

**REPORT OF THE UNIVERSITY COMMITTEE-SOUTH
OF THE
REVIEW, PLANNING AND IMPLEMENTATION
COMMISSION ON THE PROPOSED RESTRUCTURING OF
NEW JERSEY RESEARCH UNIVERSITIES**

I. OVERVIEW

Across the nation, every vibrant region has a superb research university as a dominant anchoring institution. Research universities support the educational, cultural, social, and economic needs of their regions. Such universities create the conditions for robust knowledge based growth. North Carolina's Research Triangle is a perfect example. Anchored firmly by the University of North Carolina-Chapel Hill, Duke University, and North Carolina State University, the Research Triangle is home to 100 companies employing 50,000 workers. Average salaries are \$55,000, and the total payroll for the Triangle is \$2.7 billion. The companies located in this region cite access to world-class research and highly skilled graduates produced at the local universities as their motivating factors for remaining in the Research Triangle.

Southern New Jersey has some of the elements needed to evolve into a thriving region like the Research Triangle, but the puzzle yet requires some assembly. This is a challenge of vital importance. Southern New Jersey can – in fact, must – evolve to compete in the knowledge economy. The region already has many assets: a hub for shipping and transportation, proximity to major markets, and good inventory for offices. However, historic strengths in manufacturing and agriculture no longer provide the level of employment that South Jersey demands, and so we must look toward the knowledge economy to spur the continued vitality of this region.

We cannot move forward in the knowledge-based economy until the research capacity of the region's institutions is significantly expanded across a wide area of disciplines. South Jersey needs a constant flow of science and technology research that can be adapted for commercial purposes. That requires a sizeable mass of scholars producing these innovations and, collectively, becoming a magnet for attracting new enterprises.

South Jersey requires added research capacity in a wide array of disciplines. Systems biology, information technology security, genomic research, geriatric medicine, nutraceuticals, nanotechnology, environmental science, molecular biology, biochemistry, software engineering, culturally competent health care and pharmaceuticals are prime examples of fields that will create new approaches to combating bioterrorism, developing new technologies, reclaiming brownfields,

and improving healthcare and the quality of life for all residents. In addition, we must add research strength in existing programs such as public policy, business, humanities, social sciences, and law.

Programs need to be added at the baccalaureate and master's levels and, most significantly, doctoral programs must be expanded at the School of Osteopathic Medicine in Stratford and created in Camden to attract more top students and faculty to work in the research labs that, in partnership with industry, will fuel our growth. Additional investment in capital construction will add the programmatic, classroom, and laboratory capacity needed to accommodate a surge in college-aged students.

Capacity is a critical issue in terms of educating and retaining the "baby boomlet" of children born during the late 1980s that is working through the state's high schools. As those children graduate and seek enrollment at four-year universities, a lack of capacity in South Jersey's classrooms and dormitories will force these students out of state, resulting in the double economic loss of student spending and, upon graduation, highly skilled workers. The Delaware Valley region as a whole needs to attract an additional 20,000 college students in order to compete with such areas as San Francisco and North Carolina; southern New Jersey must be central to this growth.

This is a vision of southern New Jersey worth realizing. It offers fresh avenues for growth and the promise of continued vitality for our children. We have the opportunity to redirect our regional economy toward the knowledge industry of the 21st century. Expanding the research and enrollment capacities of our higher education institutions will spark the necessary catalyst for driving that economic engine.

II. INTRODUCTION

This report responds to the task assigned by the Steering Committee to present a vision for a new public research university in South Jersey; to describe a preliminary academic design; and to identify outstanding issues related to this process. In addition, this report outlines some preliminary costs of establishing, over time, a new public research university in South Jersey.

The academic communities of RWJMS-Camden, Rutgers-Camden, and SOM-Stratford jointly embrace the vision of establishing a South Jersey public research university. We also recognize that other universities and community colleges in the region can complement and collaborate with the new public research university. President Donald Farish of Rowan University, who was a member of the Southern New Jersey Committee, has prepared a report (included with this document Appendix 2) outlining Rowan's vision, its plan for growth and development, and its relation to the new research university. Although Rowan University will not be incorporated into the new research university, the research

university expects to develop appropriate partnerships and collaborations with Rowan as discussed in the body of this report.

By providing distinguished and distinctive education, research, and service, our research university would be the anchoring institution for the academic, social, and economic development of the region. It would lead the resurgence of South Jersey and reverse a long history of underinvestment in the region's institutions of higher education. The challenges in accomplishing the joining together of very different institutions and academic cultures are formidable. Yet the opportunity that presents itself is unparalleled in the history of American higher education.

The research university proposal for southern New Jersey begins at a very different stage than that for either of the sister institutions proposed in northern and central New Jersey. An obvious difference is in scale. The current institutions have significant areas of research strength, which are all the more remarkable given the restrained resource environment and the almost non-existent Ph.D. program base, but they cannot yet lay claim to comprehensive, world-class research, particularly in a broad range of scientific disciplines. Nor do the current combined enrollments begin to match those of central or northern New Jersey or, indeed, of any substantial public research university. However, with the appropriate leadership, planning, and resources, both the research base and student base can be significantly expanded, creating a vibrant and unique institution.

Our committee considered its task to be to examine the viability of the proposal and to outline realistic program possibilities. While many details need additional elaboration, further planning for the new university must proceed in the same consultative, consensus-building fashion that has been the hallmark of our committee's work to date. We believe the university's new board, president, and academic leadership should find our vision compelling. This plan acknowledges that the transformation will take time and proposes a phased timetable. However, it also strongly asserts that the transformation must begin at the same time as the creation of the new public research universities in central and northern New Jersey.

Our plan represents a detailed, concrete blueprint for a South Jersey-based research university. It is a shared commitment to the development of programs and allocation of substantial resources needed to create the new entity. Our shared goal is to strengthen all of the existing partnering institutions. At the core of the plan is a regional vision, a vision of academic growth both in Camden and Stratford. Each of the partnering institutions already well serves the region and the state. With further investment, not only can the components of the new university be enhanced, but collaboration across units in the new university will also multiply the positive outcomes of the state's investment.

III. VISION FOR THE SOUTH JERSEY PUBLIC RESEARCH UNIVERSITY

The university will be characterized both by traditional elements (for example, very strong undergraduate and graduate liberal arts and sciences programs) and unique aspects (medical education with both DO and MD options). Our vision is an inclusive one that aims to be particularly responsive to the needs of the region, such as:

- Providing a rich and comprehensive source of excellent higher education, with particular emphasis on academic programs at all levels that address the needs of the region.
- Engaging the community in using knowledge-based responses to major public policy and practice issues facing the region.
- Creating the research and technological innovations that fundamentally advance knowledge and promote the well being of the region.
- Ensuring top quality medical education of both osteopathic and allopathic physicians, who will gain the special skills to continue to address the broad range of health care needs in the region, particularly the underserved and minority populations.

The university's location and environment is an educational asset with the availability of a diverse student body, an urban and suburban setting, and a cultural corridor. We plan initially to build on existing strengths within the current institutions, phasing in new Ph.D. programs and expanding current graduate and undergraduate programs and capacity. Furthermore, through collaborative facility master planning with its communities, the university will seek to transform the physical environment. In Camden, for example, the successful university district could have a highly walkable corridor to RWJMS-Camden with additional academic buildings, student housing, restaurants, book and music stores, coffee shops, and other retail establishments as well as another corridor to the waterfront. Nothing would spur the economic revitalization of Camden as much as the creation of this extraordinary new academic institution. The Stratford campus also provides significant opportunities to spur regional growth in a designated "smart-growth" area. Stratford and Camden are tied by efficient public transportation. The two university centers can thus be linked hubs of a regional development strategy.

IV. EXISTING STRENGTHS

Among the existing strengths of the current institutions are significant high-quality resources, that, when combined within a new public research university, have great potential for first-class research. These include:

- Undergraduate and graduate programs in Arts and Sciences at Rutgers-Camden, combined with research excellence in the arts, humanities, social sciences, computer and mathematical sciences.
- A highly productive Law School at Rutgers-Camden with keen interest in interdisciplinary work.
- An AACSB accredited, research oriented, Business School at Rutgers-Camden with special strength in Finance, Management, and Marketing.
- A leading osteopathic medical school in Stratford that is the major producer of primary care physicians for New Jersey, with nearly 70 percent of its graduates staying in New Jersey to practice medicine, many in underserved communities. The Stratford-based school is recognized as a national leader in culturally competent health care – both in enrollment (the top ranked in educating women, minorities and underrepresented minorities among all osteopathic medical schools) and in the medical school curriculum. SOM has demonstrated clinical and research strength through its nationally recognized Centers of Excellence addressing the needs of abused children and the elderly. Currently, SOM is the sole institution in the South that grants degrees at the Ph.D. level in biomedical research.
- A vibrant partnership between RWJMS and Cooper University Hospital, currently offering 3rd and 4th year medical education, with specialties including trauma, critical care, cardiology, oncology, pediatrics, neurology, and musculoskeletal diseases. It provides the clinical, research, and educational foundation necessary to serve as the regional tertiary-level academic medical center, serving the South Jersey region. Its faculty is recognized as both practitioners and researchers; the faculty research budget of nearly \$20 million includes significant funding from the National Institutes of Health and other federal agencies.

Our committee strongly recommends that existing collaborations across the current research universities, that serve faculty and students well, should continue. Examples include transfer programs for students in engineering and pharmacy. Similarly, faculty involvement in specialized graduate teaching on other campuses, as well as participation in existing system-wide faculty development programs, should remain in place. In addition to the strengths of the three institutions proposed to become a single public research university, other institutions in the state and region offer rich collaborative opportunities.

Further, the new public research university and Rowan University, a superior regional state university, should coordinate their strategic development in a collaborative fashion. Modeling on the experience of the Council on Higher Education in Newark (CHEN), the new university and Rowan University would foster cross-institutional faculty and student collaborations. A clear starting point for such collaboration is in engineering, where Rowan would provide the necessary expertise to build research capacity in this field. The universities would also seek to avoid unnecessary programmatic duplication. Also, South Jersey's community colleges would continue their roles as first-rate feeder institutions

through student-friendly articulation agreements. Finally, the existence of the Coriell Institute, a world-renowned research facility, offers fertile ground for further scientific collaboration.

V. RESTRUCTURING THE ACADEMIC PROGRAMS

The current academic administrative structure in the south has some considerable advantages for restructuring. Rutgers-Camden and RWJMS-Camden, for example, have very lean structures with Rutgers-Camden having only three academic units (Arts and Sciences, Business, and Law) and RWJMS-Camden overseeing a two-year clinical program. SOM has a strongly structured, relatively self-contained academic administration. There are not multiple administrative units that would require some level of merging or elimination. By building on the strengths of the existing partners, an academic administrative structure could be designed to avoid redundancy, assure cost-effectiveness, and better serve the region.

The new public research university would have four basic academic areas:

- Arts and Sciences
- Business
- Law
- Medicine

Each area would be led by a Dean, reporting to a Provost. Medicine would have two Deans (see later description) reporting to a Provost. The proposed academic administrative structure maintains a lean organizational structure. (See Appendix 1)

I. Arts and Sciences (Graduate and Undergraduate Programs)

A. Ph.D. Programs

The Arts and Sciences program will need, over the next decade, to grow considerably both in undergraduate capacity and particularly in the graduate program area. We recommend significantly expanding the already extant biomedical Ph.D. programs currently offered by SOM in biochemistry, molecular biology, and cell biology. This would include the prompt addition of basic science faculty, researchers, and support staff – to complement SOM’s existing medical school research faculty -- at a projected additional cost in excess of \$10 million annually. As more fully explained below, this is a key investment to support expanded shared medical education, as well as graduate and undergraduate education and research. In conjunction with all the science based education programs, we would aim to develop an aggregate basic

science faculty of 75-100 in the biomedical areas in Stratford and Camden (both at Rutgers and RWJMS at Cooper University Hospital), who would serve undergraduate, graduate, and medical students as their teaching mission.

The preliminary academic program design proposal also posits the phased-in addition of a number of new Ph.D. programs that build on existing faculty strength and on the unique needs of the region:

- **Ph.D. in Computational Biology**

Preliminary discussions with UMDNJ and the Coriell Institute in Camden suggest that the region can develop scientific strength in **Computational Biology**, an area of investigation that brings together biologists, physicists, chemists, computer scientists, and mathematicians. We believe that graduate programs (M.S. and Ph.D.) in this area will make good use of current faculty strengths and will contribute directly to the growth of scientific institutions and biotechnology companies. This area also has the potential to bring distinction to the new university. Computational biology could provide immediate synergies with Rutgers-Camden, the existing research programs at SOM-Stratford, RWJMS-Camden, and the Coriell Institute. It is a discipline in which a new initiative could anticipate the future instead of playing catch-up with the past. Importantly, its inherently multi-disciplinary nature would provide a ready opportunity for all areas to participate. Computers are comparatively inexpensive in comparison with equipment needs in other areas. And a Ph.D. program in computational biology has the potential to be integrated with the existing emphasis on masters-level graduate education. A program in computational biology would not replace, but would rather complement, “bench” research. Such a program would be able to take advantage of numerous funding possibilities in computational biology at the NIH, NSF and DOE, including opportunities for graduate-level training grants at all levels from the NIH.

- **Ph.D. in Computational Sciences**

This Ph.D. program would expand on the already considerable strength of the computer and mathematical sciences departments in the areas of computer security, programming languages, networking, mobile computing, real-time systems, and algorithms, as well as expertise in mathematical statistics and cryptography. The program focus would be on security and other advanced applications, with a research agenda focused on such issues as the development of

security mechanisms that provide a quantifiable degree of trustworthiness for component technologies and systems.

- **Ph.D. in Public Policy/Public Affairs**

Professionally managed government and non-profit sectors are crucial to our region—providing most health, education, safety, business development, and social services that provide the foundation for economic growth and the quality of life. A Ph.D. in Public Administration/Public Affairs would serve a regional educational need for this program. We envision the establishment of a Division of Public Affairs within the Faculty of Arts and Sciences that would incorporate the departments of Political Science and Public Policy and Administration, which would offer Ph.D. programs in public policy and public administration. Current areas of strength, which would be bolstered by the formation of such a division, include public management, international relations, state constitutional studies, non-profit management, international public service, international development, and health care management. Another potential area of growth is educational policy. In addition, this new division would be poised to work in tandem with research and service centers already housed on the Camden campus, including the Senator Walter Rand Institute of Public Affairs, the Forum for Public Policy Research and Public Service, the Center for State Constitutional Studies, and the Center for Strategic Urban Community Leadership (including the LEAP Academy and K-12 Charter School). These centers provide substantial service to the region and state and would be strengthened with doctoral programs. Opportunities for significant cooperation with the faculty of the School of Law, the School of Business, and the medical schools, would emerge, as the Division of Public Affairs would draw on the expertise of the law, business, and medical faculties. The work of faculty from other Arts and Sciences fields as well as from healthcare and biomedical sciences would also contribute to the programs offered in this division.

- **Ph.D. in Childhood Studies**

This is an area in which the strengths of the faculty would provide doctoral students with truly advanced education in areas of research that promise to be in demand in the 21st century. There is already significant strength in this area at the partnering institutions. The SOM Center for Children's Support is nationally and internationally known for its innovative medical and mental diagnostic and treatment approaches establishing much of the field's understanding of the needs of and responses to child sexual abuse. The Center's

services are critical to the N.J. Division of Youth and Families Services (DYFS) and law enforcement mandates. The Center's diagnostic and treatment programs receive significant federal funding and are endorsed by federal agencies as models for care across the country. At Rutgers-Camden, the research and service activities of the Center for Children and Childhood Studies, investigating such topics as literacy and social, medical, and economic issues related to children, establish a significant foundation for collaboration. Such activities complement the existing strengths in clinical education and research at SOM and the Child Development Center at Robert Wood Johnson Medical School at Cooper University Hospital, which provide unique opportunities for research, teaching, service, and clinical practice in the area of child abuse treatment and prevention. Combining the strengths of SOM with those in the law, criminal justice, and childhood studies programs at Rutgers-Camden and the programs in place at RWJMS-Camden ensures that the southern region is extraordinarily well positioned to become the national leader in this area.

- Additional Programs

Over time, additional Ph.D. programs could be added based on opportunities, faculty strength, and regional interest. For example, Criminal Justice, Ecology, Psychology, Political Science, Nursing, and Public History have considerable potential.

B. Master's Programs

Many of the existing master's level programs would be expanded; for example, the new and distinctive program in **Criminal Justice** would grow rapidly to meet the region's needs for advanced training for those in law enforcement and justice administration.

Graduate Social Work, currently offered on this campus by New Brunswick, would be housed here and the lines previously transferred to New Brunswick would be returned to the new University. Increased investment in social work education fits well with the regional mission of the university. The educational, service, and research opportunities in social work complement the existing social science, professional, and medical graduate programs. The range of educational sites in urban and suburban areas is important to social work education. The opportunities for collaboration in the study of children and the elderly are particularly rich. Moreover, student demand for social work education is robust.

Graduate programs in healthcare would also benefit from growth and expansion. The consolidation of nursing programs would allow the

development of a very strong **Master's of Nursing** that includes educational and clinical programs in both Camden and Stratford, with an emphasis on SOM's existing strengths in pediatrics, family care, and gerontology. The cooperative program in **Healthcare Management and Policy** would grow, as would the **Master of Public Health** degree program, which is currently a statewide program offering few opportunities for citizens in the southern end of New Jersey. The union of UMDNJ and Rutgers-Camden would also provide a strong structure for the development of a new **Master's Degree in Psychology** program.

C. Undergraduate Programs

While there will be a need to increase meaningfully the number of graduate students in the existing graduate research programs at SOM in Stratford and new programs proposed in Camden, the largest growth in student enrollment would come from the substantial increase of students in all existing undergraduate majors. Opportunities would also be sought for new and innovative baccalaureate programs, especially those that utilized the opportunity for academic synergies created by the establishment of a new public research university. For example, the University would immediately develop a joint **BA-BS/MD-DO** program, complementing its new **BA/JD** program. Although these programs do not serve large numbers of students, they do serve to attract excellent students to the southern region and signal as well the possibilities for integrated learning offered by a research university.

A joint Rutgers-Camden/SOM program for **Nursing (BSN program)**, would facilitate better use of faculty members and clinical resources, thereby enabling an increase in enrollment in that program.

The new Division of **Public Affairs** could offer a BA program in public policy, in addition to its graduate degrees.

Teacher preparation would be expanded, to focus particularly on secondary education and on the needs of the city and region. Its work would be tied closely to research opportunities in educational policy offered at the new research university.

The **Social Work** program, now to be housed in Camden, would continue to offer undergraduate training. The number of slots in this program would be significantly expanded.

II. Business (Graduate and Undergraduate Programs)

New programs would be offered to meet southern New Jersey's needs for advanced business education. **Master's Degrees in International Business**,

Accounting, Finance, and Management Information Systems would be offered both on the Camden Campus and throughout southern New Jersey. The Business School might also be able to offer an expanded range of **Executive Training** and **Executive MBA** offerings on the Camden Campus and across the southern end of New Jersey.

The undergraduate program would increase its capacity substantially and develop new programs in **international business** and **human resource management**. In addition, joint degree programs such as **management and information systems/graphic arts** and **management and information systems/computer science** would be developed. Opportunities, at both the undergraduate and graduate level, would be explored for additional synergies created by the addition of an academic health sciences program (for example, an executive MBA designed specifically for health professionals).

A special strength of the School of Business is its range of programs centered on economic development: the Rohrer Center, the Small Business Development Center, and the business incubator. As part of the new research university, these programs would play a key role in assisting scientists and others seeking to form new businesses, develop business plans, develop financing, and manage start-ups. Funding through USEDA and NJEDA has already been offered to jump start this project. As part of the redevelopment of the Camden waterfront, the university would participate in developing commercial space to assist such efforts.

III. Law

While the Law School would not experience growth in terms of numbers of students, the new southern New Jersey public research university would provide significant opportunities for programmatic expansion related to legal issues.

The Law School would expand its already considerable strength in intellectual property law to create a **Center for Intellectual Property**, which would have explicit relation to multiple science and biomedical programs. Training in such fields as patent law, biotechnology, telecommunications, intellectual property, and food and drug law would not only train lawyers for crucial roles in key economic sectors of the New Jersey economy, but would also provide valuable skills for research scientists and business students.

The area of the **law of health care delivery** is another natural location for the development of synergistic programs among multiple constituencies. This expansion would build on a now existing group of nationally known legal scholars in healthcare at Rutgers-Camden. Numerous intersecting issues would be addressed, including bioethics, financial transactions, access to health care, treatment of patients with HIV/AIDS, professionalism, and

public health, providing opportunities for collaboration among the faculties of the law and medical schools. The already existing joint **JD/MD and JD/DO** degree programs could be expanded.

In addition, the Law School's interdisciplinary scholars would contribute to additional graduate programs that would be developed. Particular strengths include philosophy, legal history, environmental law, state constitutional law, employment policy, elder law, and labor law.

IV. Medicine

The most immediate challenge facing the new University will be meeting the demand for expanding medical education in Southern New Jersey. We believe that these needs are best met by the creation of partially integrated, separate **Allopathic/Osteopathic (MD/DO)** medical schools. These schools would admit approximately 180 students each year, with some of these students pursuing the MD degree and others the DO degree. Consistent with the committee's principles, it is essential that any plan for higher education restructuring must enhance both Cooper University Hospital and SOM, with the understanding that the design of this plan will strengthen and cause no harm to either medical school. With careful planning and strong leadership, we believe that it is possible to offer both degrees -- meeting the needs of the constituencies for each degree and the healthcare needs of the state -- without cost inefficiencies.

Why offer both MD and DO degrees? There are good reasons why both degrees ought to be offered:

- (i.) A four-year Osteopathic medical school and a two-year Allopathic clinical program are already successfully offered by UMDNJ in southern New Jersey.
- (ii.) Each type of education serves the distinctive needs of Southern New Jersey and the state. The School of Osteopathic Medicine has a distinguished record of producing primary care providers for New Jersey. SOM's Centers of Excellence are already magnets for talented researchers, federal funding and top-tier students interested in meeting the special health care needs of children and the elderly. Its commitment to diversity is vital to extending culturally competent healthcare throughout the region and state.
- (iii.) RWJMS-Camden provides exemplary training in a variety of specialty areas in tertiary care. The southern New Jersey area needs physicians with this training, as these skills are absolutely essential to the healthcare industry in this area. An intense medical education presence at Cooper University Hospital is crucial to its continued quality. We recognize that Cooper University Hospital

is also an anchoring institution for the city of Camden and the region.

The preliminary academic design proposal is to add the first and second year program to the existing RWJMS-Camden program. This would be accomplished by having a single faculty offer the basic science instruction, an expensive component of medical education, to students pursuing both degrees; these faculty could also have joint appointments in Arts and Sciences. The dual program would have approximately 80-85% of the first two years being offered in this manner. First and second year medical education will take place in collaboration with SOM, largely on the Stratford campus for such subjects as Gross Anatomy and Embryology, Histology and Cell Biology, Biological Chemistry, Physiology, Microbiology and Immunology, and Mastering Medical Information. Additional state funding would be provided to SOM for any special curriculum needed to satisfy accreditation requirements for the allopathic program.

RWJMS-Camden will expand the student body, from 52 medical students in the third and fourth medical school years to 80 medical students in each year of the four-year medical school program. The first stage of growth will create needs for 169 additional faculty. This includes 12 new basic science faculty and funding for 157 clinical faculty FTEs. Currently, in SFY 2004, UMDNJ provides funding to RWJMS-Camden for approximately 46 of the 157 clinical faculty, and a State appropriation supports an additional 19.3 FTEs necessary for the existing two-year allopathic medical school program. Thus, beyond the current funding available to RWJMS-Camden in SFY 2004, new funding would be required for the 12 new basic science faculty and 111 additional clinical faculty to maintain the four-year medical school program in expanding Robert Wood Johnson Medical School at Camden to a four-year M.D. granting institution. Many of the faculty are already in place and supported substantially by Cooper University Hospital.

The growth of research and education programs at SOM calls for the addition of 10 FTE faculty and 25 FTE basic science researchers and support staff – to complement SOM's existing medical school research faculty -- at a projected additional cost of \$10 million annually. In addition, the Center for Children's Support projects that it will need an additional \$2 million per year to hire 10 additional faculty and staff to fully expand the scope of research, training and service delivery. Additional FTE faculty lines to support development of patient care and research at the Center for Aging would total 25, which, with support staff, will require projected additional annual state funding of \$9 million.

For programmatic, philosophical, and accreditation reasons, these would be two separate medical schools each with its own Dean (reporting to the Provost). However, the shared first two years provides both efficiencies and

opportunities. The efficiencies come from sharing faculty and facilities. The opportunities are both for medical students and others (including undergraduates) as the basic sciences are expanded and strengthened. And, of course, the opportunities for research success grow as a critical mass of talented faculty come together.

VI. KEY ISSUES

Restructuring Rutgers-Camden, SOM-Stratford, and RWJMS-Camden has real potential for the creation of an exciting new public research university. Yet there are important issues that must be addressed and resolved for this to become a reality. These include:

- THE NECESSITY FOR SIGNIFICANT GROWTH.

To succeed as a largely autonomous public research university, this new entity must be planned with comprehensive **growth** – human capital, physical capital, and infrastructure capital – at its core.

The public research university for South Jersey must eventually enroll 9,000-12,000 students. This size is only slightly larger than the current Rutgers-Newark campus; moreover, this is the size of the smallest University of California campus. There are no successful public research universities that enroll only 5,900 students, which is the combined current enrollment of Rutgers-Camden/SOM-Stratford/RWJMS-Camden.

This size can be achieved in phases. There must be a period of quick growth (five years), bringing the campus to 8,500 students, to ensure that the new, autonomous university is self-sustaining. Universities can succeed in sustaining top-flight research (e.g., Washington University, Emory University) at this size. The new public research university will do the planning and make the strategic decisions necessary to become successful with this enrollment. However, there must be a second phase of development culminating in 10-12,000 students that provides the scale necessary for steady success (ten to fifteen years). The good news is that New Jersey's demographic growth of college-aged students will be the second largest in the nation. And since participation rates are below both national and state averages in south Jersey currently, there is every opportunity – with adequate support – to grow the enrollment exponentially without compromise in quality.

With size comes opportunities for research collaboration and flexibility in program development. For example, modern biomedical science is typically conducted by teams of Ph.D. scientists with overlapping interests. Small departments simply do not have enough faculty members in them to constitute the critical mass necessary for successful research of the sort envisioned in the Commission's report. Similarly, successful graduate programs need many

faculty members, each with expertise in specific areas, to offer the range of specialized courses necessary for quality education.

For these and many other reasons there are no successful public research universities in the United States with fewer than 10,000 students. Thus our proposal is predicated on a growth strategy.

- THE NECESSITY FOR MAJOR INVESTMENTS

To succeed as a largely autonomous public research university, this new entity must receive significant investments over a ten-year period. Any objective observer will recognize that the existing institutions have been resource-starved in the past and therefore begin with major resource deficits in operating funds, academic program funds, administrative infrastructure, and capital investments. The committee is grounded in the reality that careful planning and phased investment will bring the best academic results. Moreover, state subsidies ought to go to students on some equitably based formula. A world-class faculty and premier facilities cannot be accomplished overnight even if the funding were immediately available. However, a sizeable “down-payment” will be necessary not only to jump-start the effort, but also to demonstrate the sincerity of intent. (For more detail, see the discussion of financial needs and resource requirements.)

- THE NECESSITY OF BRINGING TOGETHER DIFFERENT ACADEMIC CULTURES.

To succeed as a largely autonomous public research university, this new entity must bring together some traditionally independent units (e.g., law, business, and medicine). Complicating this task is the historical divide between allopathic and osteopathic medicine. Only with concerted good will and a statesmanlike realization that the whole must be greater than the sum of the parts can this be achieved. It will require a commitment that all restructuring efforts will be works of consensus, like those agreed to in this plan, that are clearly stated and designed to strengthen all of the institutions that are partners in this bold new endeavor.

The committee believes further study should occur regarding the administration of the UMD allied health programs located in southern New Jersey. The current statewide nature of these programs, their small size, and their collaborative nature requires careful program-by-program review to determine the future management, location, and structure of these programs.

- THE NECESSITY OF ADMINISTRATIVE INFRASTRUCTURE.

To succeed as a largely autonomous public research university, considerable work will have to be done, over time, to create an administrative

infrastructure. Currently, RWJMS-Camden has very limited independent administrative capacity in Camden. Rutgers-Camden has many of its administrative services provided through Rutgers-New Brunswick directly (that is, not on an allocated basis), although recently more authority has been provided at the campus level (e.g., the admissions director now reports to the campus Provost). SOM has significant campus administrative capacity, yet it also relies to a certain degree on central services from UMDNJ. Thus, unlike the situation in central and northern New Jersey where the challenge is to bring entire existing units together, the south is faced with complex administrative challenges of creating infrastructure that will require considerable future planning and the additional state support to ensure that research and educational programs do not lose scarce dollars to build a new administrative structure.

The new southern public research university would wish to continue to buy some services from existing or other providers, as long as funding not now explicitly allocated for administrative services becomes assigned directly to the campus. Other administrative services, such as human resources, accounting, and administrative computing services, ought to become a consortial arrangement among all three new public research universities.

In particular, the library, which lies at the heart of a research university, ought to remain a single integrated entity. Electronic collection of materials works best on a system-wide, large-scale basis. This collection development technique has in recent years positively transformed access to information and the research capacity of faculty and students.

- THE NECESSITY FOR ADDITIONAL BUILDINGS.

The university campuses in South Jersey have been underbuilt, as both Rutgers and UMDNJ appear to have concentrated their capital resources largely in New Brunswick and Newark. A recent report (2001), for example, by Paulien and Associates revealed that Rutgers-Camden is currently woefully short of research, classroom, recreation, and general space. SOM has a shortage of laboratory space, hampering its ability to recruit additional first-rank scientists. The importance of expanding facilities to support the growth of research and education programs on the Stratford campus was recognized years before the university restructuring plan surfaced, but construction of a planned education/research facility was cancelled in 2002 when the monies were reallocated to other campuses of the university. Similarly, RWJMS-Camden has limited educational and research space. Its current facilities could not support the educational and research needs of a four-year medical school.

Any building program in South Jersey will require careful master planning, some difficult decisions regarding priorities and locations, and an extended

period of time. Such a building program, however, is essential to the future of both the new public research university and the region. It will also create, in and of itself, economic opportunity and revitalization of the communities, not only for Camden and Stratford but also for the entire region.

Even without further master planning, a number of building needs are quite apparent.

- Science, Biomedical Research, and Medical Education Facilities

Current science facilities are wholly inadequate for a research university, especially one that expects to have some emphasis on the life sciences. Therefore, one or more new science buildings are needed. Most importantly, the new building(s) should encourage scientists from the two current schools of UMDNJ and Rutgers to collaborate, both as researchers and educators. This collaboration is essential to scientific success and to reduce the costs associated with duplicate facilities and equipment. The new science building(s) could also help the new university achieve critical mass on a shorter timetable by building on existing Centers of Excellence and program strengths at SOM-Stratford, RWJMS-Camden, and Rutgers-Camden.

To meet all these needs, new building(s) for the sciences and medical research and education must be quite substantial. If the region did not have the opportunity to combine its resources in a single university, each current institution would need to have one or more buildings. Collectively, \$81 million is necessary to fund new space for scientific research.

There are clear advantages to providing new research space in both Stratford and Camden. The advantages of locating in Camden include greater access to undergraduate students as well as staff at Cooper University Hospital and facilitation of affiliations with Coriell and Cooper. There are also advantages to new construction on the Stratford campus, including available land, maximizing benefits of existing biomedical research facilities and the fact that Stratford is currently home to some of the biomedical scientists expected to work in such a building. Moreover, Stratford will continue to be the site of most of the teaching laboratories for basic science education for both D.O. and M.D. students.

The programs in Stratford have three construction needs: an Education and Research building and facilities for the Center for Children's Support and the Center for Aging. Given that the impact on SOM of support for the expanded allopathic medical school in Camden will lead to a significant increase in the student population attending its first two years

of basic medical education in Stratford, there will be a need for the rapid expansion of appropriate facilities.

The new SOM Education and Research building would need \$32 million in state capital support covering construction and equipment costs for a four story, 50,000 square feet state-of-the-art biomedical research facility, providing two new lecture halls, four new classrooms large enough to handle expanded class size, and 20 new laboratories and support offices.

As previously described, support for the synergy between programs at SOM and Rutgers-Camden would require providing the SOM Center for Children's Support with a dedicated facility. By providing a child friendly environment, the Center's new facility would set children and families at ease following their victimization and provide the resources for a well coordinated professional response to do the serious work of diagnosing and treating child abuse. This facility is envisioned as a two-story, 25,000 square foot building that would house both medical and mental health clinical and research faculty, undergraduate and graduate medical training, pre and post doctoral training programs for psychologists and social workers, and community outreach staff for the following: community education/prevention programs, program development and professional training for child protection and law enforcement professionals.

The SOM Center for Aging needs \$35 million in state capital support for construction and equipment to establish the NJ Institute on Aging, which will rapidly become one of the nation's premiere clinical and research aging institutes. Research on helping older Americans better manage chronic conditions and maintain independent living is a top priority for federal health programs. This 54,000 square foot, four-story building will feature comprehensive clinical services on its first floor, while the second and third floors will be allocated to clinical research and conference and education space. The fourth floor will be dedicated to biological research on Aging. The cost for this facility includes significant investment in technological and information support for the work of the Institute in research, disease prevention, health promotion, and telemedicine.

Expanding RWJMS-Camden requires additional educational and research space. The University of Medicine and Dentistry of New Jersey is currently committed to an \$18 million capital facilities expansion of the existing medical educational facilities of RWJMS at Camden as part of the Camden Revitalization and Economic Recovery initiative, exclusive of the approximately \$5 million allocated in this legislation. Architectural drawings have been completed for renovating 70,000 square feet in 3 Cooper Plaza on the Camden Health Sciences Campus. A large lecture theater and large classroom will be accompanied by the following urgently needed space: 14 small group teaching rooms, 14 clinical skills teaching

and assessment rooms, 2 clinical robotics teaching and research rooms, 12 additional faculty laboratories and 12 faculty offices. Additional space for School of Public Health is included so that collaborative research and community service programs may be expanded with RWJMS-Camden and the Institute for Health Disparities. Expansion of the existing two-year medical school program at RWJMS-Camden into a full four-year allopathic medical school will entail some additional facilities beyond the current capital improvement plan.

Rutgers-Camden, after assessing its needs for research and teaching facilities in the biomedical sciences, determined that it required a \$26 million facility. This expansion would be needed even in the absence of restructuring. Current planning suggests co-locating the facility with the planned expansion at RWJMS-Camden. Thus, at a minimum, there would be an integrated new \$44 million science facility constructed on the Cooper campus.

- Additional Classroom and Related Space

With substantial growth in both undergraduate and graduate students will come the need for additional, technology-friendly classroom space and faculty and support staff offices. This will be particularly true for Arts and Sciences, which will see much of the growth, but may also be true for the School of Business. In addition to adding a substantial classroom building (with supporting offices) and a Fine Arts building, the existing Armitage Hall (built in 1968) will need significant renovation and reprogramming to improve and expand its educational functionality. The new building and the renovation of Armitage Hall will provide some office space for the substantial number of new faculty. In addition, the continuing acquisition and renovation of buildings along Cooper Street will provide attractive faculty office space and will enable the university to make this street an appropriate and vibrant one for a university community.

Law School classroom and related space has already been addressed through the Camden Economic Redevelopment Bill, which authorized \$11 million for the construction of a major addition to the Law School. However, the bill requires university funds as a match; \$20 million is necessary for the match and the renovation to the current law school building.

In support of large numbers of new students and academic programs, the Robeson Library will need to expand its space. This will be done, however, with due consideration to the possibilities of an electronic library and shared services with sister public research universities.

- Student Support Space

The current student center at Rutgers-Camden would need to be expanded to accommodate substantial student growth, as would recreational space. It is important to note that these expansions (and perhaps other planned new space) should be designed with not only the needs of the new public research university, but also with the needs of Camden County College and Rowan's Camden programs as well as those of the community. The philosophy of sharing certain facilities and operations (for example, a bookstore) already exists, and it would be in the best interests of the students and the state to continue and expand such arrangements.

- Student Housing Space

At a minimum in the short term, there needs to be student housing space for an additional 1,000 residential students. Additional residential students would create a critical mass of students to contribute to the social life of the new public research university and to the economic vitality of the area. Further student housing would need to be developed as the campus grows. Partnerships with the private sector would be a possibility for the building of student housing.

- Land Acquisition

Opportunities for strategic land acquisition both in Stratford and in Camden need to be seized as soon as possible. As the new public research university becomes a reality, land and property prices will increase substantially. In addition to acquiring land/property for university buildings, masterplanning should explore the viability of mixed-use facilities (e.g. retail space on the ground floor and university space above) or even the university taking ownership of property and leasing for complementary private-sector use (e.g. bookstores, music stores, coffee shops, restaurants, services).

VII. INITIAL FINANCIAL MODEL AND RESOURCE REQUIREMENTS

Crucial to the launching of a new public research university in the south is funding. There are at least four elements to the funding needs: (1) establishing an accurate base for the existing operations in the region; (2) estimating the transition costs for enabling the three separate existing operations to develop a unified management structure; (3) projecting additional operating costs necessitated by the growth in both students and programs; and (4) estimating the additional capital costs. It should be noted that many of the costs in (3) and (4) are necessary, with or without restructuring. Growth in students and programs **must** occur in the south to “catch-up” after years of neglect. The student growth costs

could be covered under any state initiative to expand capacity rather than as a restructuring cost.

Unfortunately, funding data for (1), **current operating costs**, have been difficult to obtain. Rutgers has not traditionally allocated budgets. UMDNJ has to a certain extent, but not in entirety. The institutions are in the process of finalizing total funds/campus based budget information. Absent complete baseline data for current operating costs and more complete resolution of issues related to system planning, it is difficult to estimate (2), **the transition costs**.

(3) Operating costs can be estimated in a preliminary manner for growing the enrollment, additional programs, and for the capital facilities.

- Arts and Sciences.

To support campus growth, the expansion of current master's degree programs, and the implementation of new Ph.D. programs, the size of the faculty must double within ten years. Additional administrative and staff positions necessary for such an expansion will also be needed. The growth of the faculty, and commensurate costs (expressed in 2003 dollars, with no allowance for inflation), appears in the table below, showing heavier growth in the first five years of rapid expansion.

Years	2003-04	2004-06	2006-08	2008-10	2010-12	2012-14
# of Arts and Sciences faculty	141	177	213	242	262	282
Cost of new faculty	---	\$2,520,000	\$2,520,000	\$2,030,000	\$1,400,000	\$1,400,000

- Business

Currently the SBC has thirty-seven full-time faculty lines, four full-time administrators, and six members of its support staff, for a student body of 800. Growth to a student population of 1200 undergraduates and 500 graduate students would require at least thirty-three new faculty lines. The growth of the faculty, and commensurate costs (expressed in 2003 dollars, with no allowance for inflation), appears in the table below, showing heavier growth in the first five years of more rapid expansion. The SBC would need to add six to ten administrative and support staff positions.

Years	2003-04	2004-06	2006-08	2008-10	2010-12	2012-14
# of School of Business faculty	37	47	55	60	65	70
Cost of new faculty	--	\$700,000	\$560,000	\$350,000	\$350,000	\$350,000

- Law

In order for the Law School to reinforce and expand slightly in the areas of strength noted above, a modest increase in faculty size is required. Additional faculty should be hired in the areas of intellectual property and health law. The growth of the faculty, and commensurate costs (expressed in 2003 dollars, with no allowance for inflation), appears in the table below. There is also a need for staff positions to support the addition of centers and the coherent expansion of other programs.

Years	2003-04	2004-06	2006-08	2008-10	2010-12	2012-14
# of School of Law faculty	40	42	44	44	45	46
Cost of new faculty	--	\$200,000	\$200,000	--	\$100,000	\$100,000

- Medicine

Accreditation requirements mandate the immediate expansion of the faculty in both the allopathic and osteopathic medical schools.

The expanded allopathic medical school in Camden would require direct annual operating funds of \$27 million. That would mean an additional subvention of \$20 million to the current state funding of \$7 million provided by UMDNJ for RWJMS-Camden. As a relative comparison, current base salaries for eight basic science associate professors would reflect a total of \$649,000; current base salaries for 161 clinical medical associate professors would reflect a total of \$16,700,000 in direct costs (exclusive of fringe benefits). Some of those resources would be attributable to instructional time delivered by faculty of Rutgers-Camden and the School of Osteopathic Medicine to the allopathic medical students.

Years	2003-04	2004-06	2006-08	2008-10	2010-12	2012-14
# of Allopathic Medical School faculty	65* funded by UMDNJ &NJ \$10,000,000	111+12= 133				
			Total cost for faculty			
Cost of new faculty		\$19,950, 000	\$29,950,000			

As stated above, SOM requires personnel growth in three areas: basic science, teaching, and research (with an emphasis on building the strengths of its Center for Children’s Support and Center for Aging) amounting to \$21 million annually.

Years	2003-04	2004-06	2006-08	2008-10	2010-12	2012-14
Research & Education Building - Faculty & Research		5 FTE Faculty and 12 basic science research	3 FTE Faculty and 8 basic science research	2 FTE Faculty and 5 basic science research		
Cost of new faculty		\$5,000,000	\$3,000,000	\$2 ,000,000		

Years	2003-04	2004-06	2006-08	2008-10	2010-12	2012-14
UMDNJ-SOM Center for Children’s Support		5 FTE Faculty	5 FTE Faculty			
Cost of new faculty		\$1,000,000	\$1,000,000			

Years	2003-04	2004-06	2006-08	2008-10	2010-12	2012-14
UMDNJ-SOM Center for Aging	30	8 FTE Faculty and 5 basic science research	9 FTE Faculty and 3 basic science research			
Cost of new faculty		\$4,500,000	\$4,500,000			

- Support Needs for All Programs.

As faculty numbers grow and as student enrollment increases to 10,000, there will need to be growth in such areas as adjunct faculty, departmental secretaries, technology support, and related support. These administrative, non-faculty support needs are estimated to cost in the \$10 million range. This sum is in addition to the allocation of funding that can be attributed to existing administrative support that is now provided through central university accounts.

- Capital Facilities

As with the operating funds, capital investments will need to be made over a period of time so as to manage the projects appropriately. Estimated costs for specific needs are indicated in the table below.

Land acquisition	\$12,500,000
Science building(s) – includes funds from revitalization bill (\$5,000,000):	\$81,000,000
Rutgers-Camden science building -- \$26,000,000	
Expansion of RWJMS-Camden -- \$18,000,000	
SOM Education and Research Building -- \$32,000,000	
Arts and Sciences classroom and office building	\$24,000,000
School of Business building	\$17,000,000
Armitage Hall renovations	\$5,000,000
Library renovations/expansion	\$7,000,000
Cooper Street offices	\$11,000,000
Fine Arts Building	\$9,000,000
Dormitory equity, occupancy guarantee	\$6,000,000
Student Center expansion/renovation	\$5,000,000
Gym/Recreation center	\$10,000,000
SOM Center for Children's Support	\$8,000,000
SOM New Jersey Institute on Aging	\$35,000,000
Match for Law School addition and renovation	\$20,000,000
TOTAL	\$250,500,000

- Other Resource Considerations

Other fiscal issues will need consideration as the restructuring planning proceeds. The committee believes a number of these issues will need to be addressed for all three new public research universities, while others will need

to be addressed as data become available. These include: identifying current endowments and establishing an independent foundation for the new university; assigning debt and debt service; renegotiating union contracts; and agreeing on appropriate baselines for all existing financial activities.

VIII. OTHER ISSUES

The committee is fully cognizant that a myriad of other issues will need to be resolved, ranging from faculty and student governance to parking and everything in between. However, it believes all of these issues to be resolvable and to be “second-phase” planning items. Thus the focus has been, as appropriate to the original charge, on academic design and resource needs.

IX. CONCLUSION

The committee is convinced that the status quo is not a viable option for South Jersey. Clearly, a major investment is needed to help the region’s institutions build on their strengths. The proposed course of restructuring the region’s universities is therefore an opportunity not only to achieve many of the “catch-up” items for the existing institutions, but also to create remarkable new opportunities for students, for research, and for the region. To accomplish these noble goals, the new public research university must be largely autonomous both in governance and in command of resources. Then it can be creative and nimble in responding to opportunities and challenges as it builds a unique public research university.

Rowan University

Report to the Review, Planning, and Implementation Commission on Restructuring New Jersey's Public Research Universities

Overview

The role, if any, of Rowan University in the restructuring of New Jersey's public research universities has been actively discussed by various groups and individuals interested in the matter. For reasons having to do primarily with the historical differences in mission, academic culture, and administration as between Rowan and Rutgers – Camden, we do not propose a formal merger between the two institutions, but instead a sharing of responsibility in the creation of a research university in South Jersey, coupled with a commitment to working closely together in a manner akin to what has been the model in Newark among UMDNJ, NJIT, and Rutgers – Newark.

The two institutions overlap in certain core areas (arts and sciences; business), but are complementary in many other areas. Rowan has strong, accredited programs in Engineering, Education, and Communication, for example, that are largely or completely absent from the Rutgers – Camden curriculum. Over the past few years, Rowan has been amassing nearly 600 acres of land within a mile of the 200 acre Glassboro campus. This “west campus” is the site of the soon-to-open South Jersey Technology Center, the future home of most of the athletic fields and venues, and has the potential to permit Rowan to double in size, to roughly 20,000 students, should the state wish it to do so. Finally, Rowan is an autonomous institution, in the sense that all administrative and business practices are handled on the campus, rather than at some distant site, and in principle Rowan could assist Rutgers – Camden with certain of its administrative needs, should that be wished.

Rowan and Rutgers – Camden have coexisted in the city of Camden for 30 years (Rowan has a small branch campus in Camden), and we have a long history of amicable cooperation, including cross-registration of our students, and the sharing of library services, bookstore, child care center, and recreational facilities. As part of the Camden revitalization program, Rowan will be constructing a 50,000 square foot building directly opposite the Rutgers – Camden campus, thereby increasing the opportunities for enhanced cooperation between the two campuses.

Introduction

Two issues are addressed in this document. The first of these is the growth in enrollment that Rowan University could manage in order to respond to the need for greater higher-education capacity in New Jersey. The second issue is the ability of Rowan University to increase its research capabilities and activities as a potential participant in the restructuring of New Jersey's public research universities.

In recent discussions among senior administrators and with the Commission on Higher Education, Rowan University determined that it could expand its enrollment by approximately 71%, to a headcount of 16,550, assuming that appropriate support for operating and capital expenses is provided by the State. (Since South Jersey is growing rapidly, and since the region has only half the per capita number of undergraduate seats in baccalaureate institutions as does the northern part of the state, we assume adding capacity in our region is inevitable.) The number of new students admitted each year would increase by a similar percentage to approximately 4,800, or about 2000 more than we currently admit. The projected enrollment increase is in areas where New Jersey has significant requirements for the education of individuals to meet the needs of employers. Those areas include science and technology, business, health-related professions, education, hospitality and tourism, radio/tv/film, and fine and performing arts.

In order to reach the specified enrollment level while maintaining the current level of support per full-time-equivalent student from the State, the University's appropriation would have to be increased by \$30 million in current dollars. In addition, the University would need about \$196 million in capital funding for new and expanded facilities for education and research.

Enrollment Growth

While all of Rowan University's programs are solidly grounded in the liberal arts and sciences, we expect to increase enrollment by emphasizing programs that will help to meet the needs of the state for an educated work force. Examples of programs where enrollment growth would be fostered are as follows.

- One priority will be to expand our existing programs in engineering, computer science and the natural sciences to support the industries in New Jersey that need such skills and training. We are currently engaged in an expansion the graduate program in engineering in response to demand from students and companies.
- Our College of Business recently achieved accreditation by the American Association of Collegiate Schools of Business. This distinction will enable the College to attract more applicants to its undergraduate and MBA programs. The strength of the MBA program is particularly important, as it will support the need of growing companies in southern New Jersey for better trained and more sophisticated managers.
- We will work cooperatively with both UMDNJ and Rutgers-Camden to meet the growing need for health-related professionals in the state and in southern New Jersey. We are currently working on an arrangement for a joint B.S. in nursing program with UMDNJ, and will explore additional opportunities in this field at both the undergraduate and graduate levels.
- Rowan University's College of Education has long been a leader in the field of teacher preparation. We are in the process of expanding enrollment to meet the needs of the State for more teachers, and are also adding or expanding graduate programs to support needs in such areas as educational technology and administration.
- Hospitality and tourism are also areas where New Jersey's employers have needs that aren't currently being met by existing academic programs. Rowan University is exploring the development of new undergraduate and graduate programs to fulfill those needs.
- The broadcast, entertainment and educational media are poised for growth in southern New Jersey. Rowan University's strong Radio/TV/Film Department is positioned to grow in order to meet increased demand for graduates with those skills.
- Workforce analyses show steady and growing demand for individuals with skills and talent in the fine and performing arts, particularly in such areas as graphic design. The planned new facilities for our College of Fine and Performing Arts will put the University in a position to expand its enrollment in both undergraduate and graduate programs to meet this demand.

Research

While starting from a fairly modest base, Rowan University's recent record of attracting grant funding for research has been one of rapid growth. Research grants awarded totaled \$2.2 million for proposals submitted in FY 00, \$4.0 million for FY 01, and \$7.4 million for FY 02. The University is positioning itself to be able to continue to grow in the level of its research activities, with the following noteworthy developments:

- The recent opening of our new \$45 million state-of-the-art Science Hall provides an enormous increase in research laboratory space for the natural sciences.
- Tenure-track faculty hired in the last few years in engineering and the natural sciences are highly motivated to continue their doctoral and post-doctoral research activities.
- Internal funding intended to seed new research activity has increased steadily in the last three years.
- The South Jersey Technology Park will provide new stimulus for research activity, particularly in the area of engineering and applied technological research.
- An additional engineering building, with significant additions to our research laboratory space, is included in our five-year capital plan.
- The College of Engineering is expanding its master's programs in engineering and assessing the development of a doctoral program. Both of these actions will increase the College's research capacity.

Operating Budget

With regard to the University's appropriation from the State, we have projected a need for an increase that is based on the average appropriation per student FTE for our sector in New Jersey in FY 03. This approach represents a fair approximation of the costs associated with higher education in New Jersey, and results in a cost per student FTE that is considerably lower than the figures for Rutgers University and NJIT. In addition, our analysis shows that we will not be able to realize any economies of scale for the following reasons:

- The University's appropriation has declined by nearly 25%, in constant dollars, in the past fifteen years, leaving us at the point where we have little ability to absorb new or expanded administrative functions without a proportionate increase in funds.

- New administrative structures will be needed in order to accommodate such a large increase in enrollment. At least one, and possibly two, new colleges will be required in order to provide effective and sound leadership for the new academic programs that the University will be undertaking. In addition, we will be developing most of the new facilities required for the expanded enrollment on a site that is some two miles from the current central campus. This will impose requirements for on-site administrators as well as for arrangements for transportation back and forth between two major locations.
- The current utilization of adjunct faculty and other cost-saving measures is at a limit imposed by quality considerations. Dilution of the full-time faculty, advising and other professional staff, and other resources beyond their current attenuated level would result in deterioration of the learning experience that we offer to all of our students. Achieving increases in quantity without maintaining quality would be a bad bargain for the State, and would result in failure to meet the objective of providing well educated graduates who can enter knowledge-intensive and skill-dependent positions that are needed to support the State's economic growth.

With the University's appropriation at \$36.5 million in FY 04, we project that an increase of some \$30 million in 2003 dollars is needed in order to expand enrollment by 71% (to 16,550) without compromising quality. The following table shows the growth in enrollment and appropriation if the state wishes to make the optimum use of Rowan University's ability to increase its capacity.

Fiscal year	FY 05	FY 06	FY 07	FY 08	FY 09	FY 10
Enrollment (head count)	9895	10,500	11,650	13,350	15,600	16,550
Appropriation (2003 \$, in millions)	\$40.0	\$42.4	\$47.1	\$54.0	\$63.1	\$66.9

Facilities

A significant expansion of Rowan University's physical facilities will also be needed to accommodate the increased numbers of students and faculty that are being projected. Educational, research, administrative and support facilities are needed, along with relocation of the University's athletic fields. The University's capital needs for the next ten years have been estimated to be \$575 million without an increase in enrollment. We are projecting that an additional \$192 million will be needed in order to build the facilities for the expanded population of the campus. Among the factors in this calculation are the following:

- Five new academic buildings will be needed, two of which will have significant research and teaching laboratory space.
- Academic and student support facilities will be required.
- Athletic fields must be moved in order to provide space on the central campus for new and replacement buildings and for parking.
- Since much of the new construction will be in an area that is currently undeveloped, a substantial investment in infrastructure will be required.
- Planned network and systems upgrades will need to be more extensive in order to accommodate a larger campus population.

The following table provides an overview of the capital projects required to support the University's expansion in enrollment and research activity.

Type of Project	Estimated Cost
Academic Buildings (5, including two with significant research and teaching lab space)	\$135 million
Land Acquisition	\$10 million
Infrastructure (main campus)	\$8 million
Infrastructure (west campus)	\$20 million
Academic and Student Support Facilities	\$20 million
Expansion of Library (Buildout of unfinished 5 th floor)	\$3 million
Total	\$196 million

Conclusion

If appropriate resources are provided, Rowan University is in a position to make a major contribution to addressing New Jersey's need for additional capacity for research and higher education enrollment capacity. While the required amounts for increased appropriation and funding for capital expenses are substantial, the investment of these funds by the State can be expected to have a significant payoff in future economic growth.