equipment and technical services available to regional companies and engage faculty and students in research and development for products, services, and therapies. Examples include:

- The *Industrial Solutions Laboratory* in which senior engineering students and corporate partners work on real world engineering problems

- The *Environmental Assistance Office* in The William States Lee College of Engineering that provides assistance to small businesses to increase effective pollution prevention practices in the Charlotte area
- The *Regional Analytical Chemistry Laboratory* in the College of Liberal Arts and Sciences that serves a wide range of local industries including synthetic fibers, textiles, lubricants, surfactants, dyes, polymers, plastics, adhesives and coatings, and rubber with state of the art analytical chemistry
- The *Software Solutions Laboratory* in the College of Computing and Informatics that provides professional quality software to companies and organizations that have information technology problems that cannot be solved with off-the-shelf software. Recent projects have included a community problem-oriented policing system for the Charlotte-Mecklenburg Police Department; a data warehousing and reporting tool for a consortium of NC school districts; clinical outcomes databases for the Carolinas HealthCare System; and a database that integrates information from social service agencies and schools for the UNC Charlotte Institute for Social Capital.

Funding: These efforts are supported with state and external funds as well as user fees

Assessment methods: Client surveys; monitoring of contracts and services

Accountability measures: Client satisfaction; extramural grants and contracts; efficiency and rapidity of service; growth in services offered and transactions completed

Responsible officers:

Directors of research centers
Deans of the academic colleges

D.2. Improvements and New Initiatives

D.2.1. The UNC Charlotte Urban Institute “Charlotte Regional Indicators” Project

On a pilot basis, this year the Urban Institute created the *Charlotte Regional Indicators Project*, a new benchmarking initiative that measures quality of life indicators including measures of the economy and housing for a 16-county region. The local business and philanthropic community has enthusiastically supported the start-up of this new initiative. (See also *Section F. Environment* for details.)

Timeline: Ongoing

Cost: \$200,000 annually for research; \$100,000 annually for dissemination.

Total: \$300,000 annually

Funding: Foundation For The Carolinas, the Z. Smith Reynolds Foundation, the Charlotte Regional Partnership, and the Knight Foundation.

Assessment methods: Monitoring the use of the Regional Indicators Project website; tracking the number of Indicators-related presentations given annually; attendance at the Institute’s Regional Issues Conference, where the findings of the Indicators Report will be unveiled.

Accountability measures: No specific goals have been set for the desired number of “hits” to the website, the number of presentations given, or attendance to the Regional Issues Conference. However, 2008 numbers for all three of these will be used as benchmarks to set goals in subsequent years.

Responsible Officer: Executive Director, Urban Institute

D.2.2. Increasing Intellectual and Research Capacity

Significant gains in our economic transformation capability can be realized by increasing our intellectual and research capacity at the University. Particular examples are listed below that support fast growing sectors of the Charlotte economy that put an emphasis on sustainability: finance, insurance, real estate, energy production, and healthcare.

- Expand engineering programs to support and sustain the Charlotte region’s role as a center for energy production. Examples include the Energy Production and Infrastructure Center (EPIC), the Innovative Design, Engineering, and Sustainability center (IDEAS), and a new Department of Systems Engineering. In addition to the existing programs in Engineering, new distance education master’s programs in Engineering Management, Fire Protection and Administration, and Construction and Facilities Management will support the workforce needs of the energy industry. It is (See also *Section A.2. Global Competitiveness* for details on EPIC).

Cost: Infrastructure for the EPIC program will be substantially addressed by the EPIC building at a cost of approximately \$76M. To date \$19M has been appropriated by the NC legislature and the remaining funds have been requested by UNC Charlotte with the highest priority for the current legislative session.

Programs to be housed in EPIC will require:

New faculty - \$1M/year

Operations and equipment- \$300K/yr

Other costs - \$850K/yr

Funding: The research efforts are supported with state and external funds as well as user fees.

Assessment methods: Monitoring student success, extramural funding, engagement with community partners

Accountability measures: Federal and industry support, students graduated and placed, publications, patents, new business start-ups.

Responsible officers: Dean of the College of Engineering

- Transform the *Charlotte Community Design Studio* into the College of Arts and Architecture “*Design & Society Research Center*” to develop programs for creative leadership in economic transformation of the region and serve as the home of a Master of Urban Design program focused on “Sustainable Urbanism.”

Cost: This program can be expanded with \$150K in operating funds

Funding: These efforts will supported with state funds from enrollment increases and external grants and contracts

Assessment methods: Monitoring student success, extramural funding, engagement with community partners

Accountability measures: Student graduation and placement, grants and contracts, partnerships established, partner satisfaction

Responsible officers: Dean of the College of Arts and Architecture

D.2.3. The Charlotte Research Institute

Our economic transformation capability can be further expanded by increasing the infrastructure and activities of the Charlotte Research Institute. Particular examples include:

- Establish the *Center for Nanoscale Science* to coordinate research among faculty in the departments of Biology, Chemistry, Electrical and Computer Engineering, Mechanical Engineering and Engineering Science, and Physics and Optical Science. Over forty faculty members from these disciplines are engaged in nanoscale science and engineering research in such areas as nano-biotechnology, nano-optics, nano-mechanics, nano-materials, nano-electronics, nanoscale science and the environment, and surface and interface science. UNC Charlotte is a leader in nanoscale science research and education and launched North Carolina’s first Nanoscale Science Ph.D. program in fall 2007 as a collaborative effort among faculty in these departments. The Center will help attract internationally acclaimed researchers to the state and will strengthen UNC Charlotte’s ability to

collaborate with other institutions on nanoscale science research, teaching, and outreach initiatives. Moreover, the Center, in combination with the Nanoscale Science Ph.D. program, will play a major role in nanotechnology-based economic development vital to North Carolina's future.

Cost: \$50,000 administrative startup; \$500,000 in operating support for equipment and technical staff; subsequent growth through external funding

Funding: Enrollment growth funding; reprogramming of internal resources; external grants and contracts; expansion budget funding

Assessment: Faculty and student participation; industry partnerships; external awards

Accountability measures: External funding through grants and contracts

Responsible officers:

Chair of the Department of Chemistry
Executive Director of the Charlotte Research Institute
Deans of the academic colleges

- Establish the *North Carolina Complex Systems Institute*, with a focus on the conduct of large-scale, dual-use computing projects and programs for the defense and intelligence community as well as civilian applications. The Institute would bring together academia, industry, and federal agencies to advance synergistic computing simulation, analysis, and modeling capabilities, and would provide a mixture of secure and open laboratory space and test-beds to support joint research and development and facilitate technology transfer. The Institute would extend research currently sponsored by the Defense Advanced Research Project Agency (DARPA) and the Defense Intelligence Agency (DIA) and would also provide significant opportunities for industry partnerships, thereby bringing additional defense contracting to North Carolina. Using the Sensitive Compartmented Information Facility (SCIF) being planned for the new Partnership Outreach and Research to Accelerate Learning (PORTAL) Building, we would be uniquely positioned to become the national leaders in these multi-use computational solutions.

Within the Institute, two centers would be established: the *Defense Computing Center* would be responsible for defense and intelligence related research, emphasizing system of systems modeling and simulation for analysis of complex problems and phenomena, where the participating systems are highly complex and interdependent. These activities align with the research currently sponsored by the Defense Intelligence Agency.

The *Center for Human Complex Systems* would be responsible for analyzing dynamic, non-linear systems where behavior of system components and their interactions continuously change the overall performance of the system. Most aspects of human societies possess this characteristic. These activities align with the research currently sponsored by the Defense Advanced Research Project Agency and also provide the best opportunity for North Carolina participation in the Minerva Consortia initiative in the Department of Defense for moving beyond weapons and technology research to social science and humanities work that could better inform public policy.

Cost: \$1.5 million in research staff & project management personnel over 3 years

Funding: enrollment growth; reprogramming of internal resources; external research contracts

Assessment methods: analysis of external funding and collaborative research agreements

Accountability measures: success in recruiting industry partners and in attracting Department of Defense funding for research and development.

Responsible officers: Dean of the College of Computing and Informatics

- Expand existing biomedical collaborations into a *Center for Translational Research* to support rapid growth of collaborative medical research among regional and statewide medical organizations as well as basic science, engineering, and informatics research groups at UNC Charlotte, Carolinas Medical Center, the North Carolina Research Campus (NCRC), and other medical entities in the region (See also *Section E. Health*)

Cost: Approximately \$500K in operating budget, new faculty, staff

Funding: Enrollment increases, F&A receipts, state support for expansion

Assessment methods: Monitoring extramural grants and contracts, intellectual property generated

Accountability measures: Federal and industry support; scholarly productivity of faculty; students trained and placed; patents, new business start-ups

Responsible officers:

Executive Director of the Charlotte Research Institute
Deans of the academic colleges

- Building on the international reputation of the NSF-sponsored Center for Precision Metrology, we propose to create the *Center for Self Aware Manufacturing* that supports regional and statewide efforts for advanced manufacturing.

UNC Charlotte is positioned to be a world leader in a new engineering initiative known as “Self Aware Manufacturing,” which integrates high fidelity sensing, measurement, and control with advanced manufacturing. By tightly integrating metrology with advanced manufacturing, “Self Aware Manufacturing” can produce order of magnitude increases in quality and cost effectiveness while reducing manufacturing time. This approach will influence the growth of the North Carolina Economy across a broad spectrum of companies and applications, from micro-optical components to aerospace and medical applications and from mass customized production to one-of-a-kind. Research drawing on UNC Charlotte strengths will address four strategic platforms: (1) Highly-Accurate Large-Scale Manufacturing, (2) Fabrication of Optical-Quality Structures, (3) Precision-Guided Biomedical Processes, and (4) Micro and Nano Assembly.

The manufacturing industry in North Carolina suffers from being at the low end of the high-technology spectrum, and manufacturing wages in North Carolina are significantly below the national average for high-technology industry. UNC Charlotte’s expertise and intellectual property in precision manufacturing can establish the state as a national leader in next generation technology.

Our best opportunity for establishing such leadership is to develop an NSF Engineering Research Center (ERC). UNC Charlotte has been through one competitive cycle (2008) for the ERC competition and, although unsuccessful, we were rated so highly that our industry partners have agreed to invest in the Center over the next 18 months, even without NSF support, to prepare us for the next competitive cycle (2010). We also have strong partners in the University of Michigan, Morgan State University, NC A&T State University, the University of Bremen, Vrije Universiteit Brussel, the University of Tokyo, and University College Dublin.

What is now needed to ensure success is state seed-money investment. An NSF Engineering Research Center would be a huge asset to the state, particularly in the area of advanced manufacturing technology. UNC Charlotte already has the premier university precision metrology laboratory in the entire world. We own the intellectual property for many of the advances in small part manufacturing

processes, and are positioned to extend this technology to large components used in the aerospace and shipbuilding industry. The economic impact of the ERC will be quite broad as demonstrated by the range of industrial applications. An order of magnitude improvement in precision has cost impact through improved fuel efficiency, reduced assembly costs, improved medical outcomes, and the creation of new products. We have an excellent opportunity to leverage economic development in manufacturing in North Carolina with a modest investment by the state.

Cost: \$2 million in annual recurring funds

Funding: State appropriation

Assessment methods: Monitoring success in attracting industry partnerships and funding, student success

Accountability measures: NSF funding, particularly an NSF Engineering Research Center; students and postdocs trained and placed; industry affiliates attracted; patents, licenses, start ups

Responsible officers:

Dean of the Lee College of Engineering

Executive Director of the Charlotte Research Institute

E. Health

- *UNC should lead in improving the health and wellness of all people and communities in our state.*

E.1. Existing Programs

E.1.1. Research programs on health issues are widely distributed across the Colleges

Faculty in six colleges (and 18 departments) are engaged in research to improve health and wellness in North Carolina. Research areas include nursing, social work, health economics, cancer research, health communications, health psychology, medical sociology, health informatics, counseling, health policy, biophysics, nanobiotechnology, bioengineering, environmental health, nutrition, and exercise physiology.

Interdisciplinary research centers focused on health related issues include the Bioinformatics Research Center; Center for Biomedical Engineering Systems; and Center for Geographic Information Systems. Examples of research include:

- A faculty member in the Department of Public Health Sciences heads a National Institute of Heart, Lung and Blood-funded randomized trial of asthma education and self-management training to enhance asthma self-management behavior and improve health-related asthma outcomes.
- The Center for Biomedical Engineering Systems conducts health related research that spans a number of applications ranging from the design of surgical devices; to engineering tissue and organ replacements; to computational and bioreactor systems for the design of pharmaceuticals. One research team is currently developing a hypothermic machine perfusion process, a new perfusion solution and an innovative viability assessment method of organs that will improve recovery of marginal donor organs for transplantation.
- Collaborators in the Department of Biology have successfully developed a vaccine against a potential bioweapons agent using a unique plant-based vaccine delivery system.
- Faculty in the College of Computing and Informatics are engaged in a study of ovarian cancer with researchers at the Carolinas Medical Center, with the goal of identifying genotypic factors and environmental responses that affect disease stage, progression, and response. A second large-scale study on genotype contributions to wound healing is in the planning stages. The informatics requirements of large-scale whole-genome association and response studies mean that such collaborations will be increasingly important.

The programs can be improved through continued growth in the faculty and renovation or construction of facilities, particularly those needed for support of programs in nutrition, athletic training, respiratory therapy, and exercise physiology (Belk Gymnasium), as well as those for research in the chemical sciences, biophysics, and biomedical sciences (new science building).

Costs: Renovations of the Belk Gymnasium (\$25M)
 New Science Building (\$120M)
 Additional faculty: \$65,000-\$125,000 per year for faculty salaries;
 \$25,000-\$500,000 for start up costs/faculty

Funding: Legislative appropriations and/or bonds for construction and renovation; enrollment increase funds and expansion budget requests for faculty and operating funds; extramural grants for research program

Assessment methods: Monitoring of scholarly productivity of faculty and students.

Accountability measures: External funding; peer-reviewed publications; generation of patent applications; and development of start up companies.

Responsible Officers: Deans and department chairs of the six colleges involved in these efforts.

2. Health and wellness programs for faculty, students, and staff: UNC Charlotte supports *model student health programs*:

- Student health insurance is required so all students have access to medical care;
- A comprehensive alcohol and drug education program is being implemented under a US Department of Education grant;
- Smoking cessation programs for students are offered by the Wellness Promotion Department in the Student Health Center;
- The Counseling Center is accredited by International Association of Counseling Services, has an APA-accredited training program. Center staff are licensed to practice in North Carolina and the Center uses empirically supported short-term interventions.
- The Student Health Center has been accredited by the Joint Commission and is transitioning to accreditation by the Accreditation Association for Ambulatory Health Care, INC. AAAHC accreditation is consistent with best practices among college and university health centers. The Student Health Center is a comprehensive health-care facility and includes primary medical care, disease prevention, health education, wellness promotion, and various specialty services such as physical therapy, psychiatry, nutritional counseling, and pharmacy services.

The Human Resources department facilitates *access to evidence-based health practices* for faculty and staff, including Weight Watchers; the “10,000 steps” program; and smoking cessation classes.

The campus supports *model food service programs*. Our campus food service uses the “Balanced Choices” system that directs diners to healthy menu options (vegan, sugar-free, etc.) and the Total Health program allows students to track electronically the nutrition profile of campus food service consumables.

Recreational services programs are available for faculty, students, and staff. These include intramural sports, sport clubs, fitness programs, aquatics, and indoor/outdoor facilities. Recreational services are used extensively. For example, in 2006-07, the Intramural Sports program checked in nearly 33,000 participants; the Fitness Center numbered 122,000 uses (5 % increase over the previous year); and Group Fitness participation numbered over 19,000 (17% increase over the previous year).

Programs for campus health and wellness can be enhanced through improved outcome data collection and analysis by the Counseling Center; by augmenting the staffing in Wellness Promotion and Counseling Center to account for student growth and increase in utilization; and by increasing the space allocated to the Counseling Center to accommodate growth. The campus recreational programs can be improved by the addition of a dedicated recreation center (225K sq ft) and additional staff to manage the facility and expand programming.

Costs: New position for a wellness specialist: \$45,000; Additional Counseling Center staff: \$60,000; Renovation and expansion of the Counseling Center: \$1Million; New recreational facility, operating costs, and additional staff: \$45 Million

Funding: Funding for these services and facilities will be obtained through enrollment expansion funds and student fees.

Assessment: Programs are assessed through utilization data collected annually and client satisfaction data collected periodically from clients. Recreational Services uses benchmarking surveys to assess satisfaction with facilities and programs.

Accountability measures: Measures include the percent of faculty, students or staff involved in programs. Outcome data for the alcohol education program are collected as part of the grant effort.

Responsible officers:

Associate Vice Chancellor for Human Resources
Vice Chancellor for Student Affairs
Vice Chancellor for Business Affairs

E.1.3. Health related information is analyzed and disseminated to improve health and wellness

UNC Charlotte's major role in the North Carolina Research Campus (Kannapolis) is in the area of bioinformatics and health services research (HSR). (The contribution of the Bioinformatics Research Center is described in *Section A.2. Global Competitiveness*). HSR faculty in the Department of Public Health Sciences in the College of Health and Human Services and computer scientists in the College of Computing and Informatics collaborate with North Carolina public health officials on critical statewide health policy issues, including the North Carolina Community Health Assessment Portal and the North Carolina Comprehensive Assessment for Tracking Community Health. The Portal project will allow state and local officials to assess the health status, manage resources, and shape policy more effectively.

Faculty and students in the Department of Public Health Sciences and the School of Nursing are engaged with local and regional groups assisting in health and wellness issues. Local partners include the Mecklenburg Healthy Families Taskforce; the Families First Steering Committee; the Children's Alliance Early Childhood Health and Education Subcommittee; the Susan B. Komen Foundation Education Committee; United Way of Central Carolina Community Investment Committee; and the Older Adult Wellness and Disabilities Council.

Health information is disseminated to the public and to health professionals in the Charlotte area through talks, seminars, and symposia sponsored by several interdisciplinary academies and centers. In addition to the centers listed in *Section E.2.2.*, we include here the Center for Professional and Applied Ethics, which has a focus on health and bioethics; the Health Services Research Academy; and the Qualitative Research Academy.

E.2. NEW INITIATIVES

E.2.1. Establish a School of Public Health.

We propose to accelerate the establishment of the *School of Public Health* (SPH). The Department of Public Health Sciences engages in teaching, research, and service in public health from a social ecological perspective. A School of Public Health (SPH) at UNC Charlotte will address the burgeoning public health needs of the region. SPH collaborations also will build on unique UNC Charlotte expertise in informatics (College of Computing and Informatics) and the urban built environment (Colleges of Arts and Architecture; Engineering (e.g., civil engineering); and Liberal Arts and Sciences (e.g., Geography) among its foci. The Department currently offers BSPH and MSPH degrees, and soon will submit its self-study for public health program accreditation from the Council on Education for Public Health (CEPH) for a site visit in the 2008-09 academic year. The Department offers a MHA degree and is accredited by the Commission on Accreditation of Healthcare Management Education. It contributes substantially to the interdisciplinary PhD in Health Services Research. An accredited SPH is characterized by 5 or more faculty in each of the 5 cores areas of public health, so we plan to add 12+ faculty through cluster hiring strategies, and enhance the portfolio of degrees at the master's and doctoral levels to achieve an accredited SPH by 2013-14.

Cost: To implement the School by 2013-14, across additional administrative (4), staff (1), faculty (15), accreditation, operating, and GAs, new funds needed total ~\$4M

Funding: Enrollment increase funds

Assessment methods: Successful establishment of all components of a School of Public Health eligible for accreditation: 4 MSPH track degrees, and 2 more PhD degrees

Accountability measures: enrollments in and graduates from degree programs; research productivity (publications, extramural research funding); outreach to community

Responsible Officers:

Dean of the College of Health and Human Services
Chair of the Department of Public Health Sciences

E.2.2. Establish new centers

- The *Center for Translational Research* will involve UNC Charlotte, the Carolinas Medical Center, local businesses, and local physicians in the greater Charlotte community. The vision for this Center is to facilitate bringing basic research focused on cancer conducted at UNC Charlotte to the medical community as quickly as possible (bench-work to the bedside) (See *also Section D. Economic Transformation and Community Development*).

Cost: Approximately \$500K in operating budget, new faculty, staff

Funding: Enrollment increases, F&A receipts, state support for expansion

Assessment methods: Monitoring extramural grants and contracts, intellectual property generated;

Accountability measures: Federal and industry support; scholarly productivity of faculty; students trained and placed; patents, new business start-ups.

Responsible officers:

Executive Director of the Charlotte Research Institute
Deans of the academic colleges

- The *Center for Health Informatics* will involve the Department of Public Health Sciences, the College of Computing and Informatics, and the Department of Mathematics and Statistics. The vision for this Center is to promulgate

community and clinical health research and analytics through cutting edge data techniques.

Cost: \$750K/year

Funding: External funds, expansion budget

Assessment methods: Monitoring scholarly productivity and service; client surveys.

Accountability measures: Publications; external funding, service to state and local agencies; client satisfaction.

Responsible Officers: Originating faculty and supporting deans

- Increase the activity course availability to decrease the percent of overweight/obese among our students. There has been a 2.5% increase to 38.7% in 3 years as enrollments in activity courses have decreased and establish an active outreach effort to encourage participation

Cost: Assume 5,000 undergraduate students (25% of the UG population) take one activity course/20 students per course/5 courses per instructor * \$10K = \$500K/year

Funding: Enrollment increase, activity course fees

Assessment methods: Student health surveys; monitoring activity classes and participation in intramural sports

Accountability measures: Activity course availability and enrollments; student population body mass indices

Responsible Officers:

Chair of the Department of Kinesiology

Vice Chancellor for Student Affairs

F. Environment

- *UNC should assume a leadership role in addressing the state's energy and environmental challenges.*

UNC Charlotte has a longstanding commitment to environmental sustainability through our stewardship of campus resources, our academic programs, and our applied research and outreach to the community. The *Urban Institute (UI)* has been a leader in research and public policy around issues of land use and sustainability. New initiatives in the UI, such as the Indicators Project, will provide local policy makers with current, relevant data to support decision making on environmental issues. The *Environmental Assistance Office* in The William States Lee College of Engineering provides technical assistance and conducts applied research for small businesses and participates in extensive on and off campus outreach on environmental issues. The new UNC Charlotte *RENCI* engagement center will create an interdisciplinary program using advanced technology to address issues of urban growth and development.

F.1. Existing Programs

F.1.1. University-wide efforts demonstrate commitment to sustainability

UNC Charlotte is committed to sustainability as one of our core values, as exemplified by:

- A coordinated, interdisciplinary sustainability program, the New Century Institute for Sustainable Infrastructure, being built to reach across all core functions of the university (education, research, and outreach and campus operations), thereby drawing on the diverse skill sets available across faculty, students and staff
- Commitment that all future new construction will be LEED certified
- Inclusion of sustainability in the UNC Charlotte master planning process. Addressing sustainability in the UNC Charlotte master planning process allows for future financial planning, gradual adoption of new technologies and a gradual shift toward accepting a new paradigm
- Resource conservation in campus operations (water and energy efficiency, alternative fuels and electric vehicles program for campus fleet). The alternative fuel program has already delivered environmental and economic dividends to UNC Charlotte enabling further development of this program.
- Undergraduate and postgraduate programs in engineering, architecture, and sciences that include courses on the environment and sustainability
- Research programs in colleges and centers, especially the Global Institute for Energy and the Environment (GIEES)

F.1.2. The Urban Institute applies university research in service to the community

1. *The UNC Charlotte Urban Institute:* For nearly 40 years, the UNC Charlotte Urban Institute has leveraged the university's research expertise to address critical environmental issues. This outreach has been achieved by assessing the status of the Charlotte region's and the state's environment, and by providing technical assistance to local communities and non-profit organizations in their efforts to address environmental issues such as land use, water resources, and air quality. Recent examples of the Institute's work include:

- An assessment of the Charlotte region's loss of open space since 1976 using remote satellite imagery (research conducted in partnership with the Center for Applied GIS on behalf of a consortium of regional, non-profit land conservancies).
- A feasibility study for a transfer of development rights program in Orange County, NC to protect open space.
- The development of a strategic visioning plan, land use plan and design guidelines for the Town of Mt. Holly, NC (in partnership with the College of Architecture).
- A 3-year educational program (funded by the Knight Foundation) to assist journalists in their reporting on growth and open space issues.

The Urban Institute has a staff of approximately 20, of which about half are supported by state money and the other half by external funds. The UI's highly regarded staff and its relative stability over time have allowed the Institute to develop long-standing relationships with communities and organizations throughout the Charlotte region. In addition, its close ties to university faculty have enabled the Institute to play a critical liaison role in connecting the intellectual capital of the university with the growing environmental needs of the region and state.

2. *Center for Applied Geographic Information Sciences:* CAGIS, which is affiliated with the Urban Institute and the Department of Geography and Earth Sciences, focuses on research and the application of GIS concepts and technologies to social and environmental problems. Projects include modeling the spread of infectious disease, environmental planning for management of invasive species, and analysis of air quality patterns related to urban growth. The work of CAGIS is funded primarily by federal research grants.

F.1.3. The Environmental Assistance Office (EAO) serves the campus and provides extensive outreach to business, government, and K-12

The Environmental Assistance Office: EAO was developed to increase effective and sustainable pollution prevention practices in the region and to provide UNC Charlotte students with out-of-classroom practical learning opportunities. EAO specializes in bringing governmental agencies and businesses together with talented UNC Charlotte students and faculty to address environmental issues. The emphasis on interdisciplinary teamwork draws on the diverse faculty resources to create customized teams to meet

client needs. Students are involved in multiple aspects of project development and execution as they work under the supervision of EAO staff.

As part of its service and outreach functions, EAO provides:

- Non-regulatory, client-confidential pollution prevention assistance to small businesses in the greater Charlotte region
- *Environmental Corner*, an e-letter distributed monthly with information on pollution prevention and other items of interest to small businesses
- Participation in the Charlotte Chamber of Commerce Manufacturer's Environmental Committee
- Community training on sustainability. For example, EAO supports the work of the UNC Charlotte Botanical Gardens classes for citizens on environmentally sound home landscaping, planting, and composting and works to educate master gardeners' organizations of the region
- Public outreach with Earth Day exhibits, environmental programs for K-12 students and games to involve individuals on environmental topics
- Conference services on environmental issues. EAO has been chosen by NC Division of Environment and Natural Resources (NCDENR) to be the NC Water Quality Monitoring Forum Leadership. This forum will bring individuals from academia, volunteer groups, government agencies, and engineering firms together to engage in active discussions on water quality monitoring at the UNC Charlotte campus
- Facilitation for the annual Air Quality Forum for Mecklenburg County Land Use Environmental Services Agency Air Quality Division

On campus, the EAO has been a leader in coordinating stakeholder meetings, sponsoring events, and providing learning opportunities on environmental issues. For example, EAO:

- Was the project leader and university program administrator for the Charlotte regional area air initiative program, *Clean Air Works!* This program provided outreach and education on air quality issues, incentives and events for improving employee actions in making a difference in the quality of air in Charlotte. The campus and EAO director received awards for their work in this program.
- Provided leadership for UNC Charlotte's Air Quality Action Team and was the project leader and university program administrator for the NC Air Awareness Program to inform employees about Air Quality Action Days. UNC Charlotte received the "Most Creative New Program" Award for the *Pump 'Em Up* event and incorporation of the tire air station to inform the campus and community on the importance of proper tire pressure.
- Facilitates the UNC Charlotte Environmental Academy, an interdisciplinary UNC Charlotte faculty and staff consortium that interacts with the public and the campus about sound management of the environment through education and research. EAO and the Environmental Academy provide a forum for discussion of environmental issues, offer educational and technical assistance

to the regional industry, provide scholarships for UNC Charlotte students, sponsor outreach programs, and foster development of collaborative research grants.

F.2. Improvements and New Initiatives

F.2.1. Improvements

Campus-wide efforts are needed to integrate education and research and to improve performance. UNC Charlotte's sustainability program can be enhanced by:

- Creating a one-stop information source on what courses are being taught across the academic disciplines
- Effectively using the research expertise of faculty in colleges and centers (e.g. GIEES, architecture, and engineering)
- Developing resource/environmental risk assessment methodologies to tie into maintenance schedules and access to financial capital to deliver on infrastructure improvements
- Educating the campus on the benefits of sustainability
- Adopting sustainability initiatives for which the upfront costs may be overcome by adopting true life cycle analysis/costing and clearly outlining return on investment
- Using the master plan to communicate the sustainability picture for UNC Charlotte

Improvements of campus-wide efforts could be promoted by:

- *Establishing an interdisciplinary research and education program on sustainability* (design, engineering, architecture) and house it in a UNC Charlotte center for sustainability (New Century Institute for Sustainable Infrastructure) or other sustainability-based institute. The Center should provide both formal and informal educational programs and conduct outreach to the campus and the community on issues of sustainability. The Center should be charged with:
 - Incorporating the EAO into the mainstream of campus efforts on sustainability.
 - Establishing a sustainability summer workshop for faculty to assist them in incorporating environmental issues into the curriculum.
 - Creating cross-functional formal and informal educational initiatives to promote sustainability within the curriculum, including a possible environmental literacy course as a requirement for graduation.
 - Providing internal consulting to campus management to improve building performance and other sustainability measures.

- Establishing a coordinated sustainability program within Facilities Management with results from a sustainability assessment. This new program would:
 - Institute energy savings performance contracting
 - Retro-commission academic and utility buildings to ensure best performance
 - Continue investigation and implementation of reclaimed water for irrigation, cooling tower make up, and other uses to conserve our state's water supply

Cost: Student survey \$15,000
 Operating costs for Center/Institute \$125,000/yr
 Faculty Summer Institute \$25,000/yr
 Retro-commissioning \$300,000/yr (report of problem issues only)
 Reclaimed water \$200,000/yr

Assessment methods:

- Institute a regular sustainability survey covering education, research, outreach, and operations to identify current efforts and gaps in order to improve performance.
- Survey environmental literacy of students.
- Conduct research to determine UNC Charlotte's carbon foot-print and investigate strategies of reduction.
- Monitor course offerings and research productively related to environmental sustainability.

Accountability measures:

- Improved student performance on surveys of environmental knowledge.
- Increased research (e.g., grants, publications, technical reports) and public outreach (e.g., service to K-12 teachers, non-technical publications aimed at the general public) on environmental issues.
- Public recognition of UNC Charlotte as an excellent steward of the environment.
- Reduced costs for physical plant operations.
- Faculty Summer Workshop: increase in sustainable related classes in curriculum.
- Retro-commissioning: Complete a minimum of two commissioning reports a year to determine necessary funds required to make buildings more efficient.
- Reclaimed water: Completed system will reduce use of potable water for irrigation. Savings to University will result in lower water/sewer bills, current savings estimate is \$100,000/yr.

Responsible Officers:

Executive Director of the Urban Institute
 Associate Vice Chancellor for Facilities Management

Deans of the College of Arts and Architecture, Engineering, Liberal Arts and Sciences, and University College

F.2.2. Urban Institute Programs provide applied research and increase awareness

1. *RENCI@UNC Charlotte* is the newest engagement center for the Renaissance Computing Institute, a collaborative statewide initiative based at UNC Chapel Hill with a goal of enhancing visualization tools across the state for dealing with public policy issues. The UNC Charlotte site will focus on urban growth issues, and in particular, will address some of the environmental challenges created by the state's explosive growth, using an urban growth model based on remote satellite imagery. One of the goals of the *RENCI@UNC Charlotte* is to create decision support tools that can assist regional and state policy makers in addressing significant environmental issues, such as water resources, air quality, the loss of open space and habitat fragmentation. *RENCI@UNC Charlotte* will be a partnership between the UNC Charlotte Urban Institute, the Center for Applied GIS, and the Charlotte Visualization Center of the College of Computing and Informatics. This project is just now getting underway and has not yet been fully implemented at UNC Charlotte. Its success will depend on the state legislature's continued funding of the overall *RENCI* initiative beyond its current commitment.

Cost: \$500,000/yr, plus additional funding needed (approximately \$100,000/yr) for data collection

Total: \$600,000

Funding: External grants and/or UNC Charlotte support of data collection; expansion budget request

Assessment methods: *RENCI@UNC Charlotte* submits quarterly progress reports to the main office of *RENCI*, measuring research output and public outreach efforts. This assessment methodology will remain in effect for the full term of the partnership.

Accountability measures: Once the research model is fully developed, *RENCI@UNC Charlotte* will be able to measure success by the number of public policy officials we reach and the number of ways in which those policy makers are using the model. No formal metrics have yet been established, but doing so will be one of the goals for the outreach component of Year 1.

Responsible Officer: Executive Director of the UNC Charlotte Urban Institute.

2. The *Charlotte Regional Indicators Project* is a new benchmarking initiative of the UNC Charlotte Urban Institute designed to measure progress on more than 50 indicators of success for quality of life in the greater Charlotte region, including the environment. Modeled after similar benchmarking initiatives such as the Boston Indicators Project and

Sustainable Seattle, the project is designed to be a major tool for increasing the region's awareness of sustainability issues. Still in its first year of operation, the Charlotte Regional Indicators Project has already engaged hundreds of volunteers in the process of identifying indicators and analyzing the results of the initial research. It has also established a website for dissemination of the data, enhancing its accessibility to the general public.

Future challenges to ensuring the program's long-term success include:

- Obtaining the necessary data (both public and private) that is essential to making sure that the indicators remain relevant to public policy decision-makers, and
- Keeping up with technology to ensure that the indicators research remains accessible and user-friendly via the world wide web.

Cost: \$200,000 annually for research; \$100,000 annually for dissemination.

Total: \$300,000 annually

Funding:

Foundation For The Carolinas
Z. Smith Reynolds Foundation
Charlotte Regional Partnership
Knight Foundation

Assessment methods: Monitoring the use of the Regional Indicators Project website; tracking the number of Indicators-related presentations given annually; attendance at the Institute's Regional Issues Conference, where the findings of the Indicators Report will be unveiled.

Accountability measures: No specific goals have been set for the desired number of "hits" to the website, the number of presentations given, or attendance to the Regional Issues Conference. However, 2008 numbers for all three of these will be used as benchmarks to set goals in subsequent years.

Responsible Officer: Executive Director of the UNC Charlotte Urban Institute

G. Outreach and Engagement

- *UNC should become more directly engaged with and connected to the people of North Carolina, its regions, and our state as a whole.*

Since its founding in 1946, UNC Charlotte has embraced its mission of serving the educational, economic, social, and cultural needs of the Charlotte region. The faculty, staff, and students at UNC Charlotte are active partners with organizations and groups addressing a myriad of local and regional issues. The research laboratories and professional development activities on campus are responsive to the needs of public and private community interests across this region, as well as in other parts of North Carolina. Scholarly public service and community engagement aligns with the University's special responsibility and commitment to the Charlotte region. The Academic Plan for UNC Charlotte specifically identifies areas for program investment and development that are tied to the needs of the community.

The tenure and promotion guidelines of the colleges encourage community centered scholarship. Generally speaking, community centered scholarship translates into research and creative activities that take knowledge and insights into the local and regional setting, in order to enrich and engage the public and community groups. To facilitate the connection between the University and community stakeholders, specific organizational entities have been established.

G.1. Existing Programs

1. The *UNC Charlotte Urban Institute*, established in 1969, was the first *applied public policy* research center in western North Carolina. The Institute connects the faculty and resources of UNC Charlotte to critical planning, economic, and environmental issues facing the community and region. The Urban Institute is widely regarded as the leading convener and research center for regional issues and problem solving in the Charlotte region. Recent initiatives include the Indicators Project and RENC@UNC Charlotte. In addition to the significant role in environmental issues and planning that is described under *Section F. Environment*, the Urban Institute has been a research partner with the Charlotte Latino community and completed a Latino community needs assessment in collaboration with the Latino Coalition and funded by the Knight Foundation.
2. The *Charlotte Research Institute (CRI)* was organized in 2002 to serve as a portal for industry, to foster university-industry partnerships around the applied science and technology programs of the University, to promote opportunities for technology transfer and to serve as a focal point for the University's role in technology-driven economic development. CRI is an umbrella for major interdisciplinary research centers including the Center for Optics and Optoelectronic Communications, the Center for Precision Metrology, an eBusiness Technology Institute, and the Bioinformatics Research Center. CRI's programs also support the work of the NC Motorsports Engineering Center, the Center for

Bioengineering Systems, and applied biosciences research. The role of CRI is detailed in *Section D. Economic Transformation and Community Development*.

CRI is also the sponsor of the *Open for Business* (OFB) Initiative funded by General Administration to study ways in which universities can improve their relationships with industry. Specifically, the project is aimed at making the University a better partner in the economic development of the region by being market-driven; measurable; open and communicative; and efficient as a business partner. OFB projects include:

- Development of a resource database to match faculty resources to industrial research needs. OFB awarded a bid to a local vendor creating a unique searchable database for industry to find and contact University researchers. This database is intended to be expandable across UNC Charlotte and the entire UNC system, if desired.
 - Creation of strategic affinity groups, beginning with the Life Sciences Research Affinity Group. These groups are designed to strengthen the technical industries and expose professionals in these industries to the research capabilities of UNC Charlotte. This concept includes forums for potential users of University services.
 - Creation of a process to enlist and tap experienced business people and serial entrepreneurs who can aid start-ups using University research. This will look into a system to match community resources and University researchers who have marketable innovations.
 - Development of a template for web-optimized media exposure, based on a successfully piloted focused communications plan for an optoelectronics symposium. The communication netted a full house at the symposium, on-the-scene coverage by the global web publisher of the major trade journal in the industry and within weeks, a visit from a firm needing research in optoelectronics.
 - Connection with University Research Park (URP): The URP was established in 1966 as a research and development complex. The Park is operated as a non-profit corporation and is publicly associated with the University, but is not a UNC Charlotte affiliate. In order to better serve the economic development needs of the community, OFB is engaged in building stronger ties between the Park and the University. Specific goals are to improve communications to enhance interactions with UNC Charlotte and better respond to Park business needs; place more student interns and graduates in URP firms; develop research relationships, as appropriate; and, make URP businesses third-party ambassadors for the University.
3. *The University of North Carolina at Charlotte Institute for Social Capital, Inc.* (ISC) was created to serve as a resource for the Charlotte-Mecklenburg Community by building community capacity to conduct and to apply research and scholarship aimed at enhancing the lives of children, youth, and families.

Established in 2004, the ISC is engaged in a dynamic collaboration with local non-profits, governmental agencies, and community based organizations including the Mecklenburg County Department of Social Services, the Charlotte-Mecklenburg School District, the Mecklenburg County Sheriff's Office (which operates the community's detention facilities), and Communities in Schools, a nonprofit agency directed at preventing school dropout.

Charlotte-Mecklenburg's policymakers, non-profit organizations, foundations, and social and behavioral scientists increasingly recognize the importance and difficulty of measuring the impact of programs designed to improve the lives of children, youth, and families within our community. In response to this need, the Institute is in the early stages of building and housing a comprehensive database of local program and social service data. By connecting data sets across multiple sources, the database will lay the foundation for a true understanding of the social and environmental factors that affect our community. The ISC will also be able to provide scientific analysis of the data collected, as well as technical support.

A pilot version of the ISC Community Database is operational and is addressing questions that include the relationship between child maltreatment and school performance, the causes and outcomes of life course persistent offending, and the relationships between student absenteeism and high school dropout rate. The ISC is also conducting a longitudinal evaluation of the Charlotte-Mecklenburg Schools Bright Beginnings Pre-Kindergarten Program.

Consistent with its fundamental goal of enhancing research capacity within the broader community, the ISC has taken a lead role in developing and implementing a communitywide strategy for enhancing the use of best practices across the juvenile justice, child welfare, mental health, and education systems. A task force convened by the Children's Alliance, led by ISC, and including representatives from ISC partner organizations are finalizing a strategy for implementing and disseminating this community definition such that it can be applied to identify areas of need in the community, to identify areas of strength, to guide the selection of best practices to meet identified community needs, and to direct efforts to implement and to expand best practices for serving children and youth in Charlotte-Mecklenburg.

Researchers working through the ISC, in collaboration with the Children and Family Services Association – North Carolina, the South Carolina Association of Children's Homes and Family Services, and their member agencies, are conducting a research initiative designed to implement a successful outcomes research strategy across residential treatment agencies in order to strengthen the current system of care and to enhance the quality of programs and services for children and youth. The current phase of this project (covering a three-year period) is funded by The Duke Endowment.

The Charlotte Post Foundation has forged a working relationship with the ISC to support its campaign to reduce disparities for African-American youth. Through the ISC, faculty researchers are working with the Foundation to define its mission, to develop an action plan, and to utilize research to inform action steps.

4. *The Charlotte Community Design Studio (CCDS)* is the focus for the College of Arts and Architecture's applied urban research for both the built environment and urban open space. The CCDS is a collaboration between college faculty and students with non-profit and community organizations. It is the home for a design leadership academy for local governments and non-profit community groups from across the region. With the construction of our new Center City Building in Uptown Charlotte and the planned implementation of the Master of Urban Design program, the role of the Community Design Studio is set to expand and will become the "Design and Society Research Center," housing new community-based design research programs for the Charlotte region.

Community design initiatives include partnerships with the Charlotte Urban Ministry to implement "CommunityArtWorks945." This activity has brought students and faculty together to design and construct a permanent site for Charlotte's Homeless World Cup team. The Architecture studio continues to complete annual "design/build" programs with Mecklenburg County, Habitat for Humanity, and the Latin American Coalition. Through these sustained initiatives, community design theory and methods are translated into needed community resources. The classroom is taken into the community to help solve real world problems.

Since 2004, with funding from the John S. and James L. Knight Foundation, the CCDS has offered regional community leaders the Urban Open Space Leadership Institute (OSL). The OSL provides knowledge and skills necessary for designating, financing, and developing urban open space strategies in their municipalities and counties.

OSL is dedicated to increasing the amount of urban open space in the Charlotte region through the efforts of local community leaders. By way of demonstration, planning and design projects, the CCDS exposes both elected and appointed government officials and community leaders to the potential application of urban open space strategies. During the past year, the students and faculty in the CCDS have been working with the organizers of the Carolina Thread Trail, a 15-county, 500 mile greenway for the Charlotte region, to evaluate sites for bridge crossings and bicycle facilities.

5. *College of Health and Human Services: Public Health Initiatives.* Faculty in the Department of Public Health Sciences in the College of Health and Human Services collaborate with North Carolina public health officials on critical statewide health policy issues, including the North Carolina Community Health Assessment Portal and the North Carolina Comprehensive Assessment for

Tracking Community Health. Faculty and programs in the College have over 200 education affiliation agreements with local and regional health and human service agencies in Charlotte and the surrounding region. College of Health and Human Services faculty serve on a variety of committees for local partners including the Mecklenburg Health Families Taskforce, the Families First Steering Committee, the Children’s Alliance Early Childhood Health and Education Subcommittee, Carolinas HealthCare System, local county Departments of Social Services, and numerous not-for-profit health and human service agencies.

6. *Professional Development School (PDS) Network*, developed and operated by the College of Education, is a collaborative, *peer-to-peer partnership between education faculty and P-12 schools* in three public school systems. The goals of PDS focus on the following:

- Exemplary preparation of new teachers and other school-based educators to meet state standards for content, skills, and student achievement goals
- Enhancing professional development of beginning and experienced teachers and other school-based educators for skill and content acquisition and for practices that improve student achievement
- Engaging in applied inquiry designed to improve practice
- Providing teacher candidates with clear licensure
- Supporting the retention rate of new and veteran teachers

7. The *Charlotte Cultural Heritage Partnership* was established as a partnership between UNC Charlotte, the Charlotte Museum of History, Johnson C. Smith University, the Afro-American Cultural Center, the Charlotte-Mecklenburg Public Library, and other local cultural and historic groups to preserve and explore the *history and cultural diversity of the region*. Recent programming includes an exhibition and public program related to urban renewal in two historically African-American neighborhoods. Currently, the Partnership is exploring ways to develop interactive tools that share the history of Charlotte’s African-American communities with a wider audience.

An example of this work is the “Brooklyn to Biddleville” project, led by Dr. Robert Smith of the Department of Africana Studies, illustrates the blended research and service model. This project is a multi-faceted history of the impacts of urban renewal on Charlotte’s historic African-American community. “Brooklyn to Biddleville” has intellectual rigor and documented value in the Academy, while, at the same time, fills a critical void in local understanding and awareness of urban life in Charlotte. In developing and implementing this research program, Dr. Smith and his colleagues collaborated with university colleagues, local historians, and community groups across the city. Ultimately, new partnerships between the university and community have been established. More critically, a fuller and more informed understanding of local urban history has been created.

Related to the Partnership is the newly established *Center for the Study of the New South* which will promote the study of the American South from the end of the Civil War to the present day. The Center offers scholars at UNC Charlotte and other universities a place to have their research and observations deliberated and presented to the public.

8. *Industrial Solutions Laboratory (ISL)* in The William States Lee College of Engineering, engaged in integrated education and outreach to the business community, solicits funding from businesses to support student teams who work on industry identified problems. Corporate partners have the opportunity to take on additional projects by supplementing their engineering staff and the College has access to interesting, real world student projects. Partners also have an opportunity to screen potential, future employees. Beyond ISL, other research centers in the college are supporting regional economic development. These include the Center for Precision Metrology, the Energy Production and Infrastructure Center, the Center for Biomedical Engineering Systems, the NC Motorsports and Automotive Research Center, the Global Institute for Energy and Environmental Systems (GIEES), and the Center for Lean Logistics and Engineered Systems. Other laboratories in the colleges engaged in outreach to industry, including the Software Solutions Lab, the Regional Analytical Chemistry Lab, are discussed in *Section D. Economic Transformation and Community Development*.
9. The *Center for Real Estate* in The Belk College of Business, working with the Metropolitan Studies Group, is helping to identify *workforce housing* needs in the Charlotte-Mecklenburg region. This analysis is identifying strategies to address the region's low and moderate income housing needs. The Center for Real Estate is working with the City of Charlotte to disseminate the findings to policymakers and community stakeholders.
10. The *Environmental Assistance Office* at UNC Charlotte is a model entity of outreach activities and easy "portal" for bringing UNC Charlotte into the community and the community into UNC Charlotte. The EAO provides this service by highlighting current and past research experience, promoting the university at events, and working with individual clients to determine their needs and exploring how the EAO may bring a team together of UNC Charlotte faculty and students to address the issues and develop solutions. The EAO is described in detail in *Section F. Environment*.
11. The *Diversity in Information Technology Institute (DITI)* of the College of Computing and Informatics is an organized effort to increase the size and diversity of the Information Technology workforce to meet the growing demand for IT professionals across a wide range of disciplines. The Institute brings together IT and Education researchers, K-12 educators, and industry and community leaders to deploy DITI initiatives. Programs include the STARS Leadership Corps. Part of the STARS Alliance, a multi-institutional NSF-sponsored program headquartered at UNC Charlotte, the Leadership Corps provides work experience, research

experience, and advanced training for college students; facilitates outreach to K-12 students to change the image, show social relevance, and emphasize applications of information technology; fosters mentoring, community building of “like” students to develop computing identity not tied to ethnicity or gender; and enables professional development, team work, and “soft” skills.

12. The *NC JETS (Junior Engineering Technology Society) Program* is one of several programs in The William States Lee College of Engineering focused on increasing awareness and participation in engineering and technology among high school students. With support from NSF, more than two dozen regional high schools and 500 students have been involved in on campus programs that include events like robotics competitions. Additionally, a summer program is helping high school teachers and counselors to teach engineering.
13. *The Center for Professional and Applied Ethics* was founded to provide ethics education to the general public. It is a goal of the Center to bring its intellectual and moral resources to the diverse communities it serves. Accordingly, the Center offers:
 - To serve as a focus point where University students can examine the ethical issues embedded in the professions for which they are being trained
 - To help develop ethics-related curricular initiatives, particularly interdisciplinary ones among the professional schools
 - To increase ethics-related research collaboration and conference/seminar/workshop interactions among the faculty
 - To involve regional and national members of the profession in the Center’s activities, both for their own growth as morally aware persons and the sharing of their moral concerns, dilemmas, and experiences with students and faculty
 - To provide ethics-related services to local and regional professionals who request ethics consultations and education

The Center for Professional and Applied Ethics produces a public television series entitled *Medicine and Society*. It collaborates with the Mecklenburg County Medical Society and the Bioethics Resource Group. This year, the Center has added a second TV series entitled *Business and Society*.

The Center regularly works with hospitals, medical societies, concerned employers, and representatives of the faith community and civic leaders to address the topic of healthcare reform. It has co-sponsored conferences, lectures, and lunch/workshops on racial and ethnic healthcare and health status disparities in particular.

G.2. New Initiatives and Improvements

1. *Professional Development Schools (PDS)*. The current PDS initiative consists of three elementary schools, two middle schools, and one high school. These schools

collaborate with the College of Education to provide authentic professional preparation of candidates (at all levels and in all programs); university and P-12 school faculty development; beginning, novice, and experienced teacher support; action/inquiry based research aimed at the improvement of professional practice; and improved student (K-12) achievement.

Among the strengths of the program are the offering of on-site (at the P-12 school) professional education classes for undergraduate and graduate candidates; University supported professional development in math and science; tutoring, assessment, and instructional planning by UNC Charlotte professional education candidates; mentoring by (P-12) master teachers and administrators for UNC Charlotte professional education candidates; and University course instruction by P-12 faculty.

Expansion of this program is highly recommended. A goal of the program is to include more schools and more sustained faculty engagement, but additional funding is needed. In order to build fully functional PDS structures, the schools are required to have additional resources to create learning communities that provide innovative and sustained training for teachers at all levels. With additional funding, teacher induction programs for beginning teachers could provide a direct means for teacher retention in the profession in this time of critical teacher shortages. Also, University faculty need more time in the schools to build sustained relationships and to develop and sustain their research within the context of the school community. Obstacles to growth include the use of resources, including time and financial costs, at both the schools and the University.

Cost: A preliminary budget for expansion to more fully engage collaborative practice with our public school partners would include: 1 faculty coordinator in a 12-month position (\$95,000); 6 doctoral assistants (\$72,000), Master Teacher stipends to co-teach and supervise student teachers and interns (\$60,000), and Professional Development Funding (\$80,000)

Total: \$307,000 annually

Funding: supported by an allocation from UNC General Administration for University-School Teacher Education Partnerships (U-STEP). This funding has been stable since 1996-97. In order to realize the goals of the PDS network schools already in progress and increase the probability of more school involvement for teacher professional development, increased funding/resources are needed to expand the network to other schools.

Assessment methods: Annually (fall of each year) each PDS submits the goals and projected outcomes for the year. Subsequently (spring of each year) an annual report is submitted whereby the PDS must demonstrate how they have met each goal related to the PDS standards and priorities that

were identified, the activities and/or programs implemented to address the identified priorities, and the outcomes related to the activities.

Accountability measures: Teacher retention at all levels; applied research related to teacher development and retention.

Responsible Officer: Dean of the College of Education

2. *Institute for Social Capital:* The ISC offers additional opportunities for increased collaboration between the University and the community through service learning opportunities. During its first few years of operation, the ISC has already provided a limited number of undergraduate and graduate students with the opportunity to work with a variety of community agencies. The potential for expanding these activities is great. For example, future activities might include students assisting agencies in fulfilling particular research needs; agencies helping students learn about human and social capital data, policies, and programs; and the University shifting its curricula to better meet the needs of the community.

Cost: Additional personnel costs in the annual amount of \$150,000. The unique database that the ISC is constructing is currently supported by a grant from the Knight Foundation. Continued development and expansion of the database will require funding at a level of approximately \$200,000 per year.

Funding: Future expansion budget request; extramural funding from federal and local sources.

Assessment methods: Monitoring partnerships, data requests, scholarly productivity, student engagement

Accountability measures: Publications, grants and contracts, partner satisfaction, additional data deposits from community partners.

Responsible Officer: Executive Director of the Institute for Social Capital

3. *Center for Humanities, Technology, and Science (HTAS):* HTAS provides rigorous theoretical and applied research that informs both the academy and the general public. Through interdisciplinary research and outreach, the Center will:

- Promote inquiry into the social, cultural, philosophical, and historical perspectives that impact and frame the understanding, development, and implementation of technology and science
- Provide local, regional, national, and international leadership on issues affecting the humanities, technology, and science
- Develop partnerships with local, regional, national, and international entities
- Disseminate research results in academic venues and public arenas

- Expand the intellectual matrix of the University by providing venues for outside speakers, seminars, and conferences
- Assist all College of Liberal Arts and Sciences faculty in seeking external funding sources and preparing fundable proposals
- Provide graduate and undergraduate students with research opportunities to support and complement their educational experiences

Timeline: Co-directors appointed 2007-08; initial review 2010-11

Cost: Director's stipend, staff support, operating expenses (\$75,000)

Funding: Reallocation within the College of Liberal Arts and Sciences

Assessment methods: Monitoring partnership development; extramural funding, scholarly productivity; external recognition; student success; external review by scholars in the field.

Accountability measures: Publications; presentations both local and national; external funding; student engagement in Center activity.

Responsible Officer:

Director of the Center for Humanities, Technology, and Science
Dean of the College of Liberal Arts and Sciences

4. *Center for Holocaust, Genocide, and Human Rights Studies:* The Center for Holocaust, Genocide, and Human Rights Studies takes as its central mission society's need to understand better the social, cultural, political, and economic consequences and implications of brutal and oppressive acts of human behavior. The Center provides resources for both scholarly exchange and community involvement in order to promote research, education, and dialogue on the human proclivity to divide the world into an "us and them" mentality, objectifying "the other" in terms of race, ethnicity, nationality, religion, gender or class that make possible horrific episodes such as the Holocaust, genocide, and gross abuses of human rights. The Center also shares its analysis of emerging conditions that would give rise to violations of rights and motivate contemporary genocidal policies. This Center brings together the intellectual resources of faculty and students at UNC Charlotte and from the community to address the social, behavioral, and cultural underpinnings of these pressing topics.

Timeline: Director to begin 2008-09; programming to be developed 2008-10; initial review 2011-12.

Cost: Initial costs: director, staff support, operating expenses (\$135,000)

Funding: enrollment increase funds, reallocation within the College of Liberal Arts and Sciences.

Assessment methods: Monitoring partnership development, extramural funding, scholarly productivity, external recognition, student success; external review by scholars in the field.

Accountability measures: Publications; presentations both local and national; external funding; student engagement in Center activity.

Responsible Officer:

Director of the Center of Holocaust, Genocide, and Human Rights
Dean of the College of Liberal Arts and Sciences

5. *Shakespeare in Action (SIA)*: UNC Charlotte's Center for Studies in Performance and Culture. Housed in the College of Liberal Arts and Sciences but working across colleges and disciplines, the SIA Center serves to advance and coordinate various activities and initiatives related to the production and exploration of Shakespeare's work and that of his contemporaries. Its goal is to advance the study and enjoyment of Renaissance/Early Modern drama and culture, particularly through performance, on campus and in the broader Charlotte community.

SIA houses the journal, *Shakespeare Bulletin*, brings in guest speakers for lectures and colloquia; integrates live performance into campus learning; provides student scholarships; and sponsors special classes, including a summer program in England. The Center runs student and faculty gatherings such as the annual Sonnet Slam, and has an affiliated student organization—the UNC Charlotte Shakespeare Society—which mounts staged readings, discussion groups and other events. SIA is actively engaged in community outreach, particularly through area schools, and is dedicated to fostering dialogue between experts in theatre, literature, history, art, psychology, music, education and other areas of art and material culture relevant to the study of Shakespeare's works.

Timeline: Director appointed 2007-08; initial review, 2010-11

Cost: Director's stipend; operating support (\$50,000)

Funding: Reallocation of funds, College of Liberal Arts and Sciences

Assessment methods: Monitoring community partnerships; extramural funding; scholarly productivity; external recognition of programs; student success; external review by scholars in the field.

Accountability measures: Publications; presentations, performances both local and national; external support; student engagement in Center activity.

Responsible Officer:

Director of the Center for Studies in Performance and Culture

Dean of the College of Liberal Arts and Sciences

6. *Crossroads Charlotte*: Crossroads Charlotte is a community-wide initiative to enhance and build racial and cultural access, inclusion, and equity in Charlotte and Mecklenburg County. Over 40 private and public organizations in the community have joined this effort. With funding from the Foundation For The Carolinas and the John S. and James L. Knight Foundation, Crossroads participants examine and explore four alternative future scenarios for Charlotte and plan actions to affect community outcomes. The goal of Crossroads Charlotte is to choose and pursue a future for Charlotte based on intentional choices and creative foresight.

UNC Charlotte has initiated a campus-wide Crossroads Charlotte oriented curriculum, with a service learning component. This program fosters a deeper understanding of local community challenges and change; and engages undergraduate students in activities that work to address issues of equity and access in Charlotte and Mecklenburg County. The program has been implemented as a part of the freshman seminar program. The project is intended to foster integrated learning, reinforce 21st century skills, and foster community engagement. Although not exclusive to Charlotte-Mecklenburg Schools (CMS), the current community engagement and service learning programming has been carried out in collaboration with CMS to improve educational opportunities for students in low performing schools. New partnerships are being developed with other community organizations, including the Levine Museum of the New South and the YWCA. Crossroads Learning Network Partners including WTVI, Microsoft, Wachovia, and Bank of America have participated in campus programs for students in the program.

Timeline: Initiated as a pilot program 2006-07 with 50 students, the program has grown rapidly to 150 in 2007-08. The program is expected to grow to 750-1,000 students over the next 3-5 years.

Cost: Program coordinator and operating support (\$100,000)

Funding: Campus initiated tuition increase

Assessment methods: Course evaluations; student surveys, including EASE, NSSE and CLA; student GPAs.

Accountability measures: student retention, progression, graduation; evidence of student engagement on NSSE and EASE; improved performance on writing and critical thinking measures of CLA.

Responsible Officers:

Associate Provost for Metropolitan Studies and Extended Academic Programs
Dean of University College

7. *New South Voices*: The New South Voices Oral History database is an online “portal” to 600 digitized and transcribed oral history interviews from Atkins Library Special Collections, pertaining to the history of the Charlotte region. The database will be the centerpiece for the New South Voices Multicultural Institute, a primary resources/oral history digitization institute for middle and high school social studies teachers. Teachers will learn about multicultural digital content resources, engage in dialogue with historians, participate in field-based explorations, and expand their technology skills. The web-based curriculum materials developed using our collections will be hosted on the New South Voices website and will be available for community use.

Timeline: Atkins Library has been collecting oral histories for several years. The development of the database in the next 2-3 years is designed to make this archival material available to the public.

Cost: \$25,000/year

Funding: Reallocation of Library funds; external funding from grants and gifts

Assessment methods: Monitoring of use by teachers; surveys of teachers

Accountability measures: Requests for use; evidence of incorporation of material into K-12 curriculum materials; increased community use by the general public

Responsible Officer: University Librarian

H. Changes to Internal Policies and Processes

- *UNC should encourage and facilitate interdisciplinary and inter-institutional collaboration among its institutions*

UNC Charlotte has partnered with other UNC institutions on a wide range of activities and programs. This section will outline some exemplars and propose some new initiatives, focused primarily on initiatives working with other UNC institutions. The emphasis in this section is on obstacles and opportunities to improve inter-institutional collaboration.

H. 1. Existing Programs

1. UNC Charlotte Graduate Center. Since 1993, the Charlotte Graduate Center has provided Mecklenburg County and the surrounding area with access to graduate level instruction beyond the degree programs offered by UNC Charlotte. One of only four in the state, the Charlotte Graduate Center, which is located on the UNC Charlotte campus, offers area residents graduate level programs from other UNC system institutions. Current offerings include the UNCG Master of Library and Information Studies (MLIS) and the NCSU Doctor of Education (EdD) degree in Adult and Community College Education (ACCE). Faculty from these two institutions teach students enrolled in these programs on our campus, while we provide classroom, labs, library access and other educational necessities.

The Graduate Centers offer an alternative to online programming for distance education. The Graduate Center's major strength has been the success of its programs. A Master of Social Work (MSW) program, originally offered in collaboration with UNC Chapel Hill, identified such a large local demand that UNC Charlotte responded by establishing its own MSW program. The MLIS program, which was established in 1993, continues to be a successful, growing degree program. The EdD in ACCE program offered by NC State is presently considering expanding its offerings by adding a second cohort.

Opportunities for Improvement. Although the Center is successful in its current format, the central obstacle to enhancing its success is the lack of awareness on many of our sister campuses that the Center is an option for them. The key to igniting the future growth of the Center may lie in a coordinated information campaign that increases the level of awareness within the system about what the four Graduate Centers can offer in program delivery alternatives. As the program offerings expand, there will be a need for more classrooms and computer lab access, as well as more NC-REN network time, which can be provided through the two NC-REN equipped classrooms currently on campus. With the completion of the new UNC Charlotte Center City Building, our sister institutions may see a new opportunity for their graduate degree programs oriented toward working professionals. With a greater awareness of its possibilities, the Graduate Center is poised to become the anchor point in this region for the expansion of graduate programs from across the system.

Cost: Costs are modest and include staff time, informational campaigns and advertising, NC-REN time.

Funding: The Center receives 15% of the tuition and appropriation associated with the credit hours produced.

Assessment methods: The Center Director works closely with the coordinators for the programs as well as with administrative personnel at the institutions using the Center. This collaboration has resulted in the development of a Memorandum of Understanding between the Charlotte Graduate Center and each program which clarifies all of the operational elements of the programs.

Accountability measures: compliance with the memorandum of understanding; student and faculty satisfaction; enrollment

Responsible Officer: Dean of the Graduate School

2. *Joint WCU-UNC Charlotte Joint Degree Program in Electrical Engineering.* The joint degree program between the Department of Electrical and Computer Engineering (ECE) at UNC Charlotte and the Department of Engineering and Technology at Western Carolina University (WCU) was initiated in fall 2005. The first students will graduate from the program in May 2008. Because of the interest in efficiency in academic program offerings and the need for access, the program is an important case study in inter-institutional collaboration.

The program increases access to an electrical engineering education by students in the western part of the state, helps WCU prepare for accreditation of the program by the Accreditation Board for Engineering and Technology (ABET), fosters research collaborations among faculty, broadens the scope of technical electives not currently available to students at WCU or UNC Charlotte, and provides opportunities for WCU graduates to pursue graduate degrees at UNC Charlotte. The inter-institutional collaboration provides an opportunity for programs to be launched independently in a cost-effective manner by starting them in conjunction with an experienced and successful program.

UNC Charlotte assists WCU in delivery of a technically similar electrical engineering program to their students using distance education instructional technologies. Faculty at both institutions evaluate transcripts prior to graduation to ensure all requirements are met and grant approval for awarding a single, joint degree from both institutions. Faculty from both institutions comprise the Steering Committee, which provides oversight for the continuous improvement of the program. Anecdotal feedback from UNC Charlotte faculty and students at both institutions indicates that misalignment of academic calendars, problems with accessing and using distance education instructional technologies, limitations of existing physical facilities used to deliver the program, and

inadequate training of faculty on distance education pedagogy and instructional technologies sometimes adversely affects the teaching/learning environment.

Opportunities for Improvement. Although the program could be expanded to include computer engineering or other engineering programs, there is limited enrollment and the number of students in the pipeline does not seem to be increasing at a rate that would warrant expansion at present. Feedback should be solicited from the program directors and the faculty who help deliver the program regarding their perceptions, experiences, and suggestions for improvement. We should also study the question of whether other delivery modalities would be more effective.

Timeline: The solicitation of feedback and investigation of best practices could begin in fall 2008. If applicable, a plan of action developed in fall of 2009, and implementation completed by 2010-11.

Cost: The costs associated with collecting the information above are minimal. However, if expansion is warranted doing so would require a significant investment of resources, including but not limited to: a back-up teaching site for use in the event of equipment failures in the existing classroom, improved distance education instructional technologies, a director position with an MS degree who would teach in the program and report to the department chair (\$65K), a technical support position (\$60K), two new faculty positions (\$75K per position), and funding for teaching assistants on both campuses (\$30K).

Total: \$335, 000

Funding: If pursued, state appropriations would be needed to fund faculty and staff positions. The funds for the teaching assistant positions would be borne by the local campuses involved in the partnership.

Assessment method. No formal assessment has been conducted. See above for assessment plans

Accountability measures: Student enrollment, retention, graduation, and placement

Responsible Officer: Dean of the William States Lee College of Engineering

3. *RENCI@UNC Charlotte.* The Renaissance Computing Institute (RENCI) was launched in 2004 as a major collaborative venture of UNC Chapel Hill, Duke University, and North Carolina State University. The mission of RENCi is to engage in multi-disciplinary research to address problems important to North Carolina using world-class computing and technology resources for data analysis, visualization, and collaboration. RENCi has opened Engagement Centers at UNC Asheville, East Carolina University, and UNC Charlotte.

As an engagement center, RENCI@UNC Charlotte focuses on forecasting future urban development; creating and disseminating interactive, visual simulations of data on urbanization trends; and deploying visual decision support tools that help develop and assess sustainable growth and economic development policies. For example, several collaboration opportunities are in process with FEMA to address flood plain analysis and planning. RECNI at UNC Charlotte is also engaged in community outreach efforts and development/management of the Renaissance Situation Room for the Charlotte Visualization Center.

The UNC Charlotte engagement center was launched in 2007 and is currently in its first year of a three-year start-up phase. Partners within UNC Charlotte and partner institutions outside of UNC Charlotte are collaborating and optimistic about the potential of RENCI. The principal concerns, at this earlier stage, are sustainability and sufficiency of funding. With regard to the former, the youth of the overall RENCI organization coupled with turnover at the Director level for RENCI has created some uncertainty about what will happen next in terms of structure and funding.

Opportunities for Improvement. The aspirations for RENCI@UNC Charlotte are very high. To create the simulations/models needed to deliver high quality insights to policy leaders about transportation, water resources/management, and open space protection, for example, certain types of data and information are needed. If these data are not readily available (which is likely the case), costly, labor-intensive fieldwork will be needed. Current funding levels would not be sufficient to carry out these activities, and RENCI@UNC Charlotte would be unable to effectively deliver on its ultimate goals.

Timeline: Within 6 months time, adequacy and availability of required data and information will be assessed. At that point, sufficiency of existing funds can more readily be determined.

Cost: Costs can not be fully determined at this point in time. However, initial estimates suggest that \$100,000 would be needed annually to carry out the data collection efforts, if the data are not readily available. These funds would help cover the cost of two research assistants (or comparable graduate students) to do additional data collection and research.

Funding: If additional funds are needed, the sources of the funds include grants from national research organizations, state and federal agencies, and regional foundations as well as in-kind contributions from the RENCI main office, CAGIS, the VisCenter, and the Urban Institute.

Assessment methods: RENCI at UNC Charlotte enjoys several layers of oversight and review. First, the main RENCI office requires quarterly progress reports measuring research output and public outreach efforts. This assessment methodology will remain in effect for the full term of the partnership. To date, two quarterly progress reports have been submitted,

and the highlights of those were that RENCI at UNC Charlotte has completed a study (led by CAGIS) of development patterns in a 24-county region of the Carolina Piedmont and that public outreach efforts generated extensive coverage of this research in media outlets from across the region. RENCI at UNC Charlotte is overseen by an Advisory Board composed of leaders from the University and the region who have expertise in the field of urbanization and its impacts. RENCI at UNC Charlotte is also overseen and reviewed by a UNC Charlotte Leadership Team made up of leaders from CAGIS, UNC Charlotte Urban Institute, VisCenter, and the Department of Geography and Earth Sciences.

Accountability measures: RENCI at UNC Charlotte will ultimately be successful if it produces research in the field of urbanization and its effects and is able to help public policy officials apply such research to challenges facing the region. Once the model is fully developed, we will be able to measure success by the number of public policy officials we reach and the number of ways in which those policy makers use the model.

Responsible Officer: Executive Director of the UNC Charlotte Urban Institute

4. Carolinas MicroOptics Triangle (CMOT) and the Carolina's Photonics Consortium (CPC): The Carolinas MicroOptics Triangle (CMOT) is a formal relationship between UNC Charlotte's Center for Optoelectronics & Optical Communication, Clemson University's Optical Materials Group, and Western Carolina University's Rapid Prototyping/Manufacture and Test Group. CMOT partners in a number of joint activities, including the newer Carolina's Photonics Consortium (CPC) which is a formal collaboration between the three CMOT schools, Duke University's Photonics Center and NC State University's optics faculty. The purpose of both CMOT and CPC is to promote technology transfer, establish productive partnerships between its member institutions and industry in the region, and facilitate industry-industry networking in photonics. CMOT research interest includes: design and fabrication of photonic devices, integrated optical circuitry, assembly and packaging of optical systems, optical materials, methods for precision optical metrology, and optical imaging and inverse methods for wavefront synthesis.

CMOT accomplishments include: an NSF Partnership for Innovation Award for optical materials, a state supported Competitiveness Grant that has been used to complete the next phase in developing a regional foundry for microwave and optical metamaterials, and a Department of Commerce Economic Development Administration Grant, with a great deal of regional support, to help complete lab and clean room space for the Center for Optoelectronics & Optical Communication at UNC Charlotte.

CPC grew out of the NC Photonics Consortium about three years ago. CPC funding from UNC General Administration has ramped up to include support for a coordinator and funds for a modest technology transfer competition that made five awards to faculty to

assist with transitioning an idea from the lab to a demonstrable prototype. Since early 2006, CPC has initiated a number of industry forums and each of the five campuses hosts a conference/workshop once a year to which representatives from the other CPC campuses attend to learn more about each other's strengths and capabilities.

Opportunities for Improvement. Unlike CMOT that has more established long-term networks and relationships, CPC is hampered in planning and growth by a lack of long term commitment of base-line funding for its outreach and technology transfer initiatives. Also, more long term guarantees to support the CPC Center's user facilities would enhance the success of the multi-campus collaborations by ensuring that faculty, students, and third party collaborators, especially those from industry, can rely on their collective ability to keep the fabrication and measurement capabilities properly maintained and operating without long delays. For example, at UNC Charlotte our five-year collaborative agreement with ARL in the area of wide band gap semiconductors has stalled because they do not feel comfortable yet with our ability to provide them with a reliable long-term supply of high quality materials. Another challenge associated with growing these multi-campus entities is that they are held together by just a few enthusiastic faculty.

From informal assessments of the feedback from trade shows, meetings, and the UNC Charlotte Optics Center's industry board, it is clear that CMOT and CPC are working successfully to actively promote their combined considerable photonics expertise and unique facilities. Additionally, CPC has had a large number of informative meetings around the Carolinas, including industry panels and information sessions. CMOT has developed ties with several companies; one example is US Conec in the area of optical testing, rapid prototyping, and student internships/recruitment. Currently, a large database is being prepared which UNC Charlotte will host. This will facilitate the exchange of ideas, expertise, etc.

The long term goal is to forge stronger multi-campus ties in order to better position CMOT and CPC for team-based funding opportunities (e.g., NSF and DARPA Center awards) and that students and faculty will increasingly see the benefits of these collaborations, along with regional industries.

Timeline: To realize the full potential of the CPC, funding is needed on an on-going basis starting as soon as possible. Additional funding for CMOT or changes to CMOT is not needed at this point in time.

Cost: To maintain momentum behind CPC the administrative costs per year would be a minimum of \$250,000.

Funding: The funding sources would be state appropriations and through membership fees from the universities, industries and economic development groups that are interested. Over time, funds from federal sources will be regularly sought, and this might include earmarked funds

for infrastructure support. Support through co-operation with various regional economic development agencies will also be solicited.

Assessment methods: Regional and national industry surveys will be administered to track awareness of capabilities at CPC schools, clarification of desired interaction mechanisms with CPC & CMOT, capability of graduates in their workforce, and relevance of research to meeting innovation and global competitiveness needs.

Accountability measures: Numbers of industry funded projects; academic and industry attendees at photonics events; student enrolment in optics programs; growth in industries tied to enabling photonics technologies in the State.

Responsible Officer: Director of UNC Charlotte's Center for Optoelectronics and Optical Communications

5. *North Carolina Research Campus:* UNC Charlotte is a partner in the North Carolina Research Campus (NCRC), with UNC Charlotte's initial contributions occurring in area of bioinformatics. High-throughput bio-instrumentation in the NCRC laboratories will generate massive amounts of complex biological data. UNC Charlotte's Bioinformatics Service Center, located in the NCRC CORE lab, provides practical assistance in the management of large data sets, access to computational facilities, and expertise in the development of new bioinformatics techniques. Students in UNC Charlotte's Professional Science Master's program in Bioinformatics are available as interns for both industry and academic projects at the NCRC. Moreover, UNC Charlotte faculty at the NCRC are engaged in the forefront of research in bioinformatics and computational biology (See also *Section A.2. Global Competitiveness*).

The NCRC is an opportunity for interaction between six UNC campuses and Duke University at a site with world-class instrumentation. This unique partnership provides the opportunity to attract venture capital and foster development of a high-growth, high-value industry. Thus far, UNC Charlotte's involvement in the NCRC is proceeding according to the initial plans, and milestones are being met.

Opportunities for Improvement. Only 19 miles from the UNC Charlotte main campus, the NCRC's distance is a relatively minor obstacle to cooperation with the main campus. Initial plans called for non-duplication of UNC Charlotte's main campus facilities, but expansion of UNC Charlotte facilities at the NCRC will prove beneficial to the overall success of the research campus. Broadening UNC Charlotte's involvement to include the Department of Biology and the Colleges of Business and Health & Human Services would exploit the availability of nearby intellectual capital. For example, UNC Charlotte's Department of Biology has new initiatives in both cancer biology and translational medicine. These mesh quite well with the Duke University MURDOCK translational medicine program at the NCRC. The College of Health and Human Services has several programs in health promotion that fit well with the NCRC's nutrition

programs. The Charlotte Research Institute has a NCRC office that works to bring new industries to the NCRC campus. This effort could easily be expanded to include programs of the Belk College of Business. These interactions will strengthen both UNC Charlotte and the NCRC.

The distance from other universities with lead roles will likely prove to be a significant obstacle to fulfillment of the NCRC goals. Research faculty want and need to be part of larger academic communities where they are exposed to a wide range of ideas and potential collaborations. Furthermore, a major impediment to hiring outstanding faculty at the NCRC is the problem of trailing spouses/partners who seek employment in fields beyond those represented at the NCRC. An aggressive spousal/partner hire program with incentives for relatively nearby campuses like UNC Charlotte, UNCG, and NC A&T to hire trailing spouses/partners would benefit both the NCRC and these campuses. The resources of the NCRC offer great opportunities for students and for the development of new interdisciplinary degree programs. However, the distance from student services of all types represents an obstacle. Kannapolis is located within the UNC Charlotte service area. Should other UNC institutions decide to offer graduate programs in Kannapolis, the UNC Charlotte Graduate Center could expand to provide support. An inevitable consequence of UNC Charlotte's proximity to the NCRC will be an expansion and strengthening of the relationship between these two campuses.

Cost: We estimate that the spousal hiring program would require \$400,000/yr in recurring funds. This could be shared with 1/3 coming from the hiring institution, 1/3 from the institution hiring the spouse/partner, and 1/3 from a central pool. The rental/lease to purchase of additional space at the NCRC would require \$1,000,000/yr.

Funding: Funds for the spousal/partner program would come from new State appropriations (recruitment and retention funds) and internal reallocations. Additional state funds are needed to support expansion of programs into business, biology, and health.

Assessment methods: Given the youth of North Carolina Research campus, no formal assessment has been undertaken to date. Ultimately, the spousal hiring program will be assessed by the success in hiring/retaining outstanding faculty with spousal hiring issues. The success of the academic program expansion would be measured by the number of faculty collaborations, the extent of student involvement at the NCRC, and collaborations with resident biotechnology companies.

Accountability measures: Faculty recruitment and retention; faculty scholarly productivity in grants, publications, conference proceedings; partnerships with NCRC biotechnology companies; technology transfer.

Responsible Officer: Director of the UNC Charlotte Bioinformatics Research Center

6. *Charlotte Area Educational Consortium.* UNC Charlotte expands access to academic programs and increases opportunities for professional development of faculty and staff through participation in the Charlotte Area Educational Consortium, composed of community colleges and four-year institutions in the Charlotte region. This inter-institutional organization supports the University in a number of ways:

- With permission from our campus, our full-time students can enroll in a course offered by another member institution for no additional tuition. Usually our students enroll in courses we do not offer (e.g., American Sign Language) or courses not offered at a time our students can take them.
- Faculty and staff from our campus participate in various professional development workshops and seminars sponsored by the Consortium each year.
- Our campus faculty and staff can submit requests for CAEC grant funding up to \$2,000 to help support educational programs, workshops, and other activities that align with the mission of the consortium. Academic units at UNC Charlotte have submitted proposals annually for the past 7-8 years and have received several grants.

Strengths of the CAEC are the inter-institutional registration option for our students and other students in this region, and the CAEC grant program that helps sponsor workshops and seminars for faculty, student and staff development. The cost of participation is modest.

Opportunities for Improvement. Continued success of CAEC depends on the leadership of the executive committee, which consists of elected representatives from various member campuses. A weak executive committee equals little progress or visibility. There needs to be stable leadership and the collective will to invest the time and energy needed to do this. The mission, purpose, and structure of the group must be reviewed to ensure that the needs of students and members in this region are being met. The Organizational Science Consulting and Research Unit in the College of Liberal Arts and Sciences is ideally suited to conduct this review, but it would require funding from the member institutions. The review would include a study of other consortium models across the country and could offer a model for use in other parts of the state where.

Timeline: Within the 2008-2009 academic year, the comprehensive study should be undertaken.

Cost: \$400/year for consortium membership; \$15,000 for a comprehensive study to foster improvement in the consortium.

Funding: Internal reallocation

Assessment methods: Monitoring of interinstitutional enrollments and participation in workshops and other professional development events.

Accountability measures: Use of Consortium courses by UNC Charlotte students; participation in workshops and grant programs by UNC Charlotte faculty and staff.

Responsible Officers: Associate Provost for Enrollment Management

H.2. New Programs and Initiatives

1. Statewide Collaboration for New Teacher Support. The teacher shortage in North Carolina is due not only to pipeline problems but teacher attrition problems as well. The UNC education deans are collaborating on the development of UNC New Teacher Support efforts for all new graduates and licensure completers of UNC teacher education programs. The emphases will be on mentoring (including online mentoring) and support through classroom visits and campus-based professional development. The effort is being organized at the state level by the UNC General Administration and UNC Deans' Council on Teacher Education, in consultation with the NC Department of Public Instruction. It will be implemented at a regional/local level to assist school districts in hiring, retaining, and developing high quality teachers. A funding request will be submitted to the NC General Assembly this year. An implementation plan and timetable does not yet exist. (See also *Section C. Improving Public Education*).

Responsible Officer: Dean of the College of Education

2. NanoNetwork for Statewide Collaboration. Nanotechnology, already bringing novel products and applications in many sectors, is expected to have a dramatic impact on the economy and standard of living of the 21st century. The UNC system has been aggressive in funding educational and research programs in nanotechnology at many institutions including NC State, UNC Chapel Hill, UNC Charlotte, and UNC Greensboro. There is an opportunity to compound the efforts of individual institutions by creating a statewide NanoNetwork. Further, this NanoNetwork will enable statewide utilization of the complex equipment and environments needed for nanotechnology research.

UNC Charlotte proposes that the NCBC Center of Innovation in Nanobiotechnology, NCSU, UNC Chapel Hill, UNC Charlotte, and UNC Greensboro work together to develop the NanoNetwork with the following initiatives.

- Facilitate the collaborative use of research equipment among the UNC institutions.
- Hold regional and statewide workshops and meetings on nanoscale science/technology to advance inter-institutional research and teaching collaborations and showcase nanoscale science activities of the UNC institutions.

- Initiate a statewide nanoscale science speaker exchange program in which faculty from the UNC institutions visit other campuses. This will foster inter-institutional collaborations in research, teaching, and outreach.
- Coordinate an external seminar speaker program in nanoscale science among the UNC institutions in which visitors external to North Carolina routinely visit several UNC institutions.
- Consider distance education options and sharing of course materials for nanoscale science courses at the graduate and undergraduate levels. In addition to science-based courses, other courses relevant to nanoscale science, such as in business and ethics, would also be considered.
- Launch a website, UNCNanoNet.edu, to showcase and coordinate nanoscale science research, teaching and outreach activities in nanoscale science. The website would be used to inventory faculty research expertise throughout North Carolina, announce seminars, provide listings of equipment at each institution and research center, announce courses in nanoscale science, announce nanoscale science meetings and workshops within and external to North Carolina, and showcase UNC nanoscale science research, teaching and outreach to the public.

Cost: Yearly budget of \$300K per site for staffing and operations plus \$500K for statewide coordination.

Funding: Reprogramming of Funds and State Appropriation

Assessment methods: Monitoring of inter-institutional activities, growth in the nanotechnology sector

Accountability measures: Number of statewide collaborations, inter-institutional access to equipment, information content of website, nanotechnology invention disclosures, patents, and new business development.

Responsible officials: Nanotechnology directors at each of the UNC institutions