

FINDING	RECOMMENDATION	RESPONSIBLE PARTY	TIMETABLE
<p>Remedial Education – UNC/NCCCS</p> <p>9. While remedial education <i>appears</i> to have declined in the UNC, it is difficult to draw a definitive conclusion as each UNC institution sets its own placement standards. Also, some do not offer formal remediation instruction (UNC Asheville and UNC Charlotte offer skill labs; UNC Chapel Hill provides summer bridge programs). As a consequence, remedial programs are not reflected in the enrollment data. (see page 81 of Interim Report)</p>	<ul style="list-style-type: none"> UNC should consider revising its approach and its reporting of remedial education. A process should be established to consider a common placement tool for remedial education in UNC and a common minimum score for such placement. It would be useful if that tool could be cross-walked with a compatible common tool in NCCCS. The methods of providing remedial education would remain the province of the institutions. With a common placement tool and score, UNC would then be able to report reliably on trends in the need for remediation. In addition, the reports should disaggregate the percentage of students needing remediation who are recent high school graduates and share with each North Carolina school the percentage of its recent high school graduates requiring remedial education. 	<ul style="list-style-type: none"> UNC Office of the President in collaboration with NCCCS System Office P-16 Council (see #4, page 33) 	<p>2006</p>

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<p>10. It is likely that a significant percentage of freshman students in UNC require formal remedial instruction (at least double digits and perhaps as high as one in five). When non-formal remedial activities are included, an even higher proportion of students require remediation. This adds to the cost of UNC and to the time to degree of such students. It also reduces their chances of being successful. It is unlikely that North Carolina can build a workforce for the knowledge economy without significantly decreasing the proportion of students who enter higher education requiring remediation instruction. Particularly disturbing is the proportion of students who require remediation in math since much of the knowledge economy, with its technology and science emphasis, requires strong math skills. (see page 82 of Interim Report)</p>	<p>The percentage of students requiring remediation in NCCCS must be significantly reduced. The revised P-16 approach (see #4, p.38) should adopt the reduction of remediation in both NCCCS and UNC as its first project.</p>	<ul style="list-style-type: none"> • P-16 Council 	<p>On-going</p>
<p>11. The trends for students requiring remediation in the NCCCS are disturbing. Since 1999-00, the range of students needing remediation has been between 48.6% (2000-01) and 54.3% (2001-02) with no real pattern of decline. (see page 82 of Interim Report)</p>	<p>The percentage of students requiring remediation in NCCCS must be significantly reduced. The revised P-16 approach (see #4, p.38) should adopt the reduction of remediation in both NCCCS and UNC as its first project.</p>	<ul style="list-style-type: none"> • P-16 Council 	<p>On-going</p>
<p>12. Approximately half of the students in the NCCCS require formal remedial instruction. As with the UNC students, the highest proportion of NCCCS students require remediation in math. This is equally troubling because more and more community college programs require increased levels of skill and knowledge in technology and math. (see page 82 of Interim Report)</p>	<p>The percentage of students requiring remediation in NCCCS must be significantly reduced. The revised P-16 approach (see #4, p.38) should adopt the reduction of remediation in both NCCCS and UNC as its first project.</p> <p>Included in the initiative outlined in 11 above should be a special emphasis on strengthening math skills of students graduating from the K-12 system.</p>	<ul style="list-style-type: none"> • P-16 Council 	<p>On-going</p>

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Other Services - UNC			
13. UNC institutions offer an extensive array of non-credit programs that include some activities to assist lifelong learning and career changes. (see page 82 of Interim Report)	UNC should reexamine its non-credit programs to insure an appropriate number are targeted to skills and knowledge for career development and to targeted audiences (such as displaced workers).	<ul style="list-style-type: none"> UNC Office of the President 	2006-2007 Academic Year
14. UNC has a robust Small Business Technology Development Center, dispersed throughout the state that provides services to small and medium businesses and provides a substantial return on investment for the state. (see page 82 of Interim Report)	UNC should continue to support the SBTDC and find ways for it to collaborate with the NCCCS Small Business Center Network.	<ul style="list-style-type: none"> UNC Office of the President 	2006-2007 Academic Year
Selected Partnerships and Collaborative Initiatives			
1. Both UNC and the Community College System have state-level governing boards. They have shown a strong interest in developing partnerships and collaborative initiatives that lead to improved educational opportunities for students. (see page 86 of Interim Report)	A small, joint committee, with membership from both the UNC Board of Governors and the State Board of Community Colleges should be created. This committee should meet quarterly and be charged with identifying collaborative opportunities and with resolving any collaborative issues between the two systems.	<ul style="list-style-type: none"> Board Chair, UNC Board of Governors Board Chair, State Board of Community Colleges 	February 2006
2. The two governing boards in late 2004 accepted the recommendations of the Task Force on UNC/NCCCS Partnerships and have started implementing the recommendations. (see page 86 of Interim Report)	The two governing boards should revisit the Task Force's 2004 report with its 25 recommendations, using it as a starting point for establishing an on-going process of seeking ways the two systems can collaborate. The Joint Committee recommended above (#1) should be charged with leading this process.	<ul style="list-style-type: none"> Board Chair, UNC Board of Governors Board Chair, State Board of Community Colleges 	February 2006
3. UNC and NCCCS should continue to submit joint budget requests to the General Assembly; priority should be given to funding recommendations emerging from the HB1264 study. (see page 86 of Interim Report)	The Boards' Joint Committee should, through its work called for above (#1 and 2), be charged with helping develop joint budget requests for future sessions of the General Assembly.	<ul style="list-style-type: none"> Boards' Joint Committee 	On-going

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<p>4. UNC and NCCCS should jointly produce an annual report to the General Assembly, their respective boards, and the general public. This report should be developed using a template for such partnerships to insure consistency of information. It should also identify those partnerships that have the capacity to be replicated. (see page 86 of Interim Report)</p>	<p>The Boards' Joint Committee (see p.13, #1) should jointly produce an annual report to the General Assembly, their respective boards, and the general public. This report should be developed using a template for such partnerships to insure consistency of information. It should also identify those partnerships that have the capacity to be replicated. The report should include a section on facilities sharing.</p>	<ul style="list-style-type: none"> The Boards' Joint Committee 	<p>2006-2007 Academic Year and annually thereafter</p>
<p>5. Many collaborative activities between UNC institutions and the community colleges are quietly going on behind the scenes. However, many of them have great potential for students in both systems. One example is the development of 2 + 2 online collaborative programs in selected disciplines or majors. Students will be able to take the first two years online from a Community College and the upper division work online from a UNC institution. (see page 86 of Interim Report)</p>	<p>The Boards' Joint Committee should find ways to expand collaborative programs between UNC institutions and the community colleges and to share best practices from those programs.</p>	<ul style="list-style-type: none"> The Boards' Joint Committee 	<p>On-going</p>
Enrollment Projections			
<p>1. Both the NCCCS and UNC maintain ten-year enrollment projections. However, the NCCCS does not disaggregate its data by institution, although it does incorporate all elements of its instruction (not just the credit producing programs); the absence of individual campus projections may inhibit regional planning for workforce production. While the UNC does disaggregate by institution, it does not provide projections for continuing education. (see page 88 of Interim Report)</p>	<p>NCCCS should expand its enrollment projections by working with the individual community colleges to develop ten-year projections at both the system and college levels.</p> <p>UNC should expand its enrollment projections by including continuing education enrollment projections as an additional element in its projection models.</p>	<ul style="list-style-type: none"> NCCCS System Office UNC Office of the President 	<p>Fall 2006</p> <p>Fall 2006</p>

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<p>2. While both systems project significant enrollment increases, the current models do not anticipate major shifts in current enrollment patterns (for example, major changes in age cohorts participating in higher education; significant changes in retention rates). The UNC models could be easily adapted to examine these changes at the appropriate time and do examine such items as changing demographics by county. (see page 88 of Interim Report)</p>	<p>Both NCCCS and UNC should develop enrollment projection models that can reflect major shifts in enrollment patterns (such as increased retention rates, changes in participation rates by particular age groups, and other changes anticipated as a result of HB1264 recommendations).</p>	<ul style="list-style-type: none"> NCCCS System Office UNC Office of the President 	<p>Fall 2006</p> <p>Fall 2006</p>
<p>3. The increase in the projected graduate student enrollment has positive implications for the new economy, which will require a more highly educated workforce. (see page 88 of Interim Report)</p>	<p>See Recommendation #6, p.38. The Governor and legislature should permit UNC to waive out-of-state and/or all tuition for graduate assistants and/or graduate students in high demand fields, as many states do.</p>	<ul style="list-style-type: none"> Governor or Legislature 	<p>2006 Legislative Session</p>
<p>Distance Learning: UNC and NCCCS</p>			
<p>1. The number of programs and courses offered through distance learning is growing rapidly for the NCCCS and UNC. (see page 98 of Interim Report)</p>	<p>UNC and NCCCS use different definitions for what it classified as distance learning, as well as different taxonomies for sub-categorization of distance learning. There should be a joint study group appointed by the Presidents of UNC and NCCCS to develop a common:</p> <ul style="list-style-type: none"> definition of distance learning, e-learning, etc. taxonomy that allows intra- and inter-system comparisons and comparisons with external benchmarks. mechanism for ensuring that the taxonomy is applied consistently across campuses. <p>A resource used in the study should be the taxonomy used by the Southern Regional Education Board.</p>	<ul style="list-style-type: none"> NCCCS System Office UNC Office of the President 	<p>May 2006</p>

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<p>2. Student enrollment in distance learning programs and courses is growing rapidly for both UNC and the NCCCS. (see page 98 of Interim Report)</p>	<p>UNC and NCCCS should establish on-going and dynamic strategic and tactical planning processes for distance learning at the system level. The system offices (UNC and NCCCS) should perform planning capacity studies and then each institution and the system offices should be resourced to undertake this type of on-going planning process. The planning process should address the issues of rural access, providing access for students with limited English language abilities, and providing access for disabled students.</p> <p>UNC should identify obstacles to furthering the development of distance learning (e.g., promotion and tenure guidelines that do not properly recognize distance learning development, teaching, and scholarship; lack of a formalized mechanism of assessing workforce market needs; and procedural and institutional roadblocks to collecting more granular or detailed distance learning data).</p> <p>NCCCS should develop a human resource (staffing) plan and request the funding needed to address existing capacity constraints for distance learning planning and should formalize and expand its existing assessment of workforce market needs.</p> <p>The planning processes for UNC and NCCCS should address the issues of rural access, access for students with limited English language abilities, and providing access for disabled students.</p>	<ul style="list-style-type: none"> • UNC Office of the President • NCCCS System Office 	<p>Fall 2006</p>
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<p>2. Student enrollment in distance learning programs and courses is growing rapidly for both UNC and the NCCCS. (see page 98 of Interim Report) <i>(continued)</i></p>	<p>A joint distance learning planning/oversight committee, comprised of institutional and system-level representatives, should be appointed by the two system Presidents to ensure that collaborative initiatives are explored and implemented.</p>		
<p>3. Both UNC and NCCCS appear to offer a greater percentage of courses through distance learning than national averages. (see page 98 of Interim Report)</p>	<p>This finding should be verified by further analysis including use of SREB data.</p>	<ul style="list-style-type: none"> • UNC Office of the President • NCCCS System Office 	<p>Spring 2006</p>
<p>4. The level of involvement in distance learning activities varies widely with each university or community college. (see page 98 of Interim Report)</p>	<p>See Finding #5 below</p>		
<p>5. The scope of support, and the facilities and personnel provided for content development, vary considerably with each institution. (see page 98 of Interim Report)</p>	<p>NCCCS should develop the support infrastructure needed to ensure that distance learning meets expectations of students and industry with regard to quality and mode of instruction (e.g., simulations); to ensure that faculty are supported in the development of high quality course content; and to ensure that students are supported with high quality help-desk, counseling, and other services. This support infrastructure should include at least one full-time instructional designer at each college and a core of support designers at the System Office level. Shared call center services should be considered, as well as centralized or regional hosting of servers 24/7/365. A flexible Course Management System with the ability to accommodate reusable learning objects should be established.</p>	<ul style="list-style-type: none"> • NCCCS System Office 	<p>2006</p>

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<p>5. The scope of support, and the facilities and personnel provided for content development, vary considerably with each institution. (see page 98 of Interim Report) (<i>continued</i>)</p>	<p>Evidence collected during this study indicates that UNC, as a whole, has a more robust infrastructure and support system for distance learning than does the NCCCS. The UNC President should appoint a special study group to further analyze and verify this and to explore opportunities to provide shared services among campuses.</p>	<ul style="list-style-type: none"> UNC Office of the President 	<p>2006</p>
<p>6. The demands on the UNC and NCCCS networking infrastructure continue to grow, due to increased numbers of course offerings and student enrollments, as well as the offering of more technologically demanding content presentations. (see page 98 of Interim Report)</p>	<p>See Finding #7 below</p>		
<p>7. The present NCCCS network is near capacity for the distance learning offerings currently supported, creating a growing hurdle for expanding the scope or quantity of distance learning courses as well as planning future joint initiatives with the UNC. (see page 98 of Interim Report)</p>	<p>Anecdotal evidence suggests a clear and pressing need for additional bandwidth for the entire NCCCS. The NCCCS System Office should develop a formal business case approach for funding requests to the General Assembly for additional bandwidth that takes into account current bandwidth utilization, enrollment projections, demands of new forms of course content such as simulations, and benchmarks from similar systems and college associations. The NCCCS System Office should appoint a work group, comprised primarily of college representatives, to accurately ensure bandwidth resources and utilization.</p>	<ul style="list-style-type: none"> NCCCS System Office UNC Office of the President 	<p>2006</p>

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<p>Student Mobility</p> <p>1. The Comprehensive Articulation Agreement (CAA), developed by the two systems and approved in 1997 by the UNC Board of Governors and the State Board of Community Colleges, has significantly improved the transfer process for community college students to UNC institutions; in addition, the number of students transferring from a Community College to another Community College has dramatically increased. (see page 103 of Interim Report)</p>	<p>The Transfer Advisory Committee, composed of representatives of UNC and NCCCS (with a private college representative), should continue its work to improve the transfer process for students. As recommended by the Task Force on UNC/NCCCS Partnerships, funds should be sought from the General Assembly to establish full-time staff support for the committee.</p>	<ul style="list-style-type: none"> Transfer Advisory Committee General Assembly (for funding request) 	<p>On-going</p>
<p>2. A study was recently done by MGT of America of the CAA and its impact on the transfer process. The study stated that the CAA is "widely perceived as indeed having improved the transfer of associate in arts and associate in science degrees. It is perceived that the primary strengths of the CAA include standardizing the transfer process and providing students with a path and plan for transferring. Quantitative data support that a greater number of students are transferring between North Carolina community colleges and UNC institutions." (see page 103 of Interim Report)</p>	<p>Following the completion of any revisions to the CAA and the implementation of the MGT recommendations (see #3 below), UNC and NCCCS should jointly review the transfer process (including a transcript analysis, which was not included in the MGT study).</p>	<ul style="list-style-type: none"> UNC Office of the President NCCCS System Office 	<p>2007-2008 Academic year</p>
<p>3. Numerous changes and enhancements were recommended in the MGT of America study and are being addressed by the UNC Board of Governors and the State Board of Community Colleges. These changes will strengthen the CAA and improve the transfer process for Community College students. (see page 103 of Interim Report)</p>	<p>The Boards' Joint Committee should review the progress on the implementation of the MGT recommendations and should assume responsibility for their oversight.</p>	<ul style="list-style-type: none"> The Boards' Joint Committee 	<p>2006</p>

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<p>4. Over the past four reporting periods, NCCCS transfers to UNC institutions have increased by 27.1%. Students that transferred without the associate degree showed a larger increase (35.5%) than those with the associate degree (14.7%). A dip in Fall 2003 transfers with the associate degree was followed in Fall 2004 by a significant increase. The Fall 2003 dip may be a reporting anomaly attributable to a new information system implemented by the NCCCS over the past several years. (see page 103 of Interim Report)</p>	<p>The Boards' Joint Committee should examine initiatives that would further increase the number of NCCCS students who transfer to UNC. It should also identify any remaining barriers to transfer.</p>	<ul style="list-style-type: none"> The Boards' Joint Committee 	<p>2006-2007 Academic Year</p>
<p>5. The CAA does not apply to transfer among the UNC institutions. The general education core of one UNC institution does not automatically transfer as meeting the general education core at another UNC campus. This may inhibit the mobility of students from one university to another (unless the institutions already do so informally). (see page 103 of Interim Report)</p>	<p>UNC should require each of its institutions to accept the completed general education requirements from another UNC institution as meeting its own general education requirements. (Note: this recommendation calls for acceptance, not uniformity, so as to encourage student mobility while celebrating institutional differences.)</p>	<ul style="list-style-type: none"> UNC Office of the President in consultation with the UNC institutions 	<p>2006-2007 Academic Year</p>
The Role of Liberal Arts			
<p>1. Both NCCCS and UNC institutions have significant requirements in the Liberal Arts. (see page 106 of Interim Report)</p>	<p>See Recommendations #4, 5 on the next page. A joint summit between UNC and NCCCS should be held to discuss the future of the liberal arts, utilizing the information that comes from the activities recommended in item #4 below.</p>	<ul style="list-style-type: none"> UNC Office of the President NCCCS System Office 	<p>Spring 2006</p>
<p>2. The general education core from the community colleges transfers as a block to other NCCCS institutions and to all UNC institutions. (see page 106 of Interim Report)</p>	<p>See Recommendations #4, 5 on the next page.</p>		

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3. The general education core varies considerably from one UNC institution to another. (see page 106 of Interim Report)	The general education core should continue to have variety but should be fully transferable (see Recommendation #5 below)		
4. The general education core does not transfer automatically from one UNC institution to another. (see page 106 of Interim Report)	UNC should establish a process to require each of its institutions to reexamine the current general education requirements in light of the skills and knowledge identified as being necessary for success in the 21 st century. This process might begin with the identification of such skills and knowledge by a largely external and diverse group (business, industry, non-profit, government sectors) to inform the discussions at the institutional level. See Recommendation #5 below.	<ul style="list-style-type: none"> UNC Office of the President 	2006-2007 Academic Year
5. The NCCCS general education core was largely developed nearly a decade ago and has not undergone a comprehensive review and revision since then. The increased demand for “soft skills” at all levels may also suggest the need to reexamine the role of general education in associate in applied science degrees, especially as they serve more students who will later seek other degrees. (see page 106 of Interim Report)	<ul style="list-style-type: none"> Similar to the process recommended in #4 NCCCS should establish a process to update its general education core for transfer programs, utilizing the information presented by the external group identified in recommendation #4. Its review and revision of its general education core should be conducted in conjunction with UNC to insure the continued full transferability of the core to all UNC institutions. NCCCS should establish a process to reexamine the general education component of its associate in applied science degrees, since an increasing number of these degrees are likely to transfer to UNC primarily through articulation agreements either at the UNC level or with individual UNC institutions. 	<ul style="list-style-type: none"> NCCCS System Office in consultation with the community colleges NCCCS System Office in consultation with the community colleges 	2006-2007 Academic Year

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<p>6. Neither the NCCCS nor the UNC institutions' general education core has a clear articulation of its aims or of the skills and knowledge required. Furthermore, it is not clear that there is sufficient emphasis on developing the "soft skills" in either the general education curriculum or other areas of the curriculum. This has important implications for the preparation of the workforce in a global knowledge economy. (see page 106 of Interim Report)</p>	<ul style="list-style-type: none"> • Same as #4 • NCCCS should establish a process to update its general education core for transfer programs, utilizing the information presented by the external group identified in recommendation #4. Its review and revision of its general education core should be conducted in conjunction with UNC to insure the continued full transferability of the core to all UNC institutions. 	<ul style="list-style-type: none"> • NCCCS System Office in consultation with the community colleges and business and industry 	
The Role of Historically Minority Institutions (HMI's)			
<p>1. The HMIs have benefited enormously from the focused growth initiative, taking considerable advantage of the opportunities presented them. They have been transformed in size, in range of academic programs, and in facilities in a remarkably short period. While the investment has been substantial, the returns already appear to justify both the dollars and commitment to these institutions. Other states have attempted to strengthen their HMIs, but it is hard to imagine any program that has been more successful than this one. (see page 109 of Interim Report)</p>	<p>See Section III</p>		

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2. The HMIs have not all managed to take equal advantage of the focused growth program (some have more challenging environments than others). For example, the rate of enrollment growth has a very wide range, not all of them have added academic programs that will be in high demand, and the increase in funded research has not been uniform. (see page 109 of Interim Report)	See Section III		
3. The HMIs have experienced an unprecedented growth in academic programs, both at the bachelors and masters level. Most of these programs have been in high demand fields. For example, nursing, biotechnology, MBA, and computer science all received focused growth planning funds at Winston-Salem State University; all four of these programs have been identified as high state need programs by this study. (see page 109 of Interim Report)	See Section III		

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4. The HMLs have put special emphasis on academic programs in the sciences, where there are likely to be overall shortages and where minorities are traditionally seriously underrepresented, yet where increasingly the best employment opportunities are to be found in the knowledge economy. (see page 109 of Interim Report)	See Section III		
5. The HMLs are critical to the economic future of the state. Not only are minority (and immigrant populations) increasing at a rate above that of whites (this growth is above the national average in North Carolina, although much of the projected increase is Hispanic), but also these institutions are assuming an increasingly important role in addressing the overall enrollment and economic development needs of the state. (see page 110 of Interim Report)	See Section III		
6. The HMLs have considerable ambitions to continue to add new academic programs. This is understandable given their success to date. They are, however, experiencing some challenges as a result of the rapid growth, including managing the faculty recruitment and orientation process and managing infrastructure growth at the same time. Budget and tuition limitations may also impact their ability to secure additional programs, especially those that are high cost programs. Thus the selection of additional programs will need to be paced appropriately and selected strategically, especially as it relates to responding to demonstrated high occupational needs. (see page 110 of Interim Report)	See Section III		

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Preliminary Gap Analysis: State Needs/Academic Programs-UNC			
<p>1. UNC institutions are not currently producing a sufficient number of bachelors degrees for the projected needs in the following high demand areas, although the projected gaps need to be understood within the context of the issues cited in the paragraph that follows:</p> <ul style="list-style-type: none">• Teacher Education (annual gap of 2,517 or 9,170, depending on study)• Nursing (annual gap of 2,655)• Computer Science (annual gap of 1,106)• Accounting (annual gap of 308)• Recreation Workers (annual gap of 117) <p>It should be noted that the NCCCS has 54 Associate Degree nursing programs and that 1,965 graduated from these programs in 2004-2005. Without taking into consideration the type of RN (i.e., BSN or ADN), this significantly reduces the gap, but still leaves an annual gap of several hundred registered nurses. Also, computer science may be overstated because the trend years used for the projections include the years of the computer “boom.” Conversely, the need for the accounting degree may be understated because the trend years preceded Sarbanes/Oxley requirements for corporate accounting and auditing. Both teacher education and nursing have been the topic for major supply/demand reports in the last year; these reports both include specific recommendations for responding to the projected shortages. (see page 122 of Interim Report)</p>	See Section II		

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<p>2. UNC institutions are currently producing sufficient graduates for the projected needs in the following high demand areas:</p> <ul style="list-style-type: none"> • Business <p>However, students have a number of other choices for careers in business beyond those identified as high demand. So there may or may not be a sufficient supply for those fields. (see page 122 of Interim Report)</p>	See Section II		
<p>3. UNC institutions produced the largest number of graduates in 2005 in most of the projected high demand areas, which is a significant change from the 2004 data. (see page 122 of Interim Report)</p>	See Section II		
<p>4. UNC institutions are not currently producing a sufficient number of masters degrees for the projected needs in the following high demand areas:</p> <ul style="list-style-type: none"> • Rehabilitation Counseling (annual gap of 273) • Market Research (annual gap of 78) • Physical Therapy (annual gap of 66) <p>(see page 123 of Interim Report)</p>	See Section II		

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<p>5. UNC institutions are currently producing a sufficient number of masters degrees in the following high demand areas:</p> <ul style="list-style-type: none"> • Health Specialties Post-secondary Teachers (as long as the fields are appropriately distributed) • Business Post-secondary Teachers (as long as sufficient masters graduates choose this field) • Library Science • Education and Vocational Counselors <p>(see page 123 of Interim Report)</p>	<p>See Section II</p>		
<p>6. The masters degree may be emerging as a key degree in some academic areas for employment. UNC has a major initiative to create more professional science masters degrees and has received Sloan Foundation funding for parts of this activity. (see page 123 of Interim Report)</p>	<p>See Recommendation #6, p.38 and Section II.</p>		

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<p>7. The demand for higher education faculty is likely to increase substantially, especially in fields like math, science, and technology. While not all fields nor all higher education institutions will require faculty with doctorates, the number of doctorates will likely need to increase. The faculty marketplace tends to be a national one, so the gaps in the high demand fields in North Carolina cannot be taken as absolute. For one thing, the national reputation of higher education in North Carolina and quality of life issues make North Carolina an attractive destination for prospective faculty members. On the other hand, the national marketplace may see a decline in doctorates if predicted trends in some key fields (such as math, science, engineering, and computer science) develop, such as a reduction in the number of international students coming to U.S. universities and an increase in the percentage of those students who return to their home countries. China and India, for example, intend to train many more of its own doctorates. (see page 123 of Interim Report)</p>	<p>See Section II</p>		
<p>8. There are gaps in the need for Ph.D.s in the medical sciences (annual gap of 29) and clinical, counseling, and school psychologists (annual gap of 76). Nursing Ph.D. production, while a national issue, deserves particular attention. (see page 123 of Interim Report)</p>	<p>See Section II</p>		

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<p>9. There are substantial gaps in the production of professional degrees:</p> <ul style="list-style-type: none"> ▪ Pharmacy (annual gap of 154) ▪ Doctors (annual gap of 124) ▪ Lawyers (annual gap of 94) ▪ Dentists (annual gap of 67) ▪ Veterinarians (annual gap of 27) <p>(see page 124 of Interim Report)</p>	See Section II		
<p>10.a. In the emerging industries and/or the industries that are part of regional initiatives, UNC institutions will need to produce sufficient graduates especially in the life sciences and computer sciences particularly for the biotechnology and pharmaceutical industries. It appears that UNC institutions are responding to this need, particularly in biotechnology. (see page 124 of Interim Report)</p>	See Section II		
<p>b. In the emerging industries and/or the industries that are part of regional initiatives, UNC institutions will need to produce sufficient graduates with either specialized or interdisciplinary skills in such areas as business and engineering. While the institutions are producing sufficient graduates in those fields, they may need to reexamine the curriculum and/or the need for new concentrations, specialized certificates, or masters programs. This is true for the logistics and distribution industry; advanced manufacturing; and chemical and plastics. (see page 124 of Interim Report)</p>	See Section II		

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c. In nanotechnology, UNC institutions do not presently have as many programs available as do the leading states. (see page 124 of Interim Report)	See Recommendation #7, p.10		
d. In arts and design there are great possibilities for expanding both employment opportunities and quality of life issues that can be central to economic development. A number of UNC institutions have identified this as a growth area.. (see page 124 of Interim Report)	See Section II		
e. In virtually all gap areas (from traditional fields like nursing and teaching to emerging fields like nanotechnology and logistics) there are great opportunities for expanded partnerships and “ladder” programs between NCCCS institutions and UNC institutions. There are a number of such existing programs and prototypes, including some that use e-learning exclusively. Thus the primary issue is one of scaling up such activities and program availability. (see page 124 of Interim Report)	A permanent joint committee of selected chief academic officers from institutions in each system should be appointed. This joint committee should be co-chaired by the CAO of each system and should meet quarterly. An early project for the joint committee would be examining ways to expand partnerships and ladder programs. See also Recommendation #3, p.36	<ul style="list-style-type: none"> CAO, UNC Office of the President and CAO, NCCCS System Office 	2006-2007 Academic Year

FINDING	RECOMMENDATION	RESPONSIBLE PARTY	TIMETABLE
<p>Preliminary Gap Analysis: State Needs/Academic Programs-NCCCS</p> <p>1. Community Colleges are not producing an adequate number of graduates to meet projected needs in the following high demand areas:</p> <ul style="list-style-type: none"> • Registered nurses (see prior discussion in UNC section) • Office staff – including executive secretaries, administrative assistants, and so on. (annual gap of several hundred, depending on how projected needs are viewed) • Computer programmers (annual gap of 295 at associate degree level) • Emergency medical technicians (annual gap of 90) • Legal secretaries (annual gap of 329 at associate degree level) • Medical and clinical lab technicians (annual gap of 146) • Aircraft mechanics and service technicians (annual gap of 205 at associate degree level) • Surveying and mapping technicians (annual gap of 156) • Medical transcriptionists (annual gap of 45) <p>It should be noted that as technology becomes more embedded in the workplace, it will have impacts that are difficult to precisely measure at this time. For example, as the information needed and used by health care providers (for example, medical records) becomes digitized, it will have a dramatic impact on those work places, including the skills needed by workers.</p> <p>(see page 125 of Interim Report)</p>	<p>See Section II</p>		

FINDING	RECOMMENDATION	RESPONSIBLE PARTY	TIMETABLE
2. According to the occupational projections developed in this study using ESC data, the NCCCS is not producing an over supply of graduates in any of the high growth areas. (see page 125 of Interim Report)	See Section II		
3. The NCCCS is responding to the targeted industries that emerge from the trend data (e.g., biotechnology and pharmaceuticals), though its responses are in the early stages. The BioNetwork initiative is in its second year of operation and has offered significant opportunities for collaboration with UNC institutions, particularly North Carolina State University. This should serve as a model as other emerging industries (for example, nanotechnology) expand and present the need for increased numbers of trained workers. (see page 125 of Interim Report)	See Section II		
4. As noted in the UNC section above, there are many opportunities for new and expanded partnerships between the two public higher education systems. Addressing the needs in some critical areas, such as increasing the supply of teachers and nurses, has more to do with building new and better collaborative programs than with building new bricks and mortar facilities. (see page 125 of Interim Report)	See Recommendation #10c., p.30		
5. Distance learning options should be a critical consideration in all plans to expand programs, to develop collaborative arrangements, or to provide new services. This should apply to both systems. (see page 125 of Interim Report)	See Section II		

FINDING	RECOMMENDATION	RESPONSIBLE PARTY	TIMETABLE
Additional Topics: Technology Transfer			
<p>1. UNC institutions are trending upward on total research awards (21%), federal research (65.4%), and industry sponsored research (29%). However, business and industry outside of North Carolina have fueled that growth; industry-sponsored awards from North Carolina business and industry have declined 16%. (Note: some data definition changes might have impacted to some degree these percentages.) (see page 135 of Interim Report)</p>	See Appendix		
<p>2. UNC institutions are, in relation to the overall research activity, only minimally involved in joint research with North Carolina business and industry. This equates at best to 1% of the total research amount awarded. (see page 135 of Interim Report)</p>	See Appendix		
<p>3. North Carolina selected institutions (Duke University, East Carolina University, North Carolina State University, UNC Chapel Hill, UNC Charlotte, and Wake Forest University) at \$2.2M per invention disclosure, were more efficient than the national average in both years examined (national averages \$2.4M in FY 2000 and \$2.5M in FY 2003.) (see page 135 of Interim Report)</p>	See Appendix		
<p>4. North Carolina selected institutions ranked second of seven states (behind only Virginia) examined in 2003 in efficiency of invention disclosures. In 2000, North Carolina was behind Virginia and Massachusetts and ahead of Georgia, Pennsylvania, Texas, and Michigan.) (see page 136 of Interim Report)</p>	See Appendix		
<p>5. North Carolina selected institutions, at \$6.7M in 2003 and \$6.5M in 2000 per license, were more efficient than the national average in both years examined. (see page 136 of Interim Report)</p>	See Appendix		

FINDING	RECOMMENDATION	RESPONSIBLE PARTY	TIMETABLE
6. North Carolina selected institutions ranked second of seven states in both years (behind Virginia) in their efficiency at converting research dollars into licenses. (see page 136 of Interim Report)	See Appendix		
7. North Carolina selected institutions are above the national averages in both 2003 and 2000 (more so in 2003), for research dollars expended per university start-up company created. North Carolina institutions expended \$88M in 2003 compared to a national average of \$100M. (In 2000, it expended \$66M compared to the national average of \$70M.) (see page 136 of Interim Report)	See Appendix		
8. North Carolina selected institutions ranked fourth (behind Massachusetts, Virginia, and Georgia) in their efficiency at converting research dollars into start-up companies created. They ranked fifth in 2000. (see page 136 of Interim Report)	See Appendix		
Additional Topics: Research			
1. UNC Chapel Hill ranks 17 in total research expenditures by public universities (2002 data), followed by North Carolina State University (21), North Carolina A&T (171), UNC Wilmington (175), and East Carolina University (189). (see page 136 of Interim Report)	See Appendix		
2. UNC Chapel Hill also ranks very high (10) on federal research expenditures by public universities (2002 data), with a larger gap before the next institution; University of North Carolina State University (60). These two institutions were followed by North Carolina A&T (150), UNC Wilmington (163), and East Carolina University (189) (see page 136 of Interim Report)	See Appendix		

FINDING	RECOMMENDATION	RESPONSIBLE PARTY	TIMETABLE
<p>3. The two primary doctoral research universities (UNC Chapel Hill and North Carolina State University) have strong national rankings. They, and many of the other UNC institutions with smaller funded research programs, have developed areas of specialization in such fields as life sciences, which should have positive implications for supporting a number of the identified emerging industries in North Carolina.. (see page 136 of Interim Report)</p>	<p>See Appendix</p>		
Additional Topics: Campus Culture and State Support for Innovation			
<p>1. UNC has begun initiatives to address insuring a campus culture at each of its institutions that supports innovation and entrepreneurship. While progress has been made, much work remains to be done. (see page 137 of Interim Report)</p>	<p>See Appendix</p>		
<p>2. North Carolina has traditionally provided very substantial support for its universities in general and has gained a national reputation as a result. However, a number of competitor states have made more substantial state investments in specific programs aimed at maximizing the partnerships among the state, its universities, and targeted businesses and industries. (see page 137 of Interim Report)</p>	<p>See Appendix</p>		

FINDING	RECOMMENDATION	RESPONSIBLE PARTY	TIMETABLE
Other Preliminary Findings			
<p><u>Funding:</u></p> <p>1. The funding formula for the NCCCS does not provide a financial incentive for developing or expanding academic programs in the areas of high state need. These programs are often high cost programs. While the UNC funding formula recognizes discipline cost differences, it does not recognize the high start up or expansion costs of such programs. (see page 138 of Interim Report)</p>	<ul style="list-style-type: none"> See Recommendation #9, p.9 (for NCCCS recommendation) <p>The state should establish a revolving fund to incentivize UNC institutions to offer new or expanded programs that respond to high need and/or emerging industries. The fund should be in the \$2.5-3.0 million range and allocations for each program would be for its initial year (until formula funding takes over). It should be administered by the UNC Office of the President.</p>	<ul style="list-style-type: none"> Governor Legislature 	<p>2006 Legislative Session</p>
<p>2. The funding formulas of both NCCCS and UNC need to be updated to reflect the realities of 21st century higher education. Specifically, full formula funding should be provided year round and for all types of delivery (for example, e-learning). (see page 138 of Interim Report)</p>	<p>The funding formula for both UNC and NCCCS should fully fund all instruction, regardless of when and how it is offered. This will provide more incentive to use the physical plant year round and to expand access through e-learning.</p>	<ul style="list-style-type: none"> Governor Legislature 	<p>2006 Legislative Session</p>
<p>3. The legislature should create a collaborative funding initiative to incentivize more program collaboratives between UNC and NCCCS institutions. (see page 138 of Interim Report)</p>	<p>A permanent, revolving collaboration fund of \$10 million should be established. Priority should be given to funding programs in high need areas and in emerging industries. The fund should be administered by both Presidents and approved by both Boards.</p>	<ul style="list-style-type: none"> Governor Legislature 	<p>2006 Legislative Session</p>
<p>4. With a high school drop-out rate in excess of 40%, North Carolina has a high need for basic skills programs. While the NCCCS has an extensive and successful program, it will not meet the future needs. (see page 138 of Interim Report)</p>	<p>See Recommendation #6, p.8</p>		

FINDING	RECOMMENDATION	RESPONSIBLE PARTY	TIMETABLE
<p>5. State budget priorities and shortfalls will require higher education to diversify its resource base. (see page 138 of Interim Report)</p>	<p>A state summit should be held on the resource issue. This summit could explore best practices from elsewhere on increasing entrepreneurship, on state incentives for alternative resources, on removing state mandates that do not add significant value, and on the appropriate future role of the state in funding higher education. The summit should include national experts and should involve state legislative and state business leaders, as well as the academic community.</p>	<ul style="list-style-type: none"> President, UNC President, NCCCS 	<p>2006</p>
<p><u>Policy:</u> 1. UNC and NCCCS should work together to define the need for additional higher education sites. First priority should be given to expanding the use of existing facilities (e.g., extension offices, public libraries, etc.). (see page 138 of Interim Report)</p>	<p>A joint Task Force of leadership from both UNC and NCCCS should be formed to define the need for additional higher education sites and to propose a joint policy framework.</p>	<ul style="list-style-type: none"> President, UNC President, NCCCS 	<p>Task Force formed in January 2006; recommendations due May 2006</p>
<p>2. Each system should notify the other system of new academic programs that are in development so that possible collaborative programs could be identified early in the process. (see page 138 of Interim Report)</p>	<p>Both UNC and NCCCS should modify their new academic program approval process to include an early notification step to the other system.</p>	<ul style="list-style-type: none"> UNC Office of the President NCCCS System Office 	<p>Spring 2006</p>
<p>3. NCCCS should be immediately removed from the rule-making of the state so as to increase its ability to respond to program needs in a timely manner. All barriers to nimble responses to economic transformation must be eliminated. (see page 138 of Interim Report)</p>	<p>NCCCS should be removed from the rule making requirements of the Administrative Procedures Act (as is UNC).</p>	<ul style="list-style-type: none"> Legislature 	<p>2006 Legislative Session</p>

FINDING	RECOMMENDATION	RESPONSIBLE PARTY	TIMETABLE
<p>4. With leadership from UNC, NCCCS, and DPI, a new state-wide P-16 Council should be formed that includes business leaders and others. Best practices in P-16 should be examined in states such as Maryland and Georgia. States that have recently reinvented and expanded their P-16 efforts, such as Ohio, should also be examined. The state-wide P-16 Council should lead to the establishment of Regional P-16 Councils. (see page 139 of Interim Report)</p>	<p>North Carolina should form a statewide P-16 Council with membership from stakeholders of education at all levels, including business and industry. (See Ohio's recently appointed group as an example.) The Council should meet quarterly and address issues that cut across educational systems (see, for example, Recommendations 10-12, p.12)</p>	<ul style="list-style-type: none"> • President, UNC • President, NCCCS • Superintendent, DPI • President, NCAIC 	<p>Spring 2006</p>
<p>5. North Carolina should adapt a program for reciprocal in-state tuition with bordering counties in other states. (see page 139 of Interim Report)</p>	<p>North Carolina should pass legislation allowing out-of-state students in counties that border North Carolina to pay in-state tuition. If the state chooses, it could implement such a program on a pilot basis.</p>	<ul style="list-style-type: none"> • Governor • Legislature 	<p>2006 Legislative Session</p>
<p>6. With the associate degree replacing the high school diploma as an entry level qualification for many occupations, the role of the bachelors degree and particularly the masters degree is changing. The need for the masters may even be proportionately higher than the need for students with bachelors. At the same time, many people with bachelors degrees may seek a specific diploma or certificate from a community college at some point in their careers. (see page 139 of Interim Report)</p>	<p>UNC should appoint a Task Force to examine the expansion of masters degrees and the design of these degrees.</p> <p>NCCCS should appoint a joint Task Force to examine making its programs fully accessible to students with undergraduate and graduate degrees.</p>	<ul style="list-style-type: none"> • UNC Office of the President • NCCCS System Office 	<p>2006-2007 Academic Year</p>
<p>7. North Carolina, like all states, has achievement gaps between its white and Asian students and African-American, Hispanic, and Native American students. Even though African-American and Native American participation rates in college are similar to whites, minority students do not have as high graduation rates for undergraduates nor the participation rates in graduate programs. (see page 139 of Interim Report)</p>	<p>The statewide P-16 Council should launch a study, with the help of external expertise, to address the achievement gap. This should be a study funded by the Legislature and the Governor.</p>	<ul style="list-style-type: none"> • P-16 Council • Governor • Legislature 	<p>2006-2007 Academic Year</p>

FINDING	RECOMMENDATION	RESPONSIBLE PARTY	TIMETABLE
8. Current financial aid policies do not adequately address the financial needs of students taking multiple courses in joint programs at different campuses, as well as joint UNC and NCCCS programs. (see page 139 of Interim Report)	A joint study group, consisting primarily of financial aid officers, should be established to examine ways to remove financial aid barriers to students taking joint programs.	<ul style="list-style-type: none"> UNC Office of the President NCCCS System Office 	Spring 2006
9. Not all academic program expansions are initiated by UNC based solely on need and existing/projected data; external program initiatives can undermine the integrity of the academic program review process. (see page 139 of Interim Report)	All academic program initiatives and decisions should normally be initiated from within UNC and/or NCCCS institutions.	<ul style="list-style-type: none"> UNC and NCCCS institutions 	On-going
10. UNC and NCCCS should both develop a “one-stop” access point for business and industry to their respective assets. This should be an electronic portal and each system’s should link to the other. (see page 139 of Interim Report)	UNC and NCCCS should both develop a “one-stop” access point for business and industry to their respective assets. This should be an electronic portal and each system’s should link to the other.	<ul style="list-style-type: none"> UNC Office of the President NCCCS System Office 	2006
11. There is a history of collaborative policies and agreements for joint academic programs and shared facilities between UNC and NCCCS; these could be expanded. (see page 139 of Interim Report)	See Recommendation #4, p.14		
12. Many UNC, NCCCS, and other facilities exist that could be considered as sites to provide greater access to higher education in North Carolina (both for in-person and e-learning). (see page 139 of Interim Report)	See Recommendation #1, p.37		

V. CONCLUSION

These preliminary recommendations are just that. In many instances, they suggest a further process or activity that could be started at the appropriate time. It should be noted that a significant number of these call for an increasingly collaborative approach between UNC and NCCCS. The general conclusions provide a focus for several areas in need of further study that go beyond just data-informed considerations. This further study will lead to more specific recommendations in those areas.

APPENDIX

**STAYING A STEP AHEAD: HIGHER EDUCATION
TRANSFORMING NORTH CAROLINA'S ECONOMY
The Impact of Technology Transfer on Workforce Needs in North Carolina
Final Report
September 26, 2005**

**STAYING A STEP AHEAD: HIGHER EDUCATION
TRANSFORMING NORTH CAROLINA'S ECONOMY
The Impact of Technology Transfer on Workforce Needs in North Carolina**

**Final Report
September 26, 2005**

The transfer of technology derived from university research is a major way the University of North Carolina (UNC) stimulates economic development and contributes to the workforce needs of the State. The Interim Report described the high quality graduate education and research programs of the University and the important role the University has among the major research universities in the country. This report describes recommendations to extract full economic development value from the research and innovation conducted across the University system.

The State of North Carolina and the University of North Carolina have made major strides toward capitalizing on the intellectual property generated from the state's graduate education and research programs for the economic benefit of the state. The state has made significant capital investments (\$2.5 billion in bonds) in new research and classroom facilities and enacted the Millennium Act so that multiple campuses across the state can build research facilities and encourage collaboration with industry.

Many of the UNC campuses have undertaken economic development efforts, seeking industry partners to license emerging technologies, begin start-ups, and collaborate on research and development (R&D) efforts. While much has been accomplished, the interviews we have conducted and the self-studies University staff have undertaken show that the economic development impact via technology transfer and commercialization of research is being limited by institutional and cultural constraints.

The primary factors constraining the University's efforts at technology transfer and commercialization of research can be summarized as follows:

- North Carolina does not have an Innovation Model similar to those that exist in other states. Many states have created innovation models for emerging technologies (California Institutes for Science and Innovation, Arizona Biodesign Institute, Georgia Centers for Innovation), which build on the strengths of each state's demographics, workforce skills, and business interests. In the 1980s, North Carolina invested in a version of an innovation model when it created the North Carolina Biotechnology Center and the Microelectronics Center of North Carolina (MCNC). Both organizations have since had significant impact on economic development in our state. However, North Carolina has many strengths in other high-potential technical areas, such as in nanotechnology and high-performance computing, that would be natural candidates for a new Innovation Model concept.

- A comprehensive University direction and priority for economic development for the different economic regions of the state does not exist. Lack of state-funded support for technology transfer and economic development staff and activities, the absence of strategic industry partnerships, and the negative influences of the Umstead Act hinder and fragment the University's efforts.

- The University lacks a consistent system for faculty involvement and rewards for participating in economic development activities. The university culture needs to be such that economic development activities are rewarded and valued as a part of the tenure and promotion model.

- The structure of many University academic departments is organized by discipline and does not easily translate into market-oriented terminology used by industry interested in technology transfer and commercialization of research efforts. Industry leaders often find it difficult and confusing when attempting to learn more about the intellectual property, facilities, and capabilities embedded in the University's research programs.
- The state and the University have been criticized for business practices that create bottlenecks and slow down technology transfer and commercialization of research. The University also lacks a comprehensive information system that makes available the intellectual property of all campuses to each campus technology transfer office.

For the University to strengthen further its capacity to stimulate the state's economy and build its workforce, a greater congruence of public policy initiatives and strategic direction needs to be achieved. The recommendations proposed in this report identify changes in public policy that will strengthen the role the state and the University play in economic development through technology transfer and the commercialization of research. The recommendations are in the form of one strategic direction and four strategic goals, with each strategic goal divided into a set of objectives. Where beneficial, successful programs instituted in NC regions, select universities, or in other states are provided as a reference.

The recommended strategic direction for technology transfer and commercialization of research for the University of North Carolina is the following:

Strategic Direction: Apply the University's intellectual assets, created through its education and research programs, to stimulate economic development within all geographic regions of the state of North Carolina.

The four strategic goals recommended to achieve the strategic objective are the following:

- Strategic Goal 1: Strengthen links to North Carolina-based industry and local area governments.**
- Strategic Goal 2: Orient University resources to accomplish economic development strategic goals.**
- Strategic Goal 3: Create incentives to stimulate research and development activity in North Carolina.**
- Strategic Goal 4: Invest in emerging companies and technologies.**

Each of the strategic goals and their related objectives are described in the following section.

Strategic Goal 1: Strengthen links to North Carolina-based industry and local area governments.

Objective 1.1: Establish as a primary mission objective that each UNC campus address the needs of its local economic development region.

- Conduct regional cluster analyses to assess local area resources and needs [reference: Research Triangle Regional Partnership and RTI study]
- Expand graduate-degree programs where needed and recruit faculty with academic interests that address the needs of local geographic region [reference: NCSU, NC A&T approach]
- Actively seek industry partnership relationships to undertake collaborative projects such as joint research and development efforts, faculty consulting, adjunct professorships, advisory board roles, and student internship placement [see Objective 2.2 for specific steps]

¹ In this context, the term 'intellectual assets' describes all creative works or innovations that can be protected via patents, copyrights, and/or unique trademarks; as well as unique skills and capabilities that have commercial value.

- Participate in regional industry/government networks and consortia to strengthen local community ties and build relationships. Example networks include intellectual property and economic development conferences, chambers of commerce, economic development consortia, industry and trade associations, and entrepreneur organizations and networks.

Objective 1.2: Take advantage of the opportunities provided by the Millennium Campus Act to lead the collaboration and innovation effort with industry.

- Adapt the features of the Millennium Campus initiative to the specific interests and needs of each UNC campus and its regional economic development requirements.
- Use the Millennium Campus initiative to create critical mass for economic development, technology transfer, and workforce training programs.
- Build research facilities and research and development programs that stimulate university and industry collaboration.
- Create opportunities for faculty and student collaboration with industry partners.
- Provide space and support services for start-up companies.

Objective 1.3: Build and market to industry unique research facilities and test equipment.

- Build Web-based University economic development portal for use in promoting University intellectual assets and unique facilities to industry.
- When needed, establish unique regional testing facilities for high-cost, sophisticated equipment and other research facilities that would not be economically feasible for individual companies.
- Charge market rates.

Strategic Goal 2: Orient University resources to accomplish economic development strategic goals.

Objective 2.1: Streamline and coordinate University technology transfer policies and administrative processes across all campuses.

- Develop proactive, market-oriented, University-wide Technology Transfer program [reference: *North Carolina: A Survey of Best Practices in the U.S. UNC Economic Development Forum, February 15, 2005*]
- Provide specific, line item state funding for the management of intellectual property, technology transfer, and economic development program activity:
 - Staffing and program support
 - Facilities and equipment
 - Information management systems
- In accordance with line item funding, link a portion of University technology transfer goals to regional and state economic development objectives.
- Create a performance-based metric system that measures commercialization impact of University intellectual property on economic development

Objective 2.2: Increase access to University intellectual property and resources (faculty, students, research).

- Create market-oriented university research clusters to better communicate research programs. [reference: examples of research clusters created by NCA&T are the following:

- Public Health
- Biotechnology, Bio & Food Sciences
- Advanced Materials & Nanotechnology
- Computational Science & Engineering
- Leadership & Community Development
- Information Sciences & Technology
- Transportation & Logistics
- Energy & Environment]

- Align colleges, schools, and departments to each market-oriented cluster; identify faculty leads for each cluster; and tie graduate-degree programs to a specific research cluster.
- Facilitate industry access to the University's intellectual property portfolio through economic development portal, proactive marketing programs, and realignment of research and intellectual assets into market-oriented clusters.
- Link the intellectual property portfolios of the UNC institutions and market to local industry.
- Develop marketing support and outreach programs for each research cluster, linking University resources to the interests of specific industries within each UNC campus economic development region [reference: NCSU, Wake County Precision Marketing Initiative recruiting in the sectors of medical devices and non-woven textiles because of the NCSU strengths]

Objective 2.3: Reduce state barriers to collaboration with industry.

- Amend Umstead Act to reduce threat imposed by criminal-based penalties and enable increased use of University facilities and equipment by industry. (Note: accomplished in recent legislation SL2005-0397 signed by governor on 9/14/2005, which reduces criminal-based penalties to peer-review conflict-of-interest panel)
- Review state contracting regulations with intent to streamline business practices and provide greater decision-making authority for universities.
- Modify Public Records Act to include research exemptions and deliberate exemptions for universities as done in other states

Strategic Goal 3: Create incentives to stimulate research and development activity in North Carolina.

Objective 3.1: Create an 'innovation model,' identifying and investing in one or more specific research areas.

- Examine other state innovation models and adapt to North Carolina interests. Other state examples:
 - California (California Institutes for Science and Innovation; <http://www.ucop.edu/california-institutes/links.htm>)
 - Arizona (Biodesign Institute; <http://www.biodesign.org/>)
 - Georgia (Centers for Innovation; <http://www.georgiainnovation.org/>)
 - New York: NYSTAR (<http://www.nystar.state.ny.us/>)

- Build on areas of proven UNC research and development strength in such areas as nanotechnology and high-performance computing.
- Emphasize interdisciplinary focus, involving multiple campuses and economic development regions.
- Emphasize a strong component of local industry and community collaboration.

Objective 3.2: Establish a state matching research grant program to encourage faculty collaboration with industry.

- Consider modeling program after University of California Discovery Grants program (<http://uc-industry.berkeley.edu/about/benefits.htm>) or Collaborative Funding Grants program at North Carolina Biotechnology Center (<http://www.ncbiotech.org/>). Replicate as funding opportunities in other technology fields.
- Benefits for UNC researchers and students: training for students and post-docs, special focus on interdisciplinary and multi-investigator projects, increased funding for faculty research interests.
- Benefits to State of North Carolina: accelerates commercialization of intellectual property; increases investment in NC-based research; increases competitiveness of NC businesses.
- Benefits to sponsors: access to UNC intellectual property and NC and federal tax credits; expansion of company R&D capacity; intellectual property rights

Objective 3.3: Stimulate faculty creative and innovation interests.

- Establish a state-funded, University-wide, competitive faculty small-grants, awards program for research and creative projects.
- Institute a University-wide Innovators Award program to recognize creative faculty.
- For faculty performance evaluations (promotion, tenure, merit), recognize and reward economic development activities, outside consulting, and other creative activities.
- Recognize, support, and reward faculty interested in pursuing Small Business Innovation Research (SBIR), Small Business Technology Transfer (STTR), and Broad Agency Announcement (BAA) efforts. [reference: Policy Recommendations for Linking University Technology Transfer and Economic Development in North Carolina: A Survey of Best Practices in the U.S. UNC Economic Development Forum, February 15, 2005]

Strategic Goal 4: Invest in emerging companies and technologies.

Objective 4.1: Invest in Technology Commercialization.

- Allow UNC to budget for and use state funds to invest in advancing the stage of development of innovative technologies:
 - Develop early-stage technology through the build-out of 'pre-beta test' models
 - Use the results of early-stage development to facilitate licensing as well as attracting outside equity capital
- Allow UNC to budget for and use state funds to invest in independent commercialization studies: [reference Massachusetts Technology Transfer Center – Technology Investigation and Assessment Awards—see extract from 2003 Economic Stimulus Bill here: <http://www.malticenter.org/about/extract.htm>]
 - Conduct independent commercialization studies to obtain authoritative assessments of market potential of University technologies.
 - Use as a base for marketing licenses or attracting outside equity capital.
 - Designate and market UNC resources with the expertise to undertake independent commercialization studies.

[reference: Policy Recommendations for Linking University Technology Transfer and Economic Development in North Carolina: A Survey of Best Practices in the U.S. UNC Economic Development Forum, February 15, 2005]

Objective 4.2: Develop statewide Incubation Center strategy.

- Develop strategies for university-based incubators for each economic development region in the state:
 - Rural to mid-sized areas – University-based and subsidized with state-appropriated funds, if necessary
 - Urban areas – Work with private developers to develop university-affiliated, technology incubator space.
- Support growth of the newly formed statewide Incubator Alliance to share knowledge and resources and coordinate business development activities.

Objective: 4.3: Create state supported seed funding mechanism.

- Identify state fund sources for venture capital fund investments for North Carolina-based companies. Example is the state treasurer's proposal to use \$115 million of the Escheat fund that could be used to invest in venture capital funds for North Carolina-based companies

Objective: 4.4: Create incentives to stimulate and encourage "private sector pull" of technologies from the University.

- Incentives to encourage entrepreneurs: Examples include matching grants for SBIR/STTR awards (recently passed in General Assembly) and streamlining of terms, conditions, and time frames required to license technologies out of universities. (see Objective 2.1)
- Incentives to encourage small high-technology businesses: Examples include reducing costs to start and run companies and incentives for capital growth.
- Incentives to encourage investment in new technology companies: Consider increasing cap on tax credit for qualified business ventures related to investment in NC-based start-up companies.

North Carolina Community College System Mission

The mission of the North Carolina Community College System is to open the door to high-quality, accessible educational opportunities that minimize barriers to post-secondary education, maximize student success, and improve the lives and well-being of individuals by providing:

- Education, training and retraining for the workforce, including basic skills and literacy education, occupational and pre-baccalaureate programs.
- Support for economic development through services to and in partnership with business and industry.
- Services to communities and individuals which improve the quality of life.

Adopted by the State Board of Community Colleges, October 1993; revised March 1994, April 1994; reaffirmed January 1998; revised and adopted June 1998.

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The University of North Carolina Mission Statement

The mission of the University is shaped in large measure by the constitutional and statutory mandates by which public higher education is established and maintained. Article IX of the Constitution of the State declares:

Sec. 8. Higher education. The General Assembly shall maintain a public system of higher education, comprising The University of North Carolina and such other institutions of higher education as the General Assembly may deem wise

Sec. 9. Benefits of public institutions of higher education. The General Assembly shall provide that the benefits of The University of North Carolina and other public institutions of higher education, as far as practicable, be extended to the people of the State free of expense.

This constitutional mandate for a public system of higher education is effected by Chapters 115 and 116 of the General Statutes. Chapter 115A, enacted in 1963, provides for a statewide network of community and technical colleges and institutes which offer two-year college transfer and technical and vocational programs. Chapter 116 of the statutes, as amended by the General Assembly effective July 1, 1972, provides in Section 3 that:

The board of trustees of the University of North Carolina is hereby redesignated, effective July 1, 1972, as the 'Board of Governors of the University of North Carolina.' The Board of Governors shall be known and distinguished by the name of 'the University of North Carolina' and shall continue as a body politic and corporate and by that name shall have perpetual succession and a common seal.

Section 4 of the statute provides for the University of North Carolina to be composed of the 16 public senior institutions in the state.

The Higher Education Reorganization Act of 1971, which placed those 16 institutions under one governing board, asserted the basic objectives and purposes for the University of North Carolina: to foster the development of a well-planned and coordinated system of higher education, to improve the quality of education, to extend its benefits, and to encourage an economical use of the state's resources.

Central to the process of strategic planning is the clarification of the overall mission of the University as a whole and the role and scope of the constituent institutions within that overall mission. As a part of the comprehensive mission review of 1992, the Board of Governors adopted a general mission statement for the University. This statement, with minor modifications, was given statutory status in 1995 when the General Assembly amended Chapter 116-1 of the General Statutes to include the following as the official mission statement of the University of North Carolina:

Statement of Mission

The University of North Carolina is a public, multi-campus university dedicated to the service of North Carolina and its people. It encompasses the 16 diverse constituent institutions and other educational, research, and public service organizations. Each shares in the overall mission of the University. That mission is to discover, create, transmit, and apply knowledge to address the needs of individuals and society. This mission is accomplished through instruction, which communicates the knowledge and values and imparts the skills necessary for individuals to lead responsible, productive, and personally satisfying lives; through research, scholarship, and creative activities, which advance knowledge and enhance the educational process; and through public service, which contributes to the solution of societal problems and enriches the quality of life in the State. In the fulfillment of this mission, the University shall seek an efficient use of available resources to ensure the highest quality in its service to the citizens of the State.

Teaching and learning constitute the primary service that the University renders to society. Teaching, or instruction, is the primary responsibility of each of the constituent institutions. The relative importance of research and public service, which enhance teaching and learning, varies among the constituent institutions, depending on their overall missions.

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<http://www.northcarolina.edu/content.php/system/mission.htm>

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TOTAL SYSTEM PROJECTIONS

Colleges, Sites and Centers	2002-2003 Actual FTE	2003-2004 Actual FTE	2004-2005 Budget FTE	2006-2007 Projected FTE	2007-2008 Projected FTE	2008-2009 Projected FTE	2009-2010 Projected FTE	2010-2011 Projected FTE
Alamance CC	2,840	3,130	3,483	3,357	3,515	3,685	3,863	4,047
Burlington Ctr.	159	0	96	341	353	368	387	403
Glen Raven Ctr.	0	0	0	0	0	0	0	0
Asheville-Buncombe TCC	4,124	4,245	5,068	4,940	5,192	5,447	5,683	6,227
Enka Ctr.	8	57	54	129	232	248	265	281
Madison Ctr. Ctr.	74	88	87	106	112	132	148	164
Beaufort County CC	1,325	1,320	1,771	1,824	1,879	1,935	1,993	2,053
Bladen CC	1,182	1,318	1,388	1,550	1,597	1,640	1,653	1,685
Kelly/East Arcadia Ctr.	131	88	104	73	74	76	77	80
Blue Ridge CC	1,562	1,688	2,023	2,020	2,178	2,320	2,475	2,560
Transylvania Ctr. Ctr.	311	271	275	389	432	515	575	600
Brunswick CC	1,009	1,034	1,163	1,233	1,257	1,324	1,372	1,437
Leland Ctr.	75	88	78	90	94	101	112	126
Southport Ctr.	13	13	32	14	17	24	30	46
Caldwell CC & TI	1,830	1,943	2,783	3,857	4,060	4,258	4,435	4,619
Adrian, Support/Basic Skills Center	1	0	3	0	0	0	0	0
Watauga Ctr. Campus	668	665	670	758	864	966	1,016	1,048
Watauga Ctr. Business Ctr.	76	72	67	97	109	112	115	118
Cape Fear CC	4,715	4,611	5,756	4,874	5,210	5,470	5,744	6,031
Hampstead Ctr.	94	128	0	0	0	0	0	0
Burgaw Ctr.	102	87	77	109	124	138	155	160
North Campus	600	752	595	1,441	1,528	1,604	1,685	1,768
Carteret CC	1,286	1,311	1,698	1,750	1,807	1,866	1,927	1,989
Catawba Valley CC	3,383	3,597	4,327	4,797	5,461	6,062	6,597	7,230
Alexander Ctr. Ctr.	32	74	63	158	200	242	284	326
Central Carolina CC	2,350	2,392	3,952	2,415	2,429	2,444	2,458	2,473
Chatham Ctr. Campus	296	321	288	340	354	368	382	396
Harnett Ctr. Campus	784	767	695	801	820	839	858	877
School of Telecommunications	35	39	59	53	63	73	83	93
Siler City Ctr. (Chatham Ctr.)	128	143	115	161	173	186	199	210
Central Piedmont CC	6,496	6,271	8,295	8,072	8,183	8,290	8,398	8,502
North Campus	555	528	586	1,044	1,143	1,197	1,252	1,311
Northeast	432	560	434	801	842	866	895	906
South Campus	1,420	1,367	1,435	2,857	3,109	3,293	3,354	3,435
Southwest Campus	578	664	591	680	690	700	705	711
West Campus	282	292	302	552	614	631	645	659
West Center	86	121	99	86	76	76	79	79
Cleveland CC	2,329	2,542	2,570	2,706	2,852	3,015	3,188	3,373
Coastal Carolina CC	3,150	3,270	4,116	4,315	4,526	4,747	4,981	5,227
College of The Albemarle	1,378	1,378	1,776	1,495	1,495	1,495	1,495	1,495
Chowan Ctr. Ctr.	144	143	135	153	153	153	153	153
Dare Ctr. Campus	287	280	299	383	383	383	383	383
Riverside Ext. Ctr.	2	2	2	2	2	2	2	2
Craven CC	1,833	2,033	2,295	2,422	2,459	2,529	2,570	2,644
Havelock/Cherry Point Ctr.	299	332	297	415	470	426	483	438
Davidson County CC	2,333	2,639	3,167	2,762	2,827	2,887	2,947	3,012
Dave Ctr. Ctr.	166	167	138	241	260	285	295	320
Durham TCC	3,557	3,626	4,190	3,715	3,748	3,819	3,866	3,902
Northern Durham Ctr.	232	231	217	258	260	263	266	268
Edgecombe CC	868	927	1,727	1,325	1,365	1,405	1,448	1,491
Rocky Mount Campus	744	739	726	1,128	1,163	1,197	1,233	1,270
Fayetteville TCC	6,420	6,878	9,168	7,049	7,401	7,771	8,160	8,568
Firefighting Facility Ctr.	35	48	31	56	58	61	64	68

Colleges, Sites and Centers	2002-2003	2003-2004	2004-2005	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011
	Actual FTE	Actual FTE	Budget FTE	Projected FTE	Projected FTE	Projected FTE	Projected FTE	Projected FTE
Spring Lake Ctr.	788	709	715	681	716	751	789	828

Colleges, Sites and Centers	2002-2003 Actual FTE	2003-2004 Actual FTE	2004-2005 Budget FTE	2006-2007 Projected FTE	2007-2008 Projected FTE	2008-2009 Projected FTE	2009-2010 Projected FTE	2010-2011 Projected FTE
Forsyth TCC	4,071	4,228	5,257	3,673	3,854	4,046	4,287	4,541
Carver Road Ctr.	269	273	262	316	330	344	359	374
Kernersville Ctr.	303	229	229	307	388	406	425	445
West Ctr.	586	538	454	599	612	623	633	644
Northwest Forsyth Center	0	0	0	0	0	358	380	409
Gaston College	3,091	3,140	3,852	3,422	3,552	3,682	3,812	3,939
Lincoln Ctr. Ctr.	508	557	495	656	685	714	743	771
East Campus and Textile Technology Center	0	0	0	194	330	406	482	578
Gulford TCC	5,339	5,780	6,481	5,994	6,142	6,448	6,706	6,832
Aviation Ctr.	0	0	68	224	233	270	307	339
Greensboro Campus	792	719	765	1,114	1,189	1,250	1,347	1,426
Hign Point Ctr.	297	296	322	742	831	923	1,005	1,094
Small Business Ctr.	15	2	9	2	2	2	2	2
Halifax CC	1,487	1,481	1,759	1,483	1,513	1,543	1,574	1,605
Haywood CC	1,234	1,172	1,519	1,591	1,631	1,671	1,710	1,750
Continuing Ed. Ctr.	150	160	144	209	224	239	254	269
Hign Tech Ctr.	82	161	149	202	208	213	219	223
Human Resource Devel. Ctr.	0	0	0	0	0	0	0	0
Isothermal CC	1,634	1,785	1,992	2,164	2,309	2,401	2,500	2,530
Polk Ctr. Ctr.	40	39	44	30	30	20	20	10
James Sprunt CC	1,120	1,119	1,398	1,426	1,455	1,485	1,516	1,545
Johnston CC	2,192	2,212	3,528	2,403	2,542	2,690	2,846	3,011
Lenoir CC	1,990	2,068	2,680	2,122	2,210	2,301	2,397	2,496
Aviation Ctr.	21	19	19	21	22	23	24	26
Greene Ctr. Ctr.	214	214	177	231	243	255	267	281
Jones Ctr. Ctr.	64	81	66	68	71	75	78	82
Walstonburg Ctr.	2	1	3	0	0	0	0	0
West Boundary Street Ctr.	14	10	9	0	0	0	0	0
Martin CC	671	728	967	801	833	866	901	937
Bertie Ctr. Ctr.	88	102	100	104	108	112	117	121
Mayland CC	736	751	1,396	1,454	1,564	1,681	1,806	1,942
Avery Ctr. Ctr.	46	42	39	80	85	91	98	104
Yancey Ctr. Ctr.	54	54	46	68	71	75	81	86
McDowell TCC	939	960	1,240	1,312	1,348	1,384	1,420	1,459
Marion Ctr.	56	45	39	0	0	0	0	0
Mitchell CC	1,238	1,293	1,988	1,951	2,058	2,172	2,292	2,418
Mooreville Ctr.	151	180	163	204	237	277	326	386
Montgomery CC	801	853	876	932	987	1,042	1,096	1,150
Nash CC	1,945	2,116	2,305	2,437	2,505	2,557	2,609	2,662
Pamlico CC	214	213	496	225	238	253	270	287
Bayboro Ctr. (# to be assigned)	0	0	0	42	47	53	60	68
Piedmont CC	1,078	1,190	1,864	1,329	1,393	1,460	1,530	1,603
Caswell Ctr. Ctr.	321	325	312	472	519	538	549	560
Pitt CC	4,133	4,354	5,185	5,340	5,682	5,997	6,330	6,673
Randolph CC	1,602	1,702	2,358	1,750	1,820	1,893	1,969	2,048
Archdale Ctr.	106	95	88	119	124	129	133	138
Emergency Training Ctr.	0	0	0	110	113	117	120	123
Richmond CC	1,440	1,409	1,867	1,625	1,550	1,595	1,660	1,715
Continuing Education Ctr.	126	133	110	205	0	0	0	0
James Nursing Bldg.	0	0	1	0	350	360	365	370
Scotland Ctr. Ctr.	35	48	42	235	305	345	365	380
Roanoke Chowan CC	855	818	958	849	861	874	884	898
Robeson CC	2,250	2,216	3,142	2,254	2,299	2,345	2,392	2,440

Colleges, Sites and Centers	2002-2003 Actual FTE	2003-2004 Actual FTE	2004-2005 Budget FTE	2006-2007 Projected FTE	2007-2008 Projected FTE	2008-2009 Projected FTE	2009-2010 Projected FTE	2010-2011 Projected FTE
Emergency Training Ctr.	44	54	49	43	44	45	45	46
Lumberton Extension Ctr.	117	112	85	114	117	119	121	124
Pembroke Extension Ctr.	181	174	137	159	162	166	169	172
Rockingham CC	1,796	2,099	2,104	2,088	2,135	2,184	2,234	2,278
Rowan-Cabarrus CC	1,759	2,228	3,411	2,526	2,577	2,628	2,661	2,693
Cabarrus Cty. Campus	1,398	1,668	1,378	2,408	2,522	2,662	2,716	2,776
Sampson CC	1,359	1,261	1,653	1,725	1,788	1,815	1,827	1,843
Sandhills CC	2,848	2,888	3,671	4,012	4,132	4,256	4,383	4,517
Hoke Cty. Ctr.	118	133	111	145	150	156	161	166
South Piedmont CC - East Campus (Anson)	480	480	1,476	569	646	723	809	895
Continuing Ed Center	393	493	0	59	66	79	93	117
Ansonville Ctr.	0	0	0	200	280	360	410	460
Wadesboro Ctr.	45	64	62	251	279	323	359	394
West Campus	233	128	346	1,105	1,498	1,935	2,421	2,944
Southeastern CC	1,724	1,665	2,388	1,692	1,726	1,761	1,796	1,832
Bus/Ind Training Ctr.	14	19	18	0	0	0	0	0
Southwestern CC	1,671	1,565	2,032	1,133	1,096	1,185	1,290	1,410
Macon Cty. Ctr.	35	50	43	369	575	642	707	774
Swain Cty. Ctr.	32	35	32	65	71	76	83	90
Stanly CC	1,451	1,492	2,060	2,129	2,370	2,623	2,905	3,196
Western Stanly Ctr	0	140	140	280	357	460	578	712
Surry CC	2,964	2,736	3,205	3,233	3,294	3,325	3,312	3,346
Yadkin Cty. Ctr.	19	92	79	104	112	121	129	136
Tri-County CC	869	792	1,056	724	735	750	758	766
Graham Cty. Ctr.	123	167	166	155	158	162	178	192
Vance-Granville CC	2,192	2,479	3,378	3,514	3,823	4,117	4,411	4,676
Franklin Cty. Campus	446	459	438	629	725	827	940	1,025
Granville Cty. Campus	394	388	387	584	686	777	871	923
Warren Cty. Ctr.	143	107	121	197	234	274	315	334
Wake TCC	5,701	5,529	8,748	5,940	6,161	6,390	6,629	6,877
Adult Education Ctr.	338	328	248	353	365	377	391	404
Health Sciences Campus	823	824	776	953	992	1,033	1,075	1,119
Northeast Campus US-401 North	0	0	0	0	1,966	2,031	2,937	3,031
Chapanoke Drive Building	0	0	0	597	501	522	544	567
Western Wake (Mill Pond / Cary)	2,443	2,407	3,412	3,577	3,648	3,722	3,796	3,872
Wayne CC	30	24	26	28	29	29	30	30
Aviation Ctr.	2,484	2,595	2,918	2,700	2,757	2,812	2,869	2,929
Western Piedmont CC	0	0	0	0	0	0	0	0
North King/West Meeting St. Ctr.	1,966	1,928	2,704	2,024	2,126	2,232	2,343	2,461
Wilkes CC	77	68	73	71	75	79	83	87
Alleghany Cty. Ctr.	232	215	214	226	237	249	261	274
Ashe Cty. Ctr.	1,714	1,920	2,068	2,103	2,165	2,252	2,342	2,460
Wilson TCC	65	73	53	81	95	104	111	118
Police Academy Ctr.								
Total Construction FTE	146,728	151,779	188,610	182,830	194,225	203,795	213,710	223,083
Growth Rate		3.44%			6.23%	4.93%	4.87%	4.39%

