REGENTS OF THE UNIVERSITY OF MINNESOTA

RESOLUTION RELATED TO THE CAMPUS MASTER PLAN FOR THE UNIVERSITY OF MINNESOTA ROCHESTER

WHEREAS, in 1993, the Board of Regents adopted the following four campus master planning principles to direct the development of campus master plans on each of the University of Minnesota campuses:

The principle of creating and maintaining a distinctive and aspiring vision for the physical development of each campus;

The principle of enriching the experience of all who come to the campus;

The principle of maximizing the value of existing physical assets while responding to emerging/changing physical needs;

The principle of an inclusive, accountable, and timely process for creating and implementing the master plan vision; and

WHEREAS, in spring 2007, the University convened a steering committee composed of University faculty and staff, the City of Rochester, Mayo Clinic Rochester, and other civic stakeholders to develop a master plan for UMR; and

WHEREAS, since UMR is a new campus, this campus master plan departs from the typical physically-oriented plan, focusing instead on integrating an innovative academic program structure into a new model for future campus development that is dependent upon public-private partnerships; and

WHEREAS, the vision of UMR recognizes that higher education and research will be central to Minnesota’s future, and that medicine, biology, and technology will dominate the country’s research agenda for the foreseeable future; and

WHEREAS, there is agreement among leadership at U of M, Mayo Clinic Rochester, and the City of Rochester as to the mission, vision, size, and general location; and

WHEREAS, the administration from the University of Minnesota Rochester campus has recommended the adoption of this Master Plan;

NOW, THEREFORE, BE IT RESOLVED, that the Board of Regents directs that the University of Minnesota Rochester Campus Master Plan be used to support the University’s academic mission and guide future land use and capital project decisions in accordance with the four planning principles.

Approved February 13, 2009
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**REALIZING THE VISION** .................................................................... 39
The vision that motivates creation of the University of Minnesota Rochester (UMR) is the University of Minnesota's (U of M) goal of becoming one of the top three public research institutions in the world. This vision recognizes that higher education and research will be central to Minnesota's future, and that medicine, biology, and technology will dominate the country's research agenda for the foreseeable future. Establishment of the University of Minnesota Rochester (UMR) also addresses a long-felt need for a University of Minnesota (U of M) presence in the City and creates a variety of unique opportunities for the Mayo Clinic Rochester, the University of Minnesota (U of M), the State of Minnesota, and the City of Rochester.

The City of Rochester offers the unique synergy of three of the world's great names in education, medicine, and technology: U of M, Mayo Clinic Rochester, and IBM. UMR will become an entrepreneurial bridge between U of M and the larger partnership potential of the private sector, particularly Mayo Clinic Rochester and IBM.

Creation of UMR is undertaken with the conviction that for American higher education to continue to lead the world, it must adapt to changing realities. Higher education can no longer stand apart, but must be collaborative and partnership-driven; walls between the academic sector and the private sector must be pulled down. If the ideas that will fuel the future come from building bridges between work, research, and education, then UMR cannot rely on the organization of a traditional university; the rhetoric of cross-disciplinary collaboration must be supported by new forms of education and new structures for research. As competing demands on public funds become more clamorous, higher education must find ways to address these new demands while reducing cost. The plan for UMR is partnership-driven, cost-effective, and designed to support economic growth in the region.

Finally, the vision for UMR recognizes that cities and their institutions are increasingly co-dependent. The revitalization of downtown Rochester, resulting from the University's presence, will in turn accelerate the success of UMR. This document confirms the appropriateness of the planned academic focus at UMR to the economy of the City of Rochester and the State of Minnesota, and documents the anticipated positive direct and indirect economic impact of UMR on the regional and local economy.

The master plan for UMR establishes an educational and research framework, analyzes expected operating costs and space requirements, outlines necessary partnerships, and determines the requirements for a downtown site, capable of expanding to 1,500 students in the short-term and ultimately to 5,000 students. UMR Programs will complement the strengths offered by its partner institutions. It will also allow the university to quickly develop a national reputation for specialized and innovative programs in an area of high demand – health sciences. Post-baccalaureate programs will be similarly focused and will include a new U of M offering, the
Biomedical Informatics and Computational Biology program. This strategy has the added benefit of positioning UMR as host to programs that supplement, rather than compete with other institutions in the U of M system.

The structure of UMR will offer a unique and cost-effective system of pedagogy, based on current research on learning. Faculty knowledge in particular fields will be supplemented by expertise in learning and course development. A highly focused curriculum for students contemplating a broad range of careers in the health sciences and professions will provide students with a broad multi-disciplinary exposure, giving them a more holistic understanding of the context for the health professions while using project-based learning to ensure real mastery of core skills and knowledge. Larger lectures will be balanced by individual and group study. This foundation will be followed by specialized work in a chosen field, including practical experience and internships, along with focused learning and research. A collaborative and self-reliant approach will be emphasized throughout. The approach developed in the initial pilot program in the health sciences will be generalized to other areas, and additional modules of this kind are contemplated. A detailed cost model developed to support this study indicates the cost effectiveness of the structure.

At the post-baccalaureate level, UMR will function as a catalyst for collaboration across many institutions, while incurring minimal local cost. UMR will host cross-disciplinary symposia and conferences, and will in time develop professional continuing education programs, with the goal of attracting national and international participation, while generating additional revenue.

While a specific site has not been proposed, the report concludes that a downtown location proximate to Mayo Clinic Rochester is essential, as distinct from a more traditional suburban campus, which would be less able to capitalize on synergies with Mayo Clinic Rochester. Both capital financing and land assembly constraints indicate that while the core of UMR’s academic activity will be concentrated and relatively dense, support services, such as residential facilities, can be more distributed within the downtown area. The core of UMR will require the assembly of between four and five city blocks. Siting alternatives for UMR will be explored in the next phase of planning.
This document is a record of the process and direction for development of UMR. Among its key findings are:

1. There is agreement among leadership at U of M, Mayo Clinic Rochester, and the City of Rochester as to UMR’s mission, vision, size, and general location.

2. The proposed focus on health-related signature programs supports the stakeholders’ vision for UMR and is responsive to state, local and national growth trends and workforce demands.

3. The proposed pedagogy at UMR represents a distinct new national model for higher education.

4. Anticipated university, state, and city funding will be insufficient to support initial capital development of UMR campus. Development partnerships with public and private entities and the City of Rochester will be essential and can be structured to benefit all parties.

5. Mayo Clinic Rochester and U of M, as the state’s leaders in bioscience research, can greatly enhance their individual and collective capabilities through enhanced coordination and collaboration.

6. UMR is excellently positioned to represent U of M in developing academic and research interests with the objective of enhanced U of M-Mayo Clinic Rochester partnership.

7. A downtown location for UMR is an imperative as it represents the commitment to partnership that gave birth to this development. A distributed model of campus design will concentrate academic activity close to Mayo Clinic Rochester and provide opportunity for less-critical adjacencies to occur in near proximity to this core. The campus form will be traditional, with building heights responsive to the urban character of the existing setting and the anticipated challenges of land assembly.

8. The City of Rochester is well-positioned to accommodate this new campus. It has the political will, adequate infrastructure, and under-developed land to host UMR campus.
University of Minnesota
I want to extend my appreciation to our partners who have helped shape the Master Planning document. Partnerships involving the City of Rochester, Olmsted County, Mayo Clinic, IBM, and Rochester community leaders gave birth to the new coordinate campus in Rochester, and these partnerships will nurture and grow the campus in the future.

Collectively, we have crafted a vision for a distinctive campus to be a pioneer in a new approach to higher education, delivering improved learning opportunities at lower cost, and capitalizing on mutually beneficial partnerships to strengthen the state’s economy and enrich the city and region. I have the real sense that the planning process has deepened our collective commitment to take the next steps outlined in the report to build our future university.

I also want to extend a special thanks to our consultants, Sasaki Associates, Inc. Willa, Dan, Greg, Phil, and others played key roles assembling information, framing the discussions, and performing the analyses and due diligence that has resulted in this consensus report, which provides a framework for the next phase of planning for UMR.

Finally, I want to thank Vice President O’Brien and members of her team, Harvey and Orlyn, for being part of the journey. I would be overwhelmed if I traveled this road without their support.

Chancellor Stephen Lehmkuhle
November 2008
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VP, University Services, University of Minnesota

Stephen Lehmkuhle, Co-Chair
Chancellor, U of M Rochester

Ardell Brede
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Director, Real Estate, University of Minnesota
Rochester is Minnesota’s third largest city and is home to leading medical and technology institutions, including Mayo Clinic and one of IBM’s largest development facilities. City of Rochester municipal and business leaders have long advocated for a strong U of M presence in Rochester. Their position is that U of M, whose campus was moved to the outskirts of the city in 1993 in collaboration with Rochester Community and Technical College and Winona State University at University Center Rochester, could contribute far more to the quality of life and economic vibrancy of Rochester.

Governor Pawlenty used his 2005 State of the Senate address to indicate his concurrence and, in May, 2005, the Minnesota Legislature signed the Omnibus Higher Education Act, which included $3.2 million to study Rochester’s higher education needs. The Governor then formed the eleven-person Rochester Higher Education Development Committee (RHEDC), and charged this group to recommend an approach to higher education for UMR to leverage resources of the southeast Minnesota region. In their January, 2006 report, this group described a campus that would offer signature academic and research programs that lead to appealing occupational opportunities and contribute to the state’s healthcare and biotechnology industries. The RHEDC recommended study be offered in: biomedical informatics; computational biology; biomolecular engineering; computer gaming/simulation; nanotechnology; allied health; nursing, pharmacogenomics; pharmacotherapeutics; genomics; molecular biology, and business entrepreneurship, innovation and leadership. They called for $3 million in initial funding with an additional $16.3 million over the following three years. The legislature recognized the importance of ongoing support and authorized a recurring budget of $6.3 million for UMR. Their model predicted that the campus would otherwise operate on traditional sources of financial support.

While RHEDC’s effort to formulate the new identity for UMR was underway, U of M took action; the upper floors of the University Square shopping mall in downtown Rochester were renovated to become the site for an interim campus (Figure 1). While an unorthodox site for a university, its location—
immediately proximate to Mayo Clinic Rochester—symbolizes the university’s intent and commitment to a partnership with Mayo Clinic Rochester.

Both the city and the state were quick to show their support for the new vision of UMR. As evidence, Rochester City Council voted unanimously to devote $11.3 million in sales tax revenue to fund facility planning, land acquisition, and construction. The state demonstrated its commitment by appropriating $16.3 million.

In July 2007, Dr. Stephen Lehmkuhle was named the first chancellor for UMR and, in September 2007, UMR opened for classes in University Square, offering more than thirty academic programs, including engineering, computer science, business, education, graphic design, public health, and social work. In addition, collaborative cross-disciplinary research projects for graduate students from University of Minnesota Twin Cities (UMTC), Mayo Clinic Rochester, and Hormel Institute were established under the umbrella of UMR. The accreditation process was initiated in the fall 2008 to allow the university to confer degrees through UMR. Full recruitment and admissions cycles are scheduled for fall 2009.

Consistent with recommendations of RHEDC, U of M and Mayo Clinic Rochester developed a Memorandum of Understanding (MOU) to guide future and mutually beneficial educational collaborations and to capitalize on partnership opportunities. The parties established common processes for communication and planning through the mechanism of the MOU’s development. As a component, each institution pledged to identify the curriculum components it will pursue independently and those areas to pursue collectively. The MOU commits the two parties to the biosciences and health sciences as the trademark of their collaborative efforts.

The U of M initiated development of a master plan for a new Rochester campus. Memorialized in this document, it was undertaken as a collaborative process of approximately sixty individuals representing Mayo Clinic Rochester, IBM, the City of Rochester, Olmsted County, and representatives of the city’s business community. The process involved exploration of stakeholders’ interests regarding UMR’s mission and direction, of their opinions about potential partnerships, and of means to bring disparate goals and priorities into alignment. Through this process, the university and its stakeholders collectively developed enthusiasm for the group’s shared vision, supported by common principles, a programmatic understanding, a campus model, site selection criteria, and a development framework.

A model was developed for the campus that describes the financial (both operating and capital) and space requirements generated by particular academic and research strategies. It was used throughout the master planning process to engage university leadership and project stakeholders in testing various pedagogical approaches with different levels of contact time and class size, varied enrollment levels and mixes for each year of enrollment. Other variables include incentives for national and international student contingents, student faculty ratios and staff levels, different program mixes and combinations of new signature programs and ongoing existing programs, and facility funding strategies, including potential partnerships with the city and other stakeholders such as Mayo Clinic Rochester.

The result of the master planning process is a plan for UMR that describes opportunities, strategic considerations, facilities requirements, principles for physical development of the campus, phasing, and financial structures to support U of M’s goals. The plan maximizes opportunities for the new campus to be fully integrated into the life of the City of Rochester, and to draw from and contribute to its cultural and economic vitality. While a long-term site has not yet been identified, criteria for site selection set the stage for future phases of the master plan in which a location for the new campus will be selected and a phased physical plan for the campus will be detailed.
University Structure, Programs, & Finance

Urban Context Analysis, Campus Form, Siting and Land Requirements

Opportunities for Economic Growth
This document establishes a record of the master plan, the
growth strategy for UMR, and is organized into three sec-
tions:

1 University Structure, Programs, & Finance
The UMR master plan recommendations are supported by
the development of a model that integrates programming and
financial variables and is coordinated with U of M goals. After
testing a variety of enrollment scenarios, the model calls for a
near-term enrollment goal of 1,500 students in Rochester and
an ultimate enrollment of 5,000 students. Programmatic and
financial decisions embodied in the model support offerings
in the health sciences arena through signature programs with
a distinctive approach to learning. The model incorporates
the goal of enhancing research partnerships with Mayo Clinic
Rochester, IBM, and U of M system, and builds collaborative,
inter-institutional research into UMR’s long-term growth plan.
These programs are designed using approaches to instruc-
tion and research organization that are cost-effective and
resource-efficient.

2 Urban Context Analysis, Campus Form, Siting and
Land Requirements
The master plan recommends that the university campus be
sited downtown, proximate to Mayo Clinic Rochester and to
Rochester’s Civic Center, the Zumbro River, and the central
business district. This location positions UMR to leverage
non-university growth in the downtown. The vision for UMR’s
campus is of a contiguous campus core that is home to
essential academic and administrative activities supported by
distributed activities such as housing, student services, and
research. Thus, the campus size requirement is limited. An
urban density of four- to eight-story buildings in combination
with generous allocation of campus open space is recom-
mended for the physical development of the core campus.
To achieve this preferred design and density, four to five city
blocks must be assembled to develop a campus core.

3 Opportunities for Economic Growth
A university presence in Rochester will bring significant benefits
to both state and city economies by stimulating investment by
government and the private sector. The University presence
in Rochester will act as a catalyst for collaboration between
the university and businesses relating to bioscience research
and to enhanced commercialization activity within the State of
Minnesota. It represents an opportunity for the state to bet-
ter capture the economic development potentials of enhanced
coordination of efforts of U of M, Mayo Clinic Rochester
and IBM.
Goal I: Expand UM Educational Programs in the Health Sciences

Goal II: Enhance Partnerships in Research Built on the Strengths and Interests of the Mayo Clinic, IBM, and the UM System

Goal III: Offer Innovative and Cost-effective Approaches to Education and Research, Establishing UMR as a Progressive, Entrepreneurial Leader in the University of Minnesota System

Goal IV: Contribute to Economic Growth
Planning for UMR relies on development of a comprehensive model that integrates academic, research, financial, and physical considerations. The plan has to be financially viable, and must meet the expectations of U of M, Mayo Clinic Rochester, and the City of Rochester. Extensive testing of the model created a profile for UMR that positions it to meet its goals, as described below.

**Specialized and distinctive programs will set UMR apart from comprehensive universities.**

**GOAL I: EXPAND UNIVERSITY OF MINNESOTA EDUCATIONAL PROGRAMS IN THE HEALTH SCIENCES**

**Undergraduate and Masters Programs**

UMR campus will occupy a special place in U of M system, with a strong commitment to academic excellence and a unique approach to higher education that will attract national and international attention. Chancellor Stephen Lehmkuhle in collaboration with Vice Chancellor for Academic Affairs Claudia Neuhauser, led their colleagues in developing a unique academic vision for UMR.

The vision proposes signature program offerings centered on the health sciences. The programs will be unique in structure and curriculum, and will harness innovative pedagogies to produce graduates able to contribute to a wide variety of health science professions. UMR will become a pioneer and a model for innovation in teaching, learning and supporting
technologies, adding marked value to the academic offerings and reputation of U of M within the state, nationally, and internationally.

The initial signature program is a Bachelor of Science in the Health Sciences (BSHS), which is taught using a shared curriculum model of core modules in:

- social sciences humanities (international perspectives, sociology, psychology, language, history, etc.),
- sciences (biology, chemistry, physics, etc.),
- math (algebra, calculus, statistics, etc.), and
- communications and management (administration, management, composition, speech, economics, etc.).

These base modules prepare students for health science modules including anatomy, bioethics, biochemistry, epidemiology, genetics, medical terminology, physiology, pharmacology, microbiology, clinical research, and public health. The degree will then be completed with a capstone experience tailored toward the anticipated career trajectory of each student. Students pursuing a health professional career such as cytogenetic technology, respiratory care, or radiography will focus on clinical core content and clinical rotations. Those students intending to enter health graduate professions, such as dental or medical school, physical therapy or pharmacy programs, or life science or health science graduate programs, will participate in directed research, and study research methodology, statistics, cellular biology and molecular biology. The final capstone will be an accelerated (3+2) masters program, such as occupational therapy, health journalism, public health or bio-informatics and computational biology.

Additional signature programs will be added to offer greater specialization and flexibility. While the health sciences program will remain the biggest program, degrees will also be offered in:

- Health, Informatics & Technology,
- Business, Entrepreneurship, Health Care Administration and Policy,
- Human Development,
- Health Communications and Journalism.

UMR’s existing programs will continue in place, and may be expanded. These include undergraduate studies in nursing and fine arts and masters programs, in professional and continuing education. These programs are generally sponsored by other institutions, and are thought of as “partnership programs”.

**UMR—An inventive approach to graduate education in fields that are inherently cross-disciplinary.**

While cross-disciplinary, collaborative research is endorsed by most universities, the great majority of graduate degree programs remains discipline-specific and reward the individual graduate student’s work rather than collaborative efforts. UMR will develop a different model, with the added component of cross-institutional integration. Graduate education of this type will be supported by incentives for faculty and other professionals to develop cross-disciplinary, cross-institutional research initiatives, providing the research basis for the doctoral programs.(All Ph. D. degrees will still be conferred by UMTC, as is true throughout the U of M system.)

A pilot signature graduate program for this cross-disciplinary model, Biomedical Informatics and Computational Biology
(BICB), was recently initiated at U of M. Contemplated to be a model for future signature graduate programs, in its pilot form this program tests an inventive approach to resource use and graduate education delivery in fields that are inherently cross-disciplinary, and for which the demand for new research activity is significant. The combined resources (academic, medical, and technological) of Rochester and the Twin Cities offer a unique opportunity to exploit all of the state’s best resources in realizing this program’s objectives.

BICB was conceived of by a multi-disciplinary academic committee, which drew membership from numerous university departments, Mayo Clinic Rochester, Hormel Institute, and IBM’s leaders in software development. The committee was chaired by Vice Chancellor for Academic Affairs Claudia Neuhauser, with contributing support from Chancellor Stephen Lehmkuhle. The program, launched in 2008, is an interdisciplinary, graduate program for all U of M campuses that employs faculty from a network of partners, including U of M, Hormel Institute, Mayo Clinic Rochester, and IBM. At U of M, participating departments include Biochemistry, Molecular Biology and Biophysics, Biostatistics, Chemistry, Chemical Engineering and Materials Science, Computer Science and Engineering, Ecology, Evolution and Behavior, Electrical and Computer Engineering, Genetics, Cell Biology and Development, Linguistics, Psychiatry, Psychology, and the Supercomputing Institute.

BICB-related research focuses on development and applications of computational methods and offers internships in industry or laboratories designed to prepare students for an interdisciplinary and collaborative work environment. The program involves a two-year trainee program that immerses students in a research experience driven by co-advisors from U of M, Mayo Clinic Rochester, IBM, Hormel Institute, and other institutions.

The program involves graduate students from the life and health sciences, physical and chemical sciences, and engineering, creating a diverse mixture of traditional graduate students, Ph.D. students enrolled in Mayo Clinic Rochester graduate program, and full-time employees from IBM and other area industries pursuing advanced degrees at U of M. In addition, the program offers business leadership and technology management training. Modular and evening courses are contemplated to provide for the needs of non-traditional students.

The BICB program organization relies on a number of creative strategies that efficiently use existing resources and technology; planning for other UMR signature graduate programs is expected to incorporate similar approaches. The graduate program combines current courses at UMTC and Mayo Clinic Rochester with new courses to establish a comprehensive curriculum in biomedical informatics and computational biology. The program allows UMR students to take courses at Mayo Clinic Rochester and enables graduate students pursuing a degree from Mayo Clinic Rochester to take courses in biomedical informatics and computational biology through U of M.

Seed money is in place to stimulate the formation of interdisciplinary, inter-institutional collaborative research projects in BICB, and the first grants have been distributed. The financial implications of the BICB initiative are still under review, but it is expected that the program will be largely, if not entirely, funded by existing commitments from the various institutions involved. UMR will serve as a location for symposia and conferences, and as a coordinating center.

**Additional Programs**

The UMR program model anticipates offering executive, extension, and continuing education offerings. This responds to Mayo Clinic Rochester and IBM’s indications that there are significant opportunities for UMR to provide continuing education for their workforce as well as the general population. Given the reputations of these three institutions, educational
### BICB Graduate Program Steering Committee

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<tr>
<td>John Carlis (Computer Science and Engineering, UMTC),</td>
<td>Drew Flaada, Director Mayo Collaboration, Life Sciences, and BlueGene Software Development</td>
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<tr>
<td>Lynda Ellis (Laboratory Medicine and Pathology, UMTC)</td>
<td>Mike Good, Manager, BlueGene Software Development</td>
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<td>Drew Flaada (IBM),</td>
<td><strong>Post-doctoral Associate Fellow</strong></td>
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<th><strong>BICCB Graduate Student</strong></th>
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<td>Sue Van Riper, University of Minnesota Twin Cities</td>
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offerings could be developed that would draw from a national and perhaps even an international pool. Short-term residential professional development programs could be offered, generating an additional positive revenue stream.

**GOAL II: ENHANCE PARTNERSHIPS IN RESEARCH BUILT ON THE STRENGTHS AND INTERESTS OF THE MAYO CLINIC ROCHESTER, IBM, AND THE UNIVERSITY OF MINNESOTA SYSTEM**

The viability of Rochester-based University-industry research collaboration has already been demonstrated. In 2003, Minnesota Governor Pawlenty announced an agreement between Mayo Clinic Rochester and U of M to implement a multiyear research partnership which resulted in the formation of the Minnesota Partnership for Biotechnology and Medical Genomics. The research synergies that can be realized through an enhanced partnership between the university and Mayo Clinic Rochester are remarkable. The university is currently ranked 15th nationally in federal research dollars and Mayo Clinic Rochester is ranked 30th. Both have experienced double digit annual growth in research space demands over the last decade. To best capitalize on their shared opportunities, U of M and Mayo Clinic Rochester should create a MOU relating to research which establishes how their respective strategic research plans represent opportunities for enhanced research partnerships in the arenas of healthcare delivery and biotechnology.

Entrepreneurial activity generated from this research will continue to contribute significantly to the regional and state economies. The City of Rochester and state representatives, eager to support UMR in this endeavor, expect the commercialization of partnership based research to stimulate growth of in-state research and development companies. Acting through the mechanism of a proposed University Institute for the Advancement of Research Partnerships in Rochester, UMR will build on the model of the Minnesota Partnership and the contemplated research MOU with Mayo Clinic Rochester. This institute will be committed to creating additional means of enhancing the university’s role as university-industry facilitator, identifying and building research collaboration driven by both U of M and Mayo Clinic Rochester.

**GOAL III: OFFER INNOVATIVE AND COST-EFFECTIVE APPROACHES TO EDUCATION AND RESEARCH, ESTABLISHING UMR AS A PROGRESSIVE, ENTREPRENEURIAL LEADER IN THE U OF M SYSTEM**

In addition to the academic benefits inherent to the signature undergraduate and masters programs, the signature program approach represents significant operational cost-savings when compared to a traditional structure. Because a common curriculum characterizes the first two years of the UMR program, resources that would normally be distributed among a large number of unequally populated courses and electives are concentrated, and used to developed project-based, collaborative learning and individualized academic support for students. In addition, students will have a shared and coherent experience, with general education courses tailored to the program’s emphasis on the health sciences. UMR signature programs will be staffed by tenure and tenure-track positions.

The learning design faculty, primarily supporting curriculum development, will be complemented by content specialist student-focused faculty. This group, with aid from learning fellows (post-doctorates), will teach each of the four core modules: social science, science, math, communication and management. Because of the high level of support provided by the learning fellows in informal learning environments, the more traditional lecture-based material in the core modules will be delivered in large but efficient class sections of around 80 students.

With cost-effectiveness and innovation as criteria, it was decided that UMR’s existing programs will continue as needed
Mayo Clinic

Mayo Clinic has a history of numerous successful partnerships with academic institutions. The Mayo Clinic collaboration with Arizona State University represents inspiration for Minnesota to consider in order to take advantage of the presence and activity of the University of Minnesota and Mayo Campus Rochester. In 2004, Arizona State University and the Mayo Clinic campus in Scottsdale, Arizona, embarked on formal collaborations in medical research and education, which include a seed fund for collaborative research, shared faculty appointments, joint educational programs, and shared office space. The seed grants are intended to allow researchers to generate initial findings that will help them win larger federal grants for continued investigations.

The partnership draws upon the existing strengths of each organization: ASU’s programs in biodesign and biotechnology at the Arizona Biodesign Institute, and Mayo’s extensive clinical experience and medical education programs. Similarly, ASU and Mayo Clinic had precedents for collaborations throughout the years, including an earlier agreement to work together to jointly advance specific areas of research, including neuro-imaging, receptor biology, microdevices and vaccine development.
but with limited growth. Hybrid learning, which uses technology to supplement educational delivery, will be employed to reduce the amount of needed classroom space and attract a broader spectrum of students. UMR graduate and special programs will be taught by university faculty, faculty jointly appointed by the university and Mayo Clinic Rochester, and Rochester industry leaders.

The signature approach represents significant savings over a more traditional structure.

The cost of space—land assembly and construction or leasing—is an influence on university decision-making about student population. The initial enrollment target of 1,500 students by 2014 and long-term goal of 5,000 students was found to be the optimal cost model. This model introduces more graduate students after a decade, as the fiscal stability to be realized in the early years will create the platform for the more expensive research curriculum needed to support graduate studies.

A commitment to sharing facilities represents another innovation related to the cost of space for the UMR. It is anticipated that the UMR will share space and costs for provision of recreation, housing, cultural venues, research and even instructional facilities. With these partnerships and through the hybrid learning model established for UMR, its space requirements are limited as compared to a traditional campus. The model, applying modified national and state space standards, estimates these space requirements are shown in the table to the right.

### GOAL IV: CONTRIBUTE TO ECONOMIC GROWTH

UMR will add its energies to that of the Minnesota Partnership for Biotechnology and Medical Genomics and others working to catalyze the state’s research and commercialization in this arena. The University is currently ranked 15th nationally in federal research dollars and Mayo Clinic Rochester is ranked 30th. Their combined forces represent a potential international research powerhouse.

At the municipal level, UMR will catalyze both direct and indirect job creation and capital investment. By locating the campus downtown, UMR will invigorate demand for goods and services in the city’s core. The attractiveness of the campus will stimulate demand for non-university growth in the downtown, curbing the recent history of sprawling growth.

A key incentive for U of M to build a new campus in Rochester is the opportunity to partner with Mayo Clinic Rochester. Therefore, it is ideal that the new campus be proximate to the clinic. Leadership at Mayo Clinic Rochester and in the City of Rochester recognizes that this new campus is a critically valuable city-building opportunity. They expect to see the UMR campus also work to diversify the economy and stimulate private investment in the city’s core.

<table>
<thead>
<tr>
<th>Space Category</th>
<th>Enrollment of 1,500</th>
<th>Enrollment of 5,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classroom</td>
<td>19,000 ASF</td>
<td>53,000 ASF</td>
</tr>
<tr>
<td>Teaching Labs</td>
<td>49,000 ASF</td>
<td>190,000 ASF</td>
</tr>
<tr>
<td>Offices</td>
<td>22,000 ASF</td>
<td>84,000 ASF</td>
</tr>
<tr>
<td>Library, Study, Informal Learning</td>
<td>23,000 ASF</td>
<td>84,000 ASF</td>
</tr>
<tr>
<td>Total</td>
<td>113,000 ASF</td>
<td>411,000 ASF</td>
</tr>
</tbody>
</table>
Urban Form and Land Use Patterns

The city core – defined as the district that is within one-half mile of the heart of Mayo Clinic Rochester and centering on the intersection of 2nd Street SW and 2nd Avenue SW – is characterized by the dominance of Mayo Clinic Rochester and the commercial activity that supports it. The city’s largest employer, Mayo Clinic, benefits from zoning initiatives designed to provide for its growth and development. These include zoning overlays for the Central Sub-District (Downtown Campus), West Sub-District (Saint Mary’s Campus), and Mayo Support Campus. (Figure 1) The overlay zones reinforce the significance and unique situation afforded by Mayo Clinic Rochester’s downtown location, as well as its particular operational needs related to land development of a campus style, with multi-block ownership and common use. (Figure 2, page 16) Mayo Clinic Rochester represents a densely built campus of large building footprints and heights up to twenty-six stories, within a context of low-rise buildings and a multitude of parking garages and surface parking lots. (Figure 3, page 17)
figure 2. research and education adjacencies

16 URBAN CONTEXT ANALYSIS, CAMPUS FORM, SITING, AND LAND REQUIREMENTS
Figure 3. Building heights
Figure 4. Land use

18 Urban Context Analysis, Campus Form, Siting, and Land Requirements
Mayo Clinic Rochester’s larger scale development and pattern of single ownership has resulted in the agglomeration of several blocks into super-blocks. This area of the city is host to business uses (largely hotels and short-term residential accommodations) and single-family residential neighborhoods (Figure 4, left).

Beyond the boundaries of the downtown core, there is a pattern of lower density, intact neighborhoods. Clusters of commercial, civic, and educational land uses have also been created (Figure 5, above) within walking distance of Mayo Clinic Rochester’s zoned growth areas. The area includes a concentration of structured and surface lots in the blocks south of Mayo Clinic Rochester downtown and north of Soldier’s Memorial Field Park.

Hilly terrain defines the district west of Soldier’s Memorial Field Park, with the highest being Pill Hill. (Figure 6, above) Immediately to the south and east of Mayo Clinic Rochester campus is an emerging neighborhood, referred to in Rochester’s planning documents as the “Urban Village”. This area is distinct as an investment area within the downtown. Here, plans call for a neighborhood of residential, commercial and retail land uses, woven together through scale of 2-to-5 story structures, interesting architecture and independently owned small stores and restaurants.
figure 7. transportation systems and pedestrian connections
Transportation

Several major corridors, including U.S. Routes 14, 52 and 63, pass through the City of Rochester and Interstate 90 runs east-west just outside of the city’s southern boundary. These routes serve as the primary connections to the Twin Cities, Wisconsin and Iowa. The city is served by the Rochester International Airport, eight miles south of the downtown core, and the Minneapolis-St. Paul International Airport, ninety miles to the north-west. The Dakota Minnesota and Eastern (DM&E) freight railroad traverses the city just north of Mayo Clinic Rochester. Currently, three trains per day run along the railroad; however, DM&E has proposed service increases that would bring up to thirty-seven trains per day along the track running parallel to Civic Center Drive. The rail line and highways function as physical barriers that campus urban design and site decisions must consider and mitigate.

The City of Rochester contracts with a private vendor to operate thirty-six fixed bus routes throughout the Rochester region, each of which services downtown Rochester. (Figures 7 and 8) A combination of federal, state and local funds helps to pay for the service. Local funds include guarantees by Mayo Clinic Rochester, among other non-municipal entities, to ensure demand for specific routes and services. Public transportation also operates on a very local, central business district scale. Mayo Clinic Rochester operates an employee shuttle that takes staff between St. Mary’s Hospital and Mayo Clinic Rochester downtown campus. Additionally, a Mayo Clinic Rochester patient shuttle operates between the downtown and St. Mary’s campuses. For visitors, these services are augmented by hotel shuttles.

Underground walkways (referred to as “subways”) and skyways connect buildings in a seventeen block area centered on Mayo Clinic Rochester’s downtown campus, connecting venues and providing pedestrians with a moderate climate as an alternative to Minnesota’s winter weather. The main zones of street-level pedestrian activity are clustered within and around Mayo Clinic Rochester, including St. Mary’s Hospital. (Figure 7)
COLUMBIA UNIVERSITY
Building area=3,028,000 gsf
Campus area=29 acres
DENSITY = 2.43 FAR

UMTC ACADEMIC QUAD
Building area=1,950,000 gsf
Campus area=28 acres
DENSITY = 1.53 FAR

figure 9. columbia university density

figure 10. umtc academic quad density
Campus Design and Development Strategy

The UMR model of program and student population was used to describe and test physical plan options for a range of densities and development strategies that address Rochester’s city block sizes, the land costs in the downtown core, and the university’s desire to maintain a campus experience as key to its urban design strategy. The process explored a traditional campus in a location with the capacity to house all university functions on-site at a low density. However, after weighing UMR's goals, particularly the partnership opportunities inherent in proximity to Mayo Clinic Rochester, it was agreed that a location in the downtown core is a priority for site selection.

The vision for UMR's campus is of a contiguous campus core that will host key academic and administrative activities in combination with distributed real estate holdings in Rochester's downtown core where supporting uses like housing, student services, and research can be located. For urban design purposes, an acceptable walking distance for additional campus functions will be within six of Rochester's downtown blocks. These support functions will be developed with partners and may be located within their facilities. For example, the university might commit to a long-term lease for its community's use of a gym facility in exchange for that facility's upgrade or expansion. In this way, the university will both create a strong physical identity and promote investment beyond its campus.

To establish a target density and urban design strategy for the core campus development, a number of existing urban campuses were considered, from moderate density examples—such as the majority of mid-western land-grant universities, University of Chicago, or Northwestern University—to high-rise examples in New York City and Toronto. It was determined that a mid-rise campus, with buildings generally ranging from four to eight stories, best suits UMR's circumstances. Successful examples of comparable campuses are embedded in an urban context, such as Columbia University in New York City, or University of Texas in Austin, Texas, or the academic quad area at U of M, where mid-rise buildings are balanced against generously-scaled open spaces. (Figures 9, 10)

A design strategy of classic proportions and high quality architecture is appropriate to UMR's mission and vision as an institution of national and even international appeal, in a setting of an improved urban core. By designing the campus with an urban density and limiting the core campus to essential academic purposes, land assembly requirements and development costs can be limited, allowing the University to concentrate its investment on academic programs and opportunities for collaboration. At UMR, the program for the campus will be accommodated in buildings averaging heights of five stories and an open space system that covers fifty-percent of the land. Green spaces can be developed at a variety of sizes, with a single space large enough to host major events such as convocation. Following these criteria, the eventual assembly of between four and five of Rochester's city blocks is regarded as an objective for the campus. This level of density also provides the benefit of providing a needed transition within downtown Rochester's disparate urban fabric, providing an interim scale between Mayo Clinic Rochester's campus and the surrounding neighborhoods.

If the university, instead, were to be committed to developing a traditional campus, where all University community needs were accommodated within the campus and density was lower, the University would need to assemble 14 city blocks. For comparison, Mayo Clinic Rochester's land holdings in the downtown campus total approximately 26 city blocks. Land assembly on this scale would be beyond the capacity of the university, and undesirable for the Rochester community.
Guidelines for Site Selection

- Land assembled for campus cores should be of a size to accommodate core programs and provide ample open space with a density typical of an urban campus.

- Location of campus core and research facilities should be within walking distance, or six standard city blocks of Mayo Clinic campus in Rochester's core facilities, centered at 2nd Avenue SW and 2nd Street West.

- Location of core and non-core campus facilities should have easy connections to transit, bike travel, and well-trafficked pedestrian routes.

- Real estate assembly (acquisitions and/or lease arrangements: core campus and other parcels) should capitalize on opportunities to partner within the community on facility development.

- Real estate assembly should capitalize on existing City attributes such as attractive architecture and open space, appropriate urban scale, vibrant commercial and civic activity, and natural features of their context.

- Real estate should support municipal plans for investment.

- Real estate assembly (acquisitions and/or lease arrangements: core campus and other parcels) should not displace provision of goods and services that contribute significantly to the city's functions.
CAMPUS PLANNING AND DESIGN PRINCIPLES,
CRITERIA FOR SITING

Through the planning process, U of M committed to creating a campus that contributes to the quality of its urban setting. In selecting a site for its core campus, developing its physical plan and, ultimately, its landscape and architecture, the university is advised to follow the principles outlined below.

Urban Integration
The university envisions creation of a core campus that houses academic and key administrative functions and possess many of the design attributes of a traditional campus. Other campus activity—such as residential, recreational, parking, and support commercial—will be within walking distance, but distributed within the city’s urban fabric. The core campus strategy will work to enhance the urban character of the downtown. Currently, much of Rochester’s downtown is characterized by variable scales of building footprints, a pattern of relatively standard block sizes interrupted by larger blocks that serve Mayo Clinic Rochester, and a mixture of building densities and quality of building (both architecturally and as a function of maintenance). This existing urban texture offers an opportunity for the design of UMR campus to introduce an interim scale of buildings that will represent transition of scale and improved building quality.

Quality of Life
The university will contribute to the city’s foundation of culture, business, and recreation through a strategy of shared facilities throughout the downtown. UMR will work with the city to establish guidelines for stimulating private investment in residential and commercial facilities that both support the university’s needs and enhance the quality of facilities for community use. The university will participate actively in community plans and support efforts to limit reliance on automobiles as a prime means of transportation.

Synergy
Partnerships of UMR, Mayo Clinic Rochester and others in Rochester for education, training, and research will generate significant synergies. Through these partnerships, UMR can function as a leader in stimulating the regional economy in the arena of health sciences and technology. Physical proximity of the UMR campus to its primary partners is necessary to achieve the full benefits of the partnerships. Close proximity among the partner institutions enables the spontaneous encounters that are essential to creating these synergies between people, institutions, and ideas.

Connectivity
UMR campus must be easily accessible to its surroundings and support a transportation network that promotes pedestrian activity in the immediate area, and connectivity through transportation systems within the larger community.

Sustainability
The planning and design principles developed through this planning process will shape a campus that is culturally and climatically responsive to the Rochester context, integrated with the local community, and exemplary of sustainable design in buildings and landscape systems. Compactness and proximity to major partners, downtown services, and transportation will contribute to a sustainable approach.
Framework

The urban design framework for a new University campus in Rochester’s downtown core underscores the opportunity for university development to stimulate city-building. It calls for the University to draw from existing seeds of urban vitality and contribute to locations in need of improved amenities. As a distributed campus, the UMR campus must be well-connected with the existing network of key streets and with areas with active pedestrian environments, indicated in red on the framework diagram.

Within a ten-minute, 6 block walking radius of the heart of Mayo Clinic, there exist zones with apparent development potential, where a University campus intervention can bring vitality and order to underutilized land. These zones, depicted in blue, are transitions between more fixed areas, and have a mixed character that is defined by varied building scales, a proliferation of surface parking lots, and mixed or industrial uses. Operating within this framework, the UMR campus environment can harness and enhance the diversity of urban conditions in Rochester to help build a City that attracts creative people and their families, and provides a rich civic, cultural, aesthetic and social experience.
In a knowledge-based economy, universities are increasingly seen as catalysts for economic growth. Analysis of the growth model for UMR concludes that the campus growth will generate growth of 2,356 jobs (full and part-time employment), resulting in $6.7 million in state income tax and $40 million in retail sales.

**UMR and the State’s Bioscience Industry**

Most major bioscience clusters in the US are immediately proximate to research universities, where effective melding of resources, including university research, a talented labor force, available capital, and prominent local business institutions, results in a strong bioscience industry at a municipal and state level. In these settings, the bioscience industry has immediate access to a talent pool of specialists supported by a more generalized workforce mix to provide organizational, problem solving, data management, and record keeping skills.

While not following the ideal model of proximity, UMR should be viewed as a very important opportunity to both enhance provision of education in the health sciences and to build on the region’s and state’s strength in related research and development. The Minnesota Department of Employment and Economic Development (DEED) asserts that opportunities for collaboration with research institutions, such as U of M and Mayo Clinic Rochester, are a major strength for Minnesota and that the Minnesota Partnership for Biotechnology and Medical...
Genomics “leverages the scientific leadership of U of M and Mayo Clinic Rochester into a powerful research collaboration to position Minnesota as a world leader in biotechnology and medical genomics.”

UMR assumes its commitment to research and development partnerships in the biosciences within an impressive setting. Investments in the future growth of Minnesota’s biotechnology industry are substantial. U of M and Mayo Clinic Rochester have invested nearly $500 million in genomics and biotechnology. State support between 2000 and 2005 included approval of $240 million in bond funding for bioscience-related laboratories. This has created U of M entities such as the Biotechnology Institute, Developmental Biology Center, Biomedical Engineering Institute, and the Biomedical Genomic Center. At Mayo Clinic Rochester it helped create the Genomics Research Center.

A 2008 study by the Battelle Institute indicates Minnesota is a leading state in the bioscience sector. It specifically identifies Minnesota as a state leader in the medical devices and equipment subsector, in bioscience venture capital investments and by the number of bioscience-related patents. Minnesota is second of three states that are identified as both large and specialized in the medical devices and equipment subsector and is one of four states that created more than 1,000 jobs in this subsector over the five year period 2001-2006. Biomedical sciences represent 31.9% of the state’s employment growth in the last decade.

The following Minnesota programs and initiatives are hallmarks of the state’s support for the bioscience industry.


National comparisons allow for the consideration of relative investment.

1. Many states have programs to assist start-up companies and entrepreneurs, but only a few are specifically directed towards bioscience. The BioBusiness Resource Network, an initiative of the BioBusiness Alliance of Minnesota, is “focused on supporting companies that provide exponential returns to Minnesota’s quickly evolving bioindustries.”

2. Biodale is U of M’s state-of-the-art imaging and advanced genetic analysis consortium of facilities at U of M St. Paul campus. The facility provides a multitude of resources and equipment for member departments and companies to use. Only six other states offer similar facilities despite private interest in academic partnership.

3. Minnesota’s BioScience Zone Program, created in 2003, provides tax incentives for bioscience companies to move into areas near university and research centers. Currently, there are BioScience zones in Minneapolis, St. Paul, and in Rochester. To qualify for the tax exemptions, businesses must start-up, relocate to, or expand to the zone. Multiple states have established similar zones to encourage the development of research nodes near universities by providing financial incentives for start-ups.

4. In October 2006, the Mayo Clinic was awarded one of the first Clinical Translational Science Awards (CTSA) offered by the National Institutes of Health. The $72 million award allowed the Clinic to create the Mayo Clinic Center for Translational Science Activities which works to integrate and coordinate interdisciplinary resources to support the translation of scientific discoveries into practical applications. To date, more than 35 institutions have received CTSA grants, including medical research facilities across the United States.

5. U of M created the Initiative for Renewable Energy and the Environment Program for research on biohydrogen and other renewable energy fuels with $20 million in state financing. Biomass and other bioenergy are increasingly promoted by states through bioenergy investments, research and capital funds, and state programs. The U.S. Department of Energy Bioenergy Research Centers awarded funding to three state facilities in Tennessee, Wisconsin/Michigan, and California. Both Kansas and Oklahoma have their own state-funded Bioenergy Research Centers.

6. In 2007, the Minnesota Legislature approved $10 million to support infrastructure development for research facilities. The majority of the funds, $8 million, supported construction of the Minnesota BioBusiness Center in Rochester. The anchor tenant is intended to be Mayo Health Solutions (formerly Mayo Medical Ventures), the technology commercialization arm of Mayo Clinic.

A 2008 study by the Battelle Institute indicates Minnesota is a leading state in the bioscience sector nationally, billions of dollars are spent to support the

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8 Rochester Area Economic Development, Inc.
development of research facilities and equipment. California provides the most research funding of any state, including $3 billion in bond funding to create the California Institute of Regenerative Medicine.

**Minnesota’s support for bioscience research facilities is significant, but 28 states made comparable investments in bioscience research facilities between 2006 and 2008.**

8. A $21.7 million Minnesota bond issue created a three-story research facility on the top floors of the Stabile Building in Rochester. Dedicated to the Minnesota Partnership for Biotechnology and Medical Genomics, this high tech facility provides general research space, as well as dedicated laboratories for genomics and bioinformatics. Investigators from both Mayo Clinic Rochester and U of M collaborate on research at the facility. Another partnership in Minnesota is Hormel Institute, a medical research unit of U of M focused on cancer research. Hormel Institute Expansion Project in Mower County is an 89,954 square foot facility that opened in October 2008. The expansion project includes a renovation of the existing 4,000 square foot facility. The expansion includes space for IBM’s Blue Gene supercomputer and 100 new researchers. State support for bioscience research facilities is significant, but Battelle reports that 28 states made comparable investments in bioscience research facilities between 2006 and 2008.

9. State activity to support and encourage commercialization has been focused on the creation of university-associated...
commercialization centers. The centers support venture formation, recruitment of management teams, strategic planning, and help with accessing capital. For example, the Minnesota Research Fund, an initiative of the Blandin Foundation and U of M, supports the development and commercialization of technology generated by Minnesota’s educational institutions. Another state-funded initiative is U of M Innovation Grants Program, which supports translational research not otherwise funded by the federal government or industry. According to Battelle, many states have established funds that provide up to about $50,000; but, for those focused on the biosciences, some funds provide as much as $200,000 to $500,000.17

Today, every state offers some form of enhanced curricula at the post-secondary level designed to encourage pursuit of bioscience careers. Minnesota offers programs in biotechnology research through the Biotechnology Education and Training Initiative at U of M biomedical device workforce development at Anoka-Ramsey Community College; agricultural biosciences through Minnesota West Community and Technical College (a 2-year laboratory technician degree); and biotechnology is also offered at Minneapolis Community and Technical College (a 2-year associate of science degree).18

In spite of its strengths, Minnesota is not considered to be comprehensive in support of the bioscience industry.

Further, statistics suggest that perhaps the state can better realize its potential in this area given that it is home to U of M, Mayo Clinic Rochester and significant industry leaders such as IBM, 3M, Boston Scientific and Medtronic. The BioBusiness Alliance of Minnesota asserts that Minnesota's competitive advantages in medical research are challenged by the level of biobusiness investment in other states19. Similarly, the Battelle research reveals Minnesota's weaknesses within the national context, observing a competitive challenge when considering the range of policy initiatives as a qualitative indicator of support for growth20. The following could be considered as indicators or shortcomings of Minnesota's support for the biosciences:

1. The number of higher education degrees in bioscience suggests that the state lags in expenditures in support of academic bioscience. Minnesota ranked 17th in the number of bioscience degrees granted in 2004 and ranked 14th in the number of bioscience occupations in the workforce in 2004.

2. While NIH expenditures in the state grew between 2000 and 2004, this rate was only slightly better than the national average.

3. Battelle ranked Minnesota 23rd for academic research and development expenditures in fiscal year 2006 with $440 million of its total $605 million dedicated to biosciences.21

4. State action to directly support bioscience entrepreneurs is an imperative. Engagement of research universities is an obvious path as it promises great potential to leverage start-up entities, to support existing bioscience clusters and work to develop a state’s bioscience industries.

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18 Ibid. p. Minnesota-3-4.


According to the survey by Battelle, the high risk nature of early-stage ventures in the biosciences results in limitations in pre-seed and seed capital, generally less than $2 million for any single firm. To respond to this capital challenge, nearly half of the states, with Minnesota as an exception, encourage investment in early-stage companies or seed capital and venture capital funds, most commonly through tax-credit programs. Some states, again with Minnesota an exception, sponsor seed funds that are provided with the expectation of a long term return before any return on an investment is realized and/or investment is received directly from private venture funds.

Context for Growth: the City of Rochester

The City of Rochester’s population growth rate is significantly higher than the state’s. From 1990 to 2000, the city grew 17.6%. While the City of Rochester has a population of approximately 90,000, the Rochester Metropolitan Statistical Area (MSA), the third largest metropolitan region in Minnesota, represents about 2.5% of the state’s total population and is expected to grow to about 256,370 by 2030, an annual growth rate of 1.49%.

The 2007 median household income in the City of Rochester, estimated at $64,700, is 6% higher than the state and 22% higher than the national median. RAEDI reports the average annual wage of new jobs created in the Rochester MSA is approximately $50,000 per year. Income levels of a geographic area typically correlate with educational attainment. In the City of Rochester 38.1% of its residents over the age of 25 have a bachelor’s degree or higher level of education. This compares with 30.4% in Minnesota and 7.0% nationally.

The Rochester region has experienced strong job growth in the last 35 years. According to U.S. Bureau of Economic Analysis (BEA) statistics, the total number of full and part-time jobs in the Rochester MSA grew from 52,811 in 1970 to 133,975 in 2000. Recent growth has slowed slightly compared to the rate of growth in the decades of 1970 to 2000. Still, according to the Rochester Area Economic Development, Inc.

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22 Ibid. Unfortunately, the Battelle report does not specify why $2 million per firm is a “limitation.” It is implied in the report that bioscience startups will require more than $2 million in capitalization for a typical firm before achieving acceptable rates of return, but specific metrics in this regard are unstated. Development Strategies is unable to remedy this shortfall in information for this report and, therefore, simply accepts for the time being that Battelle’s analysis is both defensible and reliable.


24 2006 American Community Survey, U.S. Census Bureau

25 Regional Economic Information System, Bureau of Economic Analysis, U.S. Department of Commerce. MSA includes Olmsted, Dodge and Wabasha Counties.
(RAEDI), from 1998-2007, the Rochester area created jobs at a rate more than twice that of the nation and the state of Minnesota.

Service employment represents more than 40% of the region’s job profile with nearly 70% of these in the health care and social assistance sector. High tech businesses represent a significant sector as well. The city was identified in a 2007 study by RAEDI to have one of the highest concentrations of high tech businesses of all metropolitan areas in the U.S.

National and state employment projections suggest that a strategic economic development plan for Rochester include expanding the UMR campus to better serve the existing health care industry and to increase the in-state capture rate of life, physical, and social science occupations, a sector that is projected to grow in Minnesota by over 5,300 jobs between 2004 and 2014. (Table 1, above)

Location quotient (LQ) analysis is a means of comparing local percentages of employment to national corollaries and is a useful tool in predicting opportunities for growth within a market. The education and health services sector in the Rochester MSA has a location quotient of 2.64 suggesting that the Rochester MSA has 2.64 times the level of employment nationally in that sector. While a presumption of a location quotient analysis is that economies with high location quotients in some sectors are vulnerable to national or international downturns in those sectors, the projection for the Rochester MSA is one of confidence because its economic base is concentrated in state and
national growth sectors. Of note, a subsector level examination of educational services relating to health care and social services generates a location quotient of only 0.37, suggesting a significant opportunity to expand Rochester’s education sector and professional and technical services sector.

The projected annual growth rates for retail sales are 3.1% for Rochester. However, the retail health of the City of Rochester is less evident in its downtown than elsewhere in the city. Table 2 indicates that downtown Rochester captures a low share of the city’s overall retail sales except in the “miscellaneous” category that includes medical-related retailers who serve the 1.41 million outpatient visits (2005) generated by Mayo Clinic Rochester.

The Rochester housing market area vacancy rate for all rental housing is approximately 3%. Single-family dwellings dominate the residential market; this housing type represents 70% of the housing units in the area. According to the U.S. Department of Housing and Urban Development, demand for new rental units is steady with a total need for 740 new market-rate rental units for the 3-year forecast period August 1, 2006 to August 1, 2009.

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26 Sector levels are defined by the classification codes determined by the North American Industrial Classification System (NAICS).

27 In constant dollars


30 ESRI, 2008.

31 Ibid. p.1

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Projections of Employment and Economic Benefits

A study of economic trends and forecasts provides a foundation for projecting the economic benefit to Rochester and the region of this new campus. U of M projections of the average salary for UMR faculty suggest that the UMR will generate $22 million in wages each year and approximately $1.4 million in state income taxes annually.

**Projections suggest that UMR will generate $22 million in wages each year and approximately $1.4 million in state income taxes annually**

Jobs created by UMR and the associated secondary population will support additional jobs and economic activity. Referred to as the indirect impacts, or multiplier effects, these will be experienced at the local, regional, and state levels. UMR is expected to generate an increase of 2,400 jobs (direct and indirect, full and part-time) by 2029. This job growth could generate $6.7 million in annual state income tax revenue for Minnesota. By 2029, UMR’s population is predicted to represent $40 million in annual retail power, which equates to support of 109,000 square feet of retail space. Growth in the Rochester SMA predicts demand for an additional 55 housing units (per year) by 2029.

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32 This value reflects base salaries only, on which state income taxes are calculated.

33 These estimates assume no wage inflation and a constant state tax withholding of 6.4%, which is the current Alternative Minimum Tax in Minnesota.

34 This applies the current Alternative Minimum Tax rate of 6.4%, and assumes this rate remains constant.

35 Assuming 20% of new jobs will be held by workers living outside of Rochester.
Rochester offers bioscience entrepreneurs the opportunity of access and proximity to Mayo Clinic Rochester, IBM and the Minnesota Partnership. UMR’s planned programs will further enhance the city’s appeal as a location for entrepreneurs through promise of generating a larger local workforce to serve their scientific research and commercialization needs. Modeling the U of M ratio of research expenditure per researcher and applying it to UMR’s growth profile, allows for projection of a related creation of 20 business startups, expected to employ an average of 8 jobs each representing an additional $10.4 million in earnings and an addition of $665,000 per year to the state’s income tax collections.
The process of developing this plan extended the dialogue, exchange of information, ideas and aspirations of the academic, research, private and public entities that are key to UMR’s success. While the plan represents a milestone, the open forum that it represents must be sustained to take advantage of the opportunities, both collectively and individually, identified through this planning process. The University must continue in its role as facilitator of dialogue, to create a campus that truly partners with industry to serve its needs and to increase the strength of the University in teaching and research related to the health sciences. Additionally, as established by the RHEDC, the development of this campus must result from highly targeted and leveraged capital investment from the State or university system. Through many tests, this plan’s conclusion is that this leverage requires the full support and engagement of partners to the university.

The vision for UMR is of an institution supported by collaborative and partnership relationships that nurtures creative ideas, entrepreneurship, and innovative approaches to education and research in the health professions, technology, biomedicine, business organizational leadership, and other fields.
The plan for this institution addresses the following imperatives:

- As a member of U of M system, UMR must contribute to the overall success of the system as well as distinguish itself through inventive academic programs, research, and pedagogy.

- As a partner to Mayo Clinic Rochester, IBM, and other industry leaders of southeast Minnesota, UMR must commit itself to innovative collaborations.

- As U of M's Rochester campus, UMR must act as a facilitator linking research activity at UMTC with such partners as Mayo Clinic Rochester and IBM.

- As partners, the state and municipal governments, Mayo Clinic Rochester, and the university must collaborate in developing the financial foundation to realize the plan's vision.

- As an engine of state economic growth, UMR must build signature programs to advance the state's position through contributions to southeast Minnesota's prominence in health sciences, biosciences, engineering, and technology.

- As a major part of the civic fabric of Rochester, the campus must establish a respectful, engaged relationship with the city, neighbors, and business community. The plan is committed to increasing urban vitality of downtown Rochester through the character of the campus’ physical design and its successful integration with the city.

Implementation of the plan in the near term asks that the university and its partners undertake the following:

- Advance UMR educational objectives,

- Craft a research MOU between the University and Mayo Clinic Rochester,

- Create the University Institute for the Advancement of Research Partnerships,

- Develop a comprehensive plan for downtown Rochester that contemplates the university’s presence, its need for partners in facilities, and its potential impact in stimulating demand for more retail and residential development

- Assemble sufficient land for the campus, and

- Develop and advance a detailed financing plan for the campus.