REPORT OF THE
UMKC HEALTH AND LIFE SCIENCES ACTION COMMISSION

Executive Summary

The Health and Life Sciences Commission was appointed by Provost Bruce Bubacz with the goal of identifying strategic priorities for the health and life sciences that would guide the university’s commitment of resources. A summary of the recommendations is presented below, followed by the detailed report.

Vision:
To be a leader in the life and health sciences through innovation and collaboration.

Mission:
UMKC provides and fosters excellence in scholarship through education, research and community service in the life and health sciences. Our programs produce a diverse workforce and contribute to the discoveries that drive the health and well-being of our community.

Key Priorities:
1. Establish life sciences leadership.
2. Focus on key areas of strength.
   a. Mineralized Tissue
   b. Women, Children and Aging
   c. Cardiovascular and Metabolic Disease
   d. Inflammation and Infectious Diseases
   e. Behavioral and Neurosciences (emerging)
3. Invest in faculty recruitments.
4. Invest in infrastructure for research.
5. Enhance collaborations and partnerships.

Specific Goals:
1. Increase research funding by 3-4 fold in 5-7 years to $100-$125 Million
2. Increase undergraduate enrollment by 25% in life and health sciences
3. Increase graduate students by 25 new per year, for a total of 100 additional students
4. Increase underrepresented minority student enrollments to parity for either the Kansas City metropolitan area (undergraduate students) or the State of Missouri (Professional Schools).
5. Support existing efforts to increase health care profession graduates

Strategies:
1. Recruit a Life Sciences Research Leader
2. Enhance funding from multiple revenue streams
3. Integrate the health and life sciences mission with the urban engagement and visual and performing arts missions of the university
4. Set benchmarks for the university and the academic unit for achievement of goals in health and life sciences education and research
5. Develop a formal strategy for branding and communications in health and life sciences for UMKC

**Costs:**

- $150 Million  Capital Projects
- 60 Million  One-time investments
- 15 Million  Annual recurring operating funds

Positioning UMKC as a LEADER in health and life sciences in the Kansas City region will benefit the entire region through education and economic development, most especially the urban core. Achieving the goals recommended in this report will require leadership, focus, and additional resources, but are well within UMKC’s reach. The model for the health and life sciences mission is presented graphically below and detailed in the full report.

UMKC: Where Health Sciences Come to Life

UMKC: Where the Health Sciences Come to LIFE
REPORT OF THE  
UMKC HEALTH AND LIFE SCIENCES ACTION COMMISSION

I. Introduction
The Health and Life Sciences Commission was appointed by then Interim Provost Bruce Bubacz late in 2005 and charged with the goal of identifying strategic priorities for the health and life sciences that would serve as a guide for the university’s commitment of resources. Using a number of existing internal and external reports as a guide, the commission was charged to develop a set of 3-5 priorities in order to fulfill the health and life sciences mission. The charge to the commission and the membership list are attached in Appendix A.

The commission began deliberating in February 2006, in the month following the arrival of Dr. Guy Bailey as the new Chancellor. Concurrently, the community as a whole was evaluating the impact of the Blue Ribbon Task Force Report, *Time to Get It Right*, which was released in 2005.

The commission reviewed approximately 30 existing internal and external reports (listed in Appendix B). The most informative reports were the 2003 Report of the UMKC Life Sciences Task Force (known as the Danforth Report), the 2003 Report of the Life Sciences Millennium Committee, the 2005 Report of the Blue Ribbon Task Force (*Time to Get It Right*), the 2000 Reports from the Urban Mission Task Force (Sections on Health and Human Services, Science and Technology), and the individual strategic plans from the academic units (Arts and Sciences, Biological Sciences, Dentistry, Law, Medicine, Nursing, and Pharmacy).

Three key concerns emerged from the review of these documents:

1. although significant progress has been made toward implementing the recommendations of several of these reports, there is little recognition of these successes or of existing strengths by internal or external constituents;
2. although the first three reports listed above each recommended that UMKC recruit a campus-wide leader for the life science research enterprise, this has not been accomplished to date; and
3. there have been insufficient numbers of new research faculty recruited.

The commission members believe there must be strong leadership established for life sciences research, as well as a recognized identity or “brand” for UMKC life and health sciences research and education. There must be responsibility and accountability for development of the life sciences research mission so that institutional issues of space, personnel and infrastructure can be addressed. Further, measurable goals and specific benchmarks must be set for subsequent evaluation. Finally, a comprehensive communications plan needs to be developed and implemented for both internal and external stakeholders.

The existing studies reviewed by the commission were grouped as (1) external, non-affiliated reviews, (2) internal school documents and plans, (3) external constituents and clinical partners, and (4) urban mission mission documents. The specific lists of reports and summaries are noted in
Appendix C. Key strengths and accomplishments from those reports and from the academic unit plans shaped the Commission’s recommendations.

**STRENGTHS, ACCOMPLISHMENTS AND GAPS IN UMKC’S LIFE SCIENCES EFFORTS**

II. Existing Strengths

A. Strong and unique education programs

UMKC is one of fewer than 30 research universities with all health sciences schools (Medicine, Dentistry, Nursing and Pharmacy) located on one campus (Hospital Hill). The close proximity to the Volker campus provides unique opportunities for collaboration with life sciences disciplines in the College of Arts and Sciences, Biological Sciences, and Computing and Engineering. Additionally, there are strong ties with the Bloch School of Business and Public Administration and the Law School to facilitate collaborations in related fields of technology transfer, intellectual property, entrepreneurship, family law, and health policy.

**Health Science Schools.** The educational programs in Dentistry, Medicine, Nursing, and Pharmacy are detailed in the Health Care Task Force Report, which was presented to the Board of Curators in October 2006 (Appendix D). There are serious shortages of all health science professions in the state of Missouri, and UMKC is a major provider of the existing and future health care workforce for the region. Of note, the UMKC School of Dentistry is the only dental school in Missouri and Kansas; the School of Pharmacy is the only public pharmacy school in Missouri; the School of Medicine is one of only two public medical schools in Missouri; and the School of Nursing is one of the largest nursing schools in the region and the only public nursing program in Kansas City, Mo.

**College of Arts and Sciences.** Departments with programs in the life and health sciences include the following: Chemistry, Physics, Geosciences, Psychology, Mathematics, and Social Work. Related disciplines in Architecture/Urban Planning/Design, Philosophy, and Sociology provide important related programs in understanding health effects of the built environment, bioethics, aging and women’s studies.

**School of Biological Sciences.** Undergraduate programs in biology are essential to the development of the technical workforce in life and health sciences, as well as the pre-health majors. In 2006, the School launched an undergraduate degree emphasis in Biotechnology to respond to the demand for a growing workforce in Kansas City in life sciences research and
biotechnology. The emphasis area is expected to lead to a Bachelor of Science in Biotechnology in Fall 2008. The graduate programs in biology train advanced scientists for both the academic and industry workforce.

School of Computing and Engineering. The School’s expertise extends to the biotechnology fields of computational biology, bioinformatics, bioelectronics, bioengineering and biomaterials/nanomaterials via cooperative programs with the School of Biological Sciences, School of Dentistry, and the Department of Physics. These areas are experiencing rapid growth and offer students career opportunities in new areas with a high demand for professionally trained computer scientists and engineers.

School of Graduate Studies. The Interdisciplinary Ph.D. is a unique program designed to span traditional boundaries among disciplines while helping students develop knowledge and skills for independent research. Students choose at least two disciplines, and students in the life and health sciences fields can select from many disciplines ranging from cell biology and computer science to chemistry and pharmacology.

Bloch School of Business and Public Administration. The Bloch School emphasis on education and development of entrepreneurship, including technology transfer and business ethics is a particular asset for development of interdisciplinary research and education programs. Recent faculty recruitments have strengthened and deepened the resources of the university in entrepreneurship, and UMKC is a national and international leader in this area. Of particular note in regard to the health and life sciences mission is the Enterprise Development Laboratory.

Through the Enterprise Development Laboratory (ED Lab), commercialization of life sciences research can be both a learning experience for students and an exercise that drives economic development in the Kansas City region. The ED Lab provides students not only the opportunity to learn business development and management using real technologies from UMKC and the local community, but it also provides a structured process for determining the commercialization potential of university research. Furthermore, it connects UMKC to the Kansas City community through collaborations and partnerships that support the commercialization of life and health sciences research.

School of Law. The only law school in Kansas City, the UMKC School of Law has a specific expertise in business and entrepreneurship and in children and family law. In addition to its partnership with the Bloch School’s Institute for Entrepreneurship and Innovation, the Law School’s Entrepreneurial Legal Services clinic provides free legal services to entrepreneurs who are starting a business but cannot afford an attorney. Recently recruited faculty have added to the school’s depth of expertise in family law, bioethics, patent and intellectual property law, and food, drug and biotechnology law.

B. Urban and community engagement.

UMKC has many important and long-standing activities that engage the university with the community, especially in the context of improving the physical and economic health of an urban
community. Examples of how UMKC is engaged with the community are summarized below. Further specific examples may be found in Appendix D (Health Care Task force Report)

**Workforce Development.** The education programs in life and health sciences described above provide a technical and professional workforce essential for the development of a life sciences research economy. Therefore, education of this workforce is critical to the economic development of Kansas City, both in terms of training the research scientists as well as the laboratory support personnel.

**Meeting the area’s need for health professionals.** Missouri is underserved in all areas of the healthcare workforce, including physicians, nurses, dentists and pharmacists. Public universities are especially important in educating healthcare workers who stay and work in the community after completing their education (See Appendix D). These healthcare workers are essential for providing medical care for the Kansas City area. In addition, students in the health sciences are actively engaged in service learning projects in the community.

**Economic development and entrepreneurship.** It is estimated that for each dollar of research expenditures by a university, an additional three to four additional dollars of business resources are generated in the community. UMKC is uniquely positioned to link its health and life sciences mission to its programs of excellence in entrepreneurship through technology transfer. A research program of $100 million in annual expenditures would be expected to generate $300 to $400 million in additional regional economic development.

**Combating disparities in health care and economic development.** UMKC researchers are actively engaged in studies that examine causes of disparities in health care and economic status. These studies include disparities related to socioeconomic status, race, gender, age, and disabilities. In addition to these studies, UMKC is positioned to make an impact to reduce disparities through its education programs. Recruitment of underrepresented minority students and faculty has an impact on the regional healthcare workforce, especially since these healthcare workers are more likely to practice in areas serving underrepresented minorities (see Appendix D). UMKC’s schools are striving for underrepresented minority enrollments that are reflective of the community served. For the professional schools, that means an underrepresented minority student population of 14.1 percent (U.S. Census 2000 data for the state of Missouri). For the other health sciences schools, the goal of 19 percent underrepresented minority student enrollment is reflective of the Kansas City Metropolitan Statistical Area 2005 demographic data.

**Improving public health and quality of life.** A number of programs have specific health and human services outreach programs in the community. These programs include Health Psychology (obesity, tobacco use, HIV care), Dentistry (Partnership for Smiles), Nursing (Operation Breakthrough), Pharmacy (Free Health Clinic), Medicine (obesity, tobacco use, trauma services). Since health status is so closely intertwined with economic, social, and legal issues, the outreach activities of the Bloch School, the Law School and the Social Work program also have significant impact on public health. The directors of the Kansas City and Jackson County health departments hold faculty appointments at UMKC.
**Programs with specific community outreach.** Several UMKC programs have an explicit community outreach and service mission. Examples include the Institute for Human Development, The Center for the City, and the Drug Information Center (School of Pharmacy). These programs support and intersect with the educational and research activities of the life and health sciences programs at UMKC, providing a rich experience for faculty and students.

**Affiliations with outstanding regional hospitals.** UMKC is affiliated with five area hospitals—Children’s Mercy Hospitals and Clinics, Saint Luke’s Hospital of Kansas City, Truman Medical Centers, Western Missouri Mental Health Center, and the Kansas City Veterans Administration Medical Center. Combined, these hospitals have an annual budget of over $1.5 billion. The depth, breadth, and quality of clinical cases support the excellent health science education programs, and also provide a basis for development of clinical and translational research programs.

**Regional partnerships.** UMKC has a number of regional partnerships that offer tremendous opportunity for collaboration in areas such as comparative medicine through the region’s animal health initiative. Comparative medicine research uses animal models of disease with the aim of understanding and developing effective treatments for both animal and human illnesses.

**C. Strong existing research programs and core facilities.**

UMKC houses a number of well established research programs in the life and health sciences. Examples of these programs are listed in Appendix G.

**Current Funding**

**Research Funding.** UMKC’s total research and education awards in FY 2006 were $41 million. Of these awards, 70 percent were federal, and approximately half ($20 million) were in life and health sciences. If awards to faculty in the School of Medicine who submit grants through the hospital affiliates are included, the annual awards in life and health sciences are approximately $35 million. UMKC ranks 29th of 102 schools of pharmacy in federal funding, and it ranks 49th of 102 schools of nursing in NIH funding. UMKC is in the lower quartile of public medical schools in federal research funding, but only Arkansas and Iowa are in the top half of these rankings of the surrounding state medical schools. Similar federal funding rankings are not available for dental schools, but the UMKC School of Dentistry is recognized as a leader in bone biology and biomaterials research. The mean annual federal research expenditures for public medical schools is $90 Million, and thus there is significant upside potential to increase health and life science research funding with the unique set of health science schools and life sciences at UMKC.

**Endowments.** Out of the $223 million endowments held at UMKC or on behalf of UMKC, approximately $75 million support life and health sciences. If the Missouri Endowed Chair state matching program is included, the virtual endowment for life and health sciences is more than
$100 million. Appendix F provides further details regarding the level of endowment for each of the health and life science schools, as well as the list of endowed chairs and professors in these schools. Of note, there are nine open endowed chairs and professorships at this time, which provides an outstanding opportunity for UMKC to hire internationally and nationally recognized scholars and bolster and expand strengths in its focal areas of research and education.

III. Key Accomplishments and Gaps

Accomplishments. Over the past five years, there have been a number of notable accomplishments, which include the following:

- Capital Projects.
  - Health Sciences Building I. This $50 million facility will house the research, administrative and education programs for Nursing and Pharmacy. It provides more than 225,000 square feet and will open in 2007. When completed, all health science schools will be located on the Hospital Hill campus.
  - Parking structure. A new parking garage opened on Hospital Hill in November 2006. This facility will provide parking for the new research and education buildings on Hospital Hill.
  - Health Sciences Building II. Program planning funding of $1 million has been secured. Preliminary planning indicates that this building will have capacity to house 40-50 new research faculty.

- Resource Facilities.
  - Laboratory Animal Facilities. Following the recommendations of many earlier reports documenting the needs in this area, significant progress has been made: the facilities are pathogen free; new leadership is in place; and AALAC full accreditation has been maintained. Plans are in development to move into the new animal facility upon the completion of new Health Sciences Building.
  - Proteomics Facilities and Infrastructure. New federal funding has allowed UMKC to maintain a comprehensive mass spectroscopy and proteomics facility.
  - Libraries. Serial collections have been enhanced through new support for acquisition of electronic holdings. Ideal Learning Environment classrooms provide collaborative learning spaces.

- Interdisciplinary Institutes and programs.
  - The Mineralized Tissue Consortium is working to establish a regional institute that will involve interdisciplinary and interinstitutional partnerships.
  - The Translational and Clinical Research Institute is in development.
  - UMKC was designated as a national Center of Excellence in Women’s Health by the Department of Health and Human Services.
  - UMKC is collaborating with the UM-Rolla engineering programs to develop new research and education programs in biomedical engineering.

- Faculty Recruitment. A number of new research faculty members have been recruited to UMKC in the past five years, specifically in department chair, endowed chair and professorship positions.
IV. Recommendations of the Commission:

Despite significant progress toward the goals and recommendations of the reports on UMKC health and life sciences, there remain critical gaps in leadership, infrastructure, and faculty recruitments that remain to be accomplished. Toward closing these gaps, the following mission, vision, priorities, goals and strategies are recommended.

Vision:
To be a leader in the life and health sciences through innovation and collaboration.

Mission:
UMKC provides and fosters excellence in scholarship through education, research and community service in the life and health sciences. Our programs produce a diverse workforce and contribute to the discoveries that drive the health and well-being of our community.

A. Priorities:

1. Establish life sciences leadership. There is a distinct need for strong leadership. The commission felt that the failure to recruit a life sciences leader was a major reason that recommendations from previous reports have not been implemented. Although some members of the commission felt that it may be premature to recruit an individual to serve as a life sciences research leader until more research faculty have been recruited, the consensus of the commission feel that recruitment of such an individual is an essential response to the multiple reports. The life sciences research leader should have the responsibility, authority and resources to build the health and life sciences research programs and infrastructure. This individual should be responsible for development of the benchmarks and communications around health and life sciences research and represent UMKC to the community in life sciences research.

2. Focus on key areas of strength. UMKC has several key research programs of international and national significance where there is established depth. To bolster those programs and their impact on patients and health care quality, UMKC is establishing an Institute for Clinical and Translational Research (Appendix E).

The programs outlined below are key areas identified by the Commission that should be the primary focus of UMKC’s attention and investment. (Examples of each focus area are provided for clarification, but are not intended as comprehensive lists of programs that may currently exist in each area or be developed in the future.)

Mineralized Tissue – Diseases of the Bones and Teeth
- Osteoporosis
- Bone fractures
- Dental composites
- Hardening of the arteries

Women, Children and Aging – “Womb to Tomb” care
- Pregnancy outcomes
3. **Invest in faculty recruitments.** Implement the recommendation of the Danforth Report and hire an additional 40-50 new faculty to build and enhance key areas of strength.

4. **Invest in infrastructure for research.** Invest in the core facilities and infrastructure (genomics, proteomics, drug delivery, libraries, etc) and computing infrastructure needed to support current and new faculty hires. Complete the following capital projects:
   - Complete Health Sciences Building I
   - Build Health Sciences Building II
   - Expand and enhance the Health Science Library
   - Complete Lab Animal Facility
   - Establish Conference Center on Hospital Hill (Gateway Facility)
   - Renovate School of Medicine Building

5. **Enhance collaborations and partnerships.** See listing of external partnerships in Appendix H. Further, the “UMKC: Where Health Sciences Come to Life” graphic model depicts the dynamic way that UMKC’s mission, its areas of strength, its infrastructure and its partnerships together have an impact on the community. The model is found on page 2 of the Executive Summary and at the conclusion of this report.
B. Specific Goals:
1. Increase research funding by 3-4 fold in 5-7 years to $100-$125 Million
2. Increase undergraduate enrollment by 25% in life and health sciences
3. Increase graduate students by 25 new per year, for a total of 100 additional students
4. Increase underrepresented minority student enrollments. Although each academic unit should develop their own specific enrollment plan for recruitment and retention of underrepresented minority students, the general goal should be recruitment to parity for the Kansas City metropolitan area (19%) for undergraduate students, and for the State of Missouri (14%) for professional schools
5. Support existing efforts to increase health care profession graduates (Appendix D)

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<th>Current</th>
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<td>Research Funding</td>
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<td>Underrepresented Minority Student Enrollment</td>
<td>Varies by school</td>
<td>19% of undergrad; 14% of professional</td>
<td>Varies by school</td>
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C. Strategies:

1. Life Sciences Research Leadership. There was consensus among commission members that a life sciences leader as recommended for UMKC by several key reports is necessary. Care must be taken to assure that the individual selected has the appropriate background and experience to build interdisciplinary research programs across both the Volker and Hospital Hill campuses. A draft position description is attached in Appendix K. Additional structure for leadership includes establishment of an internal steering committee comprised of 9-11 members (health and life sciences deans plus representation from affiliated hospitals) and an external advisory committee. An external advisory committee comprised of nationally recognized science leaders will be especially valuable in advising the campus on strategic direction in health and life sciences research and in recruiting research faculty.

2. Enhanced funding. Securing support for the health and life sciences research and education will require multiple strategies, including the following:
   - Internal alignment of resources with mission. This process is currently in progress through development of a new budget model for FY2008. Further evaluation will be conducted in the coming years to ensure the new budget model is meeting its intended outcome.
   - The nine open endowed chairs and professorships should be filled with scholars and scientists of high impact in areas of priorities while maintaining donor intent.
   - Public funds should be aggressively pursued through
- Federal Earmarks
- State Funding (substantial increase)
- Tobacco settlement dollars

- Endowments. The implementation of the new UMKC Foundation should assist with enlisting the UMKC Trustees and the Kansas City community in development and advancement activities.
- Licensing and Patents. The decentralization of management of intellectual property will assist with these efforts.
- Enrollment Management. There is opportunity for growth of enrollments in both graduate programs and undergraduate programs in health and life sciences.
- Grants. Infrastructure grants and other resource funding should be a high priority for the new life sciences leadership.

See Appendix J for estimated costs.

3. Integration of the missions of the University. The life and health sciences mission should, when possible, integrate with the other two core missions of UMKC: urban engagement and the visual and performing arts. For example, degree granting programs in science, health and technology degrees should specifically target the workforce needs of the Kansas City community. Faculty members doing research in UMKC’s key focus areas should be encouraged to address unique urban issues (e.g. health disparities, urban environmental impact on health, etc.) Benchmarks for success in research and education should include measures of urban engagement and interdisciplinary activities where appropriate.

4. Benchmarking. When the final priorities and goals in health and life sciences are approved, specific benchmarks must be established in order to measure success. These benchmarks also serve to hold leadership and academic units accountable for performance in health and life science research and education. Benchmarks should include measures of success in multiple dimensions, such as program quality, faculty productivity, student success, community impact (including economic impact), and fiscal viability. Development of these benchmarks and performance measures are beyond the scope of this commission, but should be linked to the performance measures recommended in the new budget model recommended by the University Budget Committee.

5. Branding/Communications. Development of a formal and clear communications and public relations strategy based on a clear understanding of the UMKC “brand” in research and education is essential for success. The communications plan must include both internal and external constituents. This area is one where the expertise of the members of the UMKC Trustees may be especially helpful. A communications strategy is essential for effective advocacy, fundraising, and recruitment of students and faculty.
V. Summary:

Positioning UMKC as a LEADER in health and life sciences in the Kansas City region will benefit the entire region through education and economic development, most especially the urban core. Achieving the goals recommended in this report will require leadership, focus, and additional resources, but are well within UMKC’s reach.

Graphic representation of the model for health and life sciences at UMKC: