

Building Capacity for Research, Creative and Scholarly Activity at the University of Southern Maine

Frank J. Calzonetti
Vice Provost for Research, Graduate Education and Economic Development,
University of Toledo

Edward G. Derrick
Director, Research Competitiveness Program
AAAS

Christopher T. Hill
Vice Provost for Research
George Mason University

John M. Owens
Vice President for Research
Boise State University

David J. Prior
Provost and Vice Chancellor for Academic Affairs
University of Wisconsin-Superior

Albert H. Teich
Director, Science and Policy Programs
AAAS

American Association for the Advancement of Science
Research Competitiveness Service

April 2005

Table of Contents

<i>I. Introduction</i>	<i>2</i>
<i>II. USM Has Come a Long Way.....</i>	<i>4</i>
<i>III. Next Steps.....</i>	<i>6</i>
<i>IV. Potential Research Pinnacles and Strong Points for the University of Southern Maine</i>	<i>8</i>
<i>V. To Reach the Next Level, the Culture of the Institution Must Be Transformed....</i>	<i>10</i>
<i>VI. Clarify the Role of Research and Make the Case for It</i>	<i>11</i>
<i>VII. Changes are Needed in Organization and Leadership for Research</i>	<i>12</i>
<i>VIII. Criteria for Choosing Research Focus Areas</i>	<i>16</i>
<i>IX. Strengthening Research Policies, Procedures and Practices</i>	<i>18</i>
<i>X. USM Must Seek Stronger Support from the UM System and State Government .</i>	<i>21</i>
<i>XI. Broaden and Focus Community Support for USM’s Enhanced Research Role .</i>	<i>24</i>
<i>XII. The Mission and Direction of the Muskie School Deserve Special Attention ...</i>	<i>26</i>
<i>Appendix – Site Visit Agenda.....</i>	<i>27</i>

I. Introduction

This is a report from a panel organized by the Research Competitiveness Service of the American Association for the Advancement of Science (AAAS). The report was produced as part of a project to review, assess and guide the research enterprise of the University of Southern Maine (USM) being conducted by Lovett Collins Associates in collaboration with AAAS.

The Lovett-Collins-AAAS project responds to the goals laid out in the recently published *University of Maine System Strategic Plan*, the USM Board of Visitors *Southern Maine Imperative*, and President Pattenaude's *Transforming USM, 2004-09*. It aims to guide change that will address these goals within institutional, state, and national funding priorities and realities.

The project includes:

- a comprehensive overview of research, creative, and scholarly activity at the University of Southern Maine, including program, management, and financial areas. This analysis of “current state” will identify research capacity for growth, strengths, weaknesses, opportunities, and recommendations for interventions;
- a participatory process, over 9 to 12 months, to facilitate organizational change and to identify and engage members of the university community to assist in identifying issues and needs as well as to provide input and feedback during the process;
- an evaluation of the feasibility of establishing scientific research centers and/or foundations to conduct research in emerging areas of strength;
- engagement of regional and national technical resources/experts, as appropriate, to identify opportunities for growth, collaboration, and access to resources in order to advance USM's strategic initiatives with external partners, collaborating institutions, funding agencies, economic development groups, and others;
- preparation of a series of reports, findings, and recommendations that will guide USM's development of policies, practices, and strategic directions for research.

The results are intended to effect the organizational change necessary and the strategic direction chosen to support USM's mission as a regional comprehensive university.

As part of its role in this program, AAAS assembled a panel of experts (called here the Assessment Team) to review background materials, conduct a site visit, and address the issues of integration of research with the USM mission, incentives and barriers to research, effectiveness of organizational structures and policy, and faculty and student involvement in the research enterprise.

The Assessment Team, whose members were specifically selected to reflect the types of expertise needed to answer the kinds of questions identified by the project's steering committee, consisted of:

- Frank Calzonetti, Vice Provost for Research, Graduate Education and Economic Development, University of Toledo;
- Ed Derrick, Director, AAAS Research Competitiveness Program;
- Chris Hill, Vice Provost for Research, George Mason University;
- John Owens, Vice President for Research, Boise State University;
- David Prior, Provost and Vice Chancellor for Academic Affairs, University of Wisconsin-Superior; and
- Al Teich, Director of Science and Policy Programs, AAAS (chair)¹.

The site visit took place on March 6-9, 2005. The agenda for the site visit is included as Appendix A. At the end of the site visit, an exit briefing to discuss the panel's initial findings was held with the President Richard Pattenaude, Provost Joseph Wood, Chief Financial Officer Samuel Andrews, and Nancy Martz, Director of Operations for Research Initiatives, who is serving as University liaison to the project. In attendance were the members of the Assessment Team, as well as Claire Collins and E.J. Lovett, principals in Lovett Collins Associates. This report presents the findings of the Assessment Team.

¹ It should be noted that panel members, with the exception of Derrick and Teich, participated in their personal capacities and not as representatives of their employing organizations.

II. USM Has Come a Long Way

The University of Southern Maine has begun a remarkable renaissance. Through the leadership of the President, Provost and the Board of Visitors, a bold vision for the future of the university has been articulated. The *Imperative* describes an ambitious effort to raise the profile of the University both regionally and nationally by enhancing the quality of the educational experience for students and the service to the southern Maine community.² Through the development of world class centers for research and an overall increase in scholarly creative work, USM will provide its students and the community a high quality center of learning and outreach. The hard work of faculty and staff has begun to bear fruit.

Traditionally, it has been the land grant research university in each state that has responded to state-wide economic growth and workforce development needs. In this instance, however, the University of Southern Maine (an urban, non-land-grant university) is responding to the public need for strong partnerships with the private sector and the PK-12 educational system to further the growth of the knowledge-based economy in Southern Maine. By taking advantage of the relationship between the University and the Portland business community, the “USM/Portland Collaborative” could well become a national model for urban educational/economic development.

The University is clearly serious about charting a new direction. The declaration of the “USM as partner” model and the commissioning of this review both indicate real commitment. We believe the University is rapidly expanding its capacity for significant research and creative works. But to sustain this growth and become a genuine “metropolitan research university” it must develop an environment of intentionality wherein decisions great and small are shaped by its newly articulated goals. This systematic change will take time, but all indicators point toward the promise of success. The students, community and state will be well served by this enhanced effort to become a center for intellectual innovation and the development of human potential.

President Pattenaude stated that the University of Southern Maine is “not only *in* its community, but it is *of* its community.” Our interviews indicated that there was great interest in having the University well integrated with the community, and some groups have long been actively engaged in the community. Others express interest in becoming more engaged, but are looking for leadership on how this may be accomplished. The University is well positioned to provide intellectual leadership to Greater Portland, and its potential for leadership will continue to grow as more support is provided for the research enterprise, additional funds are identified, and new faculty are hired in the coming years.

Being known as an intellectual center, rather than a teaching school will require a well designed and sustained marketing effort that is directed both inwardly and outwardly.

² The team did not discuss the precise boundaries of the area that USM ought to view itself as serving. We generally refer to “Greater Portland,” but it might equally be viewed as “Southern—or Southeastern—Maine”

There appears to be fine scholarly activity distributed through the university, but it appears that these activities are not widely known. The ongoing scholarly achievements of the faculty across campus must be celebrated as the campus grows centers of excellence that have the potential for statewide and even national impact. This is a balance that must be achieved in order for USM not just to *be* an intellectually strong university, but to be *known* as one.

It is worth noting that USM and its faculty have been engaged in research and scholarly activity for many years, even though such activity had not been articulated as an institutional priority and resources and infrastructure to support it have been limited. This has led to some frustration among members of the faculty who have tried to focus some of their energies on research, occasionally with disappointing results owing to the paucity of institutional support. If the incentives and supports are improved, these faculty can help stimulate enthusiasm for research across the University. For this to happen, however, the University leadership, supported by the Maine System and the state and regional political leadership, will need to articulate a new vision of the nature of USM and of its role in the region, state and nation.

Finally, it should be pointed out that both the President and the Provost are held in high esteem by the faculty and are in a good position to continue the transformation of the institution. The faculty are looking to them for leadership and they have the opportunity to take advantage of this position in a positive way. It appears that people enjoy USM and find it a friendly place to live and work. The value of this positive work environment should not be dismissed and maintaining a positive work environment should be a high priority as the transformation of the university continues.

III. Next Steps

Transforming the University of Southern Maine into a comprehensive metropolitan university as described in this report is not something that can be accomplished overnight. It is a process that will take years. Nevertheless, a number of major steps can be taken in the near term that begin the process, show results, and lay the foundation for future development. These steps and the longer-term actions that should follow are noted briefly in this section and elaborated in the sections that follow.

Steps to be taken in the next six to nine months

Leadership

The President should make a clear and powerful statement setting out the goal of transforming USM into a comprehensive metropolitan university with a national reputation and strong regional focus. This statement should initiate a campus-wide discussion of the actions that will need to be taken and the process of implementing those steps should be as inclusive and transparent as possible. The tone of the statement should be optimistic, but it should warn the USM community that the transformation will require patience and sacrifice. And it should caution against losing sight of the University's educational and service role as well as against rising expectations of major infusions of funds or other instant fixes. Building USM's capacity for research and scholarship is not a panacea and the benefits will not be seen immediately.

Organization and Infrastructure

As discussed below, the Assessment Team recommends that USM appoint a Chief Research Officer (called here the CRO, but the exact title needs to be determined) as soon as possible. The CRO will have oversight and administrative responsibility for the University's research enterprise, will be an internal advocate for research, and will be responsible for overseeing implementation of initiatives described in this report aimed at enhancing USM's research capabilities and rationalizing its research administration. A university-wide Research Council should be established to advise the CRO and facilitate communication with the university community.

Incentives for Research

A number of widely-practiced university policies that inhibit faculty from seeking outside funding for research need to be changed and policies that reward those faculty who engage in research and pursue outside funding (as well as their departments) should be put into place. Among these are development of a system of indirect cost return to schools and departments, recovering the full cost of faculty time when a grant provides for buying out a faculty member's time from teaching, establishing a program of internal travel and seed money grants to encourage proposal development, and improving the support provided to faculty—both pre- and post-award—by the Office of Sponsored Programs.

Review of the Muskie School

A review of the Muskie School should be undertaken with the aim of increasing the share of costs that it recovers from external sponsors of its activities and of examining ways to increase its integration into the University's academic life.

Steps to be taken in the next one to two years

Establish a regional S&T council

A Greater Portland Science and Technology Council, similar to those in Greater Pittsburgh, San Diego, and other cities, should be established as an independent organization whose mission is promoting the development and economic diversification of the region's economy through investments in and expansion of knowledge-based assets. USM should catalyze its formation and play a leading role in it.

Increase resources available for research and allocate them to key priorities

The University already has a number of very significant strengths in research and scholarship. It should seek to obtain additional resources from a variety of potential sources including the system budget, MEIF, and EPSCoR and invest them in building up its existing "pinnacles of excellence" and additional ones that should be selected through a systematic, participatory priority-setting process.

Longer term issues (two to five years and beyond)

The steps to be taken in the near and mid-term should lay the foundation for transforming USM into a genuine metropolitan research university, retaining its strong teaching focus while building a nationally competitive research and scholarship enterprise on top of it. To continue on this course, the University will need to increase the flow of resources from federal, state, and private sources. It will also need to reinforce its engagement with the community, to make its case and the case for growing its research enterprise forcefully at the system level and in state government. Consistent with these developments, it will need to consider ways of reducing the teaching loads of its faculty members and building more graduate programs and enrollment in those programs. None of this will be easy, but the Assessment Team is unanimous in its belief that with careful planning, steadfast leadership and the support of the University and regional communities, the University of Southern Maine can realize the bold vision its leaders have articulated.

IV. Potential Research Pinnacles and Strong Points for the University of Southern Maine

Many faculty are justifiably proud of their contributions to scholarship and research and have made significant accomplishments despite very modest levels of institutional and state support. They, too, are part of the indigenous strength of USM that is ready to be mobilized in pursuit of a new vision of the university.

There are a number of academic units and programs at USM that have the potential—if they have not done so already—to achieve nationally recognized stature and become “pinnacles” of research excellence. Foremost among these is the Muskie School. As discussed elsewhere in this report, the Muskie School is already nationally recognized and has the potential to achieve much more, once its costs are analyzed and brought under control and its educational and research missions expanded.

Many universities are increasing their outreach and engagement roles, and are looking for successful models. The Muskie School is a model for others throughout the nation in this regard and thus is providing USM with “national recognition.” As noted below, however, the Muskie School’s impact on research at USM is not commensurate with the size of its budget or staff, as much of its work is more in the nature of provision of services to and on behalf of the State government, rather than of research. This issue needs to be addressed if the school is to achieve its potential as an academic enterprise and is discussed in a separate section, below.

USM has concentrated its state allocation of the Maine Economic Improvement Fund (MEIF) to concentrate on two areas: biosciences and information technology. USM’s Center for Environmental Toxicology is well on its way to being a nationally recognized center. Its work is well funded and it is competitive at the national level. The fact that the effort is heavily focused on the research and leadership of a single individual—a potentially risky situation—is a cause for some concern. There is also concern that program development, proposal writing, and administrative tasks are taking too large a share of the lead faculty member’s time and detracting from the Center’s research productivity.

On the negative side, in view of the competitiveness of the IT field, the effort in Information Technology does not seem focused nor does it seem to be making much progress toward becoming a pinnacle within USM research activities.

USM’s collaboration with the Gulf of Maine Research Institute offers great opportunity to build a nationally recognized research effort as well as to provide a service to the state in an important area of the economy and to provide a unique educational experience in marine science for Maine’s fifth- and sixth-graders. Activities in geographic information systems research and application offer the potential for significant contributions to knowledge as well as future funding, but this is a very competitive area nationally. The University of Maine at Orono may claim intellectual leadership in the national arena through its participation in NGIS; however USM has established a reputation within the

state for the application of GIS technology to research questions and problem solving – areas consistent with the work of GoMoos and GMRI. Music and Theater offer the potential for substantial impact on the cultural life of the region, but lack an appropriate venue to present their art. The Center for Law and Innovation offers the opportunity to provide technology transfer support to the university and small business in the region, but at present lacks the resources to make this a viable reality.

Undergraduate research has also made great strides at USM and is well developed. The undergraduate research program can prove a valuable source of graduate students for developing master's and doctoral programs in the future.

V. To Reach the Next Level, the Culture of the Institution Must Be Transformed

The University of Southern Maine is making real progress toward becoming a comprehensive metropolitan university . However, in order to fully realize this vision, the culture of the university must be reshaped to meet the challenges. The President must take advantage of his high standing in the university community and continue to be an articulate spokesman who is building lasting relationships between the University and external constituencies. The vision of the University must be clearly stated and regularly repeated. The “extra measure of excellence” that USM offers its students must be understood both on and off campus. The President must be able to convincingly answer the question, “Why USM?”

It will be important to stay on message through the challenging steps ahead. It must become clear to all members of the USM community that they have a role in increasing the intellectual vitality of the learning environment. We believe the President can draw upon his experience in development as he creates ways of contributing to the USM model of academic excellence. It is essential that he articulate the real benefits of an enhanced research environment for current and future students as well as for the faculty and the community of Greater Portland. The message must be clear: the engagement of our students in a learning community of faculty who are actively involved in their disciplines creates greater opportunities for undergraduate research, honors projects, internships and service learning. These opportunities provide unique settings for our students to learn communications skills, team-based problem solving and self-confidence.

Achieving the goals of USM will require organizational change. The faculty will need additional support as they strive to secure extramural funding, fellowship opportunities and external collaborations. This will be a challenge as the faculty are at varying career stages, levels of involvement in their disciplines and experience. The academic commitment of faculty and their eagerness to better serve USM’s students must be carefully nurtured. The substantial number of faculty who will retire in the next few years poses some difficulties. It may also be a blessing in disguise, however, since it offers an opportunity for selectively adding research-oriented faculty in key areas in order to strengthen established pinnacles of excellence and to create new ones.

The University has charted a bold course for the future, and like all new ventures, caution must be taken to keep the goals clearly in mind and communicate them effectively so the entire campus community can focus on and share the enthusiasm for this exciting future.

VI. Clarify the Role of Research and Make the Case for It

It is important that the leadership of the University communicate the importance of research and scholarship to USM and make clear its support for those elements of the University's mission. An active research and scholarship program enhances the University's educational role by giving students access to faculty members who are up-to-date and respected in their fields. It can, in addition, provide an opportunity for undergraduate students to expand their education, by offering them the opportunity to engage in research activities under the direction of faculty members with active research programs or centers. Strength in research also enhances the image and perceived quality of the University as faculty members increase their visibility nationally and the University rises in national rankings. Research and scholarship are still among the most significant measures of the stature of a university.

Research and scholarship also increase the ability of the University to serve the community, the region and the state. The results of research can provide opportunities for the development of new businesses and the knowledge base in the institution can provide technical support for existing local industries and well as develop collaborations with industry on funded research projects. Finally, as the reputation of the institution increases, the self-esteem of the faculty and staff will increase as they enjoy the intangible benefits (like pride) of being associated with a recognized institution. Ultimately, this will make it easier to attract high quality students, faculty, and staff to USM.

One caution must be added to the list of benefits of a strong and active research program: sponsored research should not be viewed as a "cash cow" for the university. On most campuses, the majority of sponsored research does not recover all of its administrative costs, and finance and administration (F&A) returns generally do not completely offset university contributions to the research enterprise. At present the university is only recovering about a 12 percent indirect cost rate, although the federally negotiated rate is about four times that amount. The benefits of research must be viewed in terms of the enhanced quality of carrying out the mission of the University and its service to the community, region and state, not as a revenue-generating proposition.

VII. Changes are Needed in Organization and Leadership for Research

Present Situation

The Assessment Team believes that responsibilities for oversight, administration and promotion of faculty and student research at USM are not sufficiently well-organized and coordinated to serve as the foundation for moving USM ahead in externally-supported, sponsored research.

While there is great enthusiasm and energy among the staff currently responsible for aspects of research administration and promotion and elements of what is needed for these functions are in place, there are also gaps, overlaps, and insufficient resources to meet the needs of a growing institution. There is an Office of Sponsored Programs (OSP), but it seems not to have complete oversight over external agreements and commitments and too often seems to defer to others. Likewise, the Director of Research Initiatives, who oversees OSP among other duties, has some but not all of the responsibilities and authorities needed. The authority of this position derives in significant measure from the fact that it has some discretionary resources to distribute as well as from the academic standing and experience of the individual in the position. At present, units appear to function autonomously in some cases in ways that may raise concerns under certain legal and/or financial circumstances. As noted below, the absence of a top manager for research has undoubtedly contributed to important lacunae in the array of institutional policies and procedures needed to guide a research-intensive institution.

Need for a Chief Research Officer

We recommend that USM create the new position of Chief Research Officer (CRO) to oversee, coordinate and promote research and related scholarly and creative activities throughout the university. Four issues are central to this position—the title, the reporting relationship, the roles and responsibilities of the position, and desirable characteristics of the person for the position.

The title for this position needs to be considered carefully. If limited to “research,” it could inadvertently (and wrongly) signal to those who consider themselves scholars and artists rather than researchers that this initiative has nothing to do with them. We note, however, that across the country, the customary title for this position is either “vice president for research” or “vice provost for research,” and we suggest that, despite the drawbacks, USM may have the most to gain externally by adopting this near-standard national practice. For purposes of this report, we will use the term “Chief Research Officer” (CRO).

It is common for the CRO to report either to the chief academic officer (provost) or, in some institutions, to the president directly. There is probably no “right” reporting relationship. On the one hand, reporting to the provost recognizes the essential unity of

teaching and research and establishes that the quality and nature of research is as great a concern of the provost as is the quality and nature of instruction. On the other hand, the CRO has many executive responsibilities that are more akin to those of the chief administrative and financial officer and that are more appropriately responsive directly to the chief executive. A typical compromise is that the CRO has a direct reporting line to the provost and a “dotted line” relationship to the president. In an institution like USM that is seeking to marshal institutional resources in the direction of greater research and greater involvement in support of regional business and industry, to ensure that the CRO is productive and able to influence the allocation of energies and resources, the CRO should be a regular member of the most senior executive council around the president. He or she should also participate as a regular member of the deans’ council.

What is the job of the CRO? The CRO should have oversight and administrative responsibility over all externally supported research and scholarly activities at the university, including line authority for the Office of Sponsored Programs, research compliance, technology transfer, and federal grant and contract relationships, as well as congressional relations and pursuit of congressional funding allocations. The CRO should have charge of strategic assessment and planning for the research enterprise and should be a force for organizing and encouraging large-scale and interdisciplinary research activities. The CRO should represent the research commitment of the University to external bodies at the local, state and national levels. And, the CRO should be the principal internal advocate for research, scholarship and creativity. In that capacity, the CRO should be charged with ensuring that the institution’s policies and procedures are adequate, up-to-date, and operational.

In addition to these somewhat formal roles, the CRO is also called upon to resolve issues, solve problems, and run interference as needed. One area of responsibility that is particularly challenging to locate is oversight of environmental, safety and health matters in the research and instructional laboratories. At some institutions, this responsibility is located in the administrative body responsible for physical facilities and maintenance. At others, it is seen an integral part of academic oversight. Either way, the CRO will have a role to play, either as the person directly responsible or as the person responsible for ensuring that the facilities-based safety operation is appropriately sensitive to the special demands of academic operations and that safety-related matters are made a regular part of the instruction of students in every relevant part of the institution, from biology to ceramics.

Experience has shown that, to be effective, a CRO must be a senior level, active researcher and scholar, appropriate for appointment to a tenured full professorship in one or more units of the institution. It is imperative that he or she hold faculty rank as well as the administrative position. We cannot emphasize too strongly that the CRO should be familiar with the nature of research and scholarship in a wide range of disciplines and fields—being a transparent advocate for one field or discipline over all others will not work. For an institution at the stage of development of USM, the CRO should have had prior experience in research administration, preferably at the level of a dean or other, more senior position. He or she should understand and appreciate how bureaucratic and

administrative processes work and value their contributions. At the same time, it is important for the CRO to be flexible and to recognize the need for, and constraints on, ad hoc decisions that don't always "go by the books." As both a faculty member and an executive responsible for a variety of administrative offices that touch faculty lives directly, the CRO is often the focal point of faculty disenchantment with those administrators. It may be a cliché, but being adept at communicating and listening is essential to success in this role.

The Issue of Resources

To be effective, the CRO must appear to have, and must, to some degree actually have, control over a significant level of financial resources. In most institutions, these resources are based heavily on control over the use of some portion of the recovered indirect costs on external grants and contracts. There are many legitimate calls on these resources, including paying for the very costs that were used to justify receiving them in the first place (facilities and administrative costs allocated to externally sponsored activity). How those costs are paid for and how the recovered indirect costs are invested, going forward, however, can and should be influenced by the CRO. The Team believes that allocating a portion of recovered indirect costs (perhaps five to ten percent) to a development fund controlled by the CRO is an approach that USM should consider seriously. In any event, this is probably an opportune time in the evolution of USM for a thorough-going reconsideration of how recovered indirect costs are allocated (not to mention whether and how they are charged—see the next section). The CRO in conjunction with the CFO should lead that examination.

In addition, in the USM context it seems obvious that the CRO should have the responsibility for managing the research initiatives funds made available from the state. Current administration of those funds appears to be in good hands, and there may be no reason to handle them differently than they are now being handled. On the other hand, these represent the largest discretionary portfolio of funds in the university and it is essential that they be managed and invested strategically to build for the future, rather than be used to paper over problems that should be addressed with funds from other sources. We observed several instances of the latter.

The University does not have a transparent process for the distribution of internal funds in support of research and scholarship. Funds should be provided to the CRO and formal criteria should be designed so that it is clear how funds are to be awarded, what the time period of support is, and what the expectations are of the awardees. Competitive internal grants can be created for summer support, travel, etc.

From a longer-term perspective, however, the investment in a CRO should be seen as just that—an investment in USM's future. It is likely to cost on the order of \$200,000 to \$300,000 annually to hire a CRO and provide basic supporting services to him or her. After the next round of indirect rate negotiation with the federal government, it might be possible to recover some of this cost through an adjustment of the administrative portion of the F&A rate, unless that portion is already at the 26 percent federal cap. More likely, however, the investment will have to be understood as having been recouped through a

more effective research administration and through growth in the overall research and scholarly profile and resources of the university over time.

In any event, filling the CRO position is a matter of some urgency. Should there be financial or administrative barriers to doing so in a timely manner, the university should seek creative ways to establish the position as quickly as possible, since it is key to many of the other recommendations contained in this report.

A Research Council

In conjunction with the appointment of the CRO, a university-wide Research Council should be established, including representatives from all of the major academic units of the institution. This Council, which would be chaired by the CRO, would serve as an advisory body for him or her. In addition, it would provide a channel of communication for the CRO to disseminate information about the University's research enterprise (including for example, regulations, research initiatives, and funding opportunities) and to gather feedback and the opinions of faculty and administrators regarding important research issues.

VIII. Criteria for Choosing Research Focus Areas

The Assessment Team suggests that USM begin a process of evaluating and identifying promising areas of research, creative, and scholarly activity that can be targets for selective investments in the near future. The identification of research areas will aid in advancing the University's stature as an emerging research university. The process will empower members of the selected groups and the University to establish a basis for gaining regional and national recognition for research, provide a transparent basis for selective investments, encourage further development of the selected areas, provide a foundation for developing opportunities for these areas in state funding considerations, and demonstrate to faculty across the University that the institution is ready to invest in those groups which are able to organize and demonstrate quality research and scholarship activities.

The CRO should use the Research Council to initiate an open, campus-wide process to invite groups to demonstrate that they should be designated for special recognition and enhancement on the basis of research and scholarship. Such areas should include a group of faculty and not just represent individual researchers. Criteria in this evaluation should be selected by the Research Council and Chief Research Officer and endorsed by the Provost and President. The criteria used in the evaluation of potential areas could be the following:

- The area shows merit as measured through publications, competitive grants and contracts, collaboration with leading centers/institutes, contributions to national research boards and committees, or other measures of recognition.
- Investment in the area will enhance the University's academic programs (particularly graduate programs) and move the University forward in developing nationally recognized programs consistent with its mission.
- The area is already contributing to, or is likely to contribute to regional or statewide science and technology initiatives and/or address problems of significant regional interest.
- Investment in the area is likely to leverage additional external funds such as may be available through national R&D priorities.
- The group has strong faculty leadership (both in academic reputation and in leading a group of faculty toward higher collaborative activities) and involves a number of highly productive faculty members.
- The group is able to articulate an investment strategy to increase its stature and that strategy has the endorsement of the group's dean or deans.

The University may wish to provide a few selected areas with additional faculty lines, preference to the area in approaching Congress for earmarked funds, preference for cost-sharing funds, preference for F&A distribution, and preference for graduate assistantships.

The University should put the process into place for several rounds in order to energize emerging groups that may not be selected in the first round. It should plan on a reevaluation after a 3-4 year period with a new campus-wide external peer-evaluation of research areas in which selected areas are either reaffirmed or dropped, and new areas have the opportunity for selection.

IX. Strengthening Research Policies, Procedures and Practices

In its brief visit to the USM campus, the Assessment Team did not have time to review USM's formal statements of policy and procedures, nor to examine carefully its informal practices for the administration of research, scholarly and creative activity. From our interviews, however, we did form certain impressions of the present situation that we believe should be addressed.

University policies are not widely understood.

In several discussions we found that faculty and administrators were unable to answer basic questions about what USM policy is regarding such matters as conflict of interest, indirect cost waivers, and intellectual property ownership and benefit. This is not entirely surprising since external funding is not that widespread in the university. However, we believe that more effort needs to be made to convey the essence of those policies to the faculty and support staff.

Indirect cost recovery appears inadequate and weakly managed.

From our interviews we formed the impression that USM does not have a consistently applied policy regarding the recovery of indirect costs on grant and contract proposals. It also appears that few faculty members know how the university spends or allocates its returned overhead. It appears that quite often rates below the federally negotiated rate are applied to proposals, even with federal agencies that routinely pay full indirect costs. While this practice may or may not make a proposal more competitive—in most cases it probably does not—it also means that the university is subsidizing each such project that obtains external support.

Federal agencies, led by NSF, have recently backed away from the practice, which had become more widely used in the 1990s, of asking universities to cost share by foregoing some portion of the negotiated indirect costs. Where such cost sharing is not specified in a program announcement, we recommend that USM take a hard line on indirect cost waivers, making them exceptions rather than routine matters. The CRO can provide useful support to OSP in enforcing this policy in the face of faculty pressure. The reason for this is clear—USM needs these indirect cost recovery funds if it hopes to support an expanded research infrastructure.

External agreements are not centrally overseen.

In light of the increasing demands from policymakers and funding agencies for accountability and uniformity in research administration, it is good practice for universities to centralize the final authority for making binding agreements with research sponsors. Typically, all proposals for such funding, as well as all acceptances of grant and contract awards, are signed and managed by a single entity, usually, the Office of Sponsored Programs and its director. Similarly, legal agreements given other names, such as memoranda of agreement or of understanding, teaming agreements, non-disclosure agreements, and material transfer agreements should also be centrally negotiated and signed.

At USM we found circumstances in which such contracting authority has been devolved, or perhaps simply assumed, by local academic unit administrators. This practice exposes the institution to unmanaged liability exposures, risks setting precedents that are difficult to overturn, and inadvertently places faculty members and administrators at risk of being found personally liable in the eyes of the law if events go badly. An early task of a new CRO, with the support of other senior administrators, should be to bring all such activity into OSP. Along with this, we were told that the university does not have in-house counsel but must go to the system office or private counsel for legal advice. Over time, effective and responsive administration of legal agreements will be greatly improved if it is possible to add a legally trained contracts negotiator to the OSP or CRO staff, even if such a staff person is not able to represent the institution as its counsel of record.

Release time policy and practice needs to better developed and disseminated.

We found a wide range of views about what the university's release time policy is and how it is implemented, and an even wider range of views about whether release time can or should be made available to faculty who bring in grants or contracts that would pay a portion of their academic year salary. Both of these are serious deficiencies that need to be addressed.

Perhaps the most serious problem we found in the area of release time were repeated claims from faculty that they had been discouraged from seeking release time on grants because there would be no one to teach their courses if they bought out some of their time. In part, we understand that this reflects a staffing practice in which departments have had to have "one of each" in various specialties within their disciplines. However, it also suggests undesirable rigidity over faculty assignments to teach various courses, leading to an over-rigid approach to teaching roles. And, we heard that efforts to hire adjunct faculty locally to fill in for those on release time have been unsuccessful. While we have had no opportunity to make an independent assessment of this claim, we suggest that it ought to be possible to cast the recruitment net a bit wider to locate appropriate adjuncts from the northern reaches of the Boston area as well as locally.

Another problem in the release time area is inconsistent practice regarding how release time salaries are charged to grants and contracts. It is standard practice in academia for faculty release time to be charged to grants and contracts at the regular rate of pay, plus benefits, for the person supported. Thus, ten percent release time for a faculty member earning \$100,000 annually would be charged to a grant at \$10,000, plus benefits. However, we heard that at USM, what is often charged to the grant is not the cost of the faculty member's release time but rather the replacement cost for that faculty member's teaching effort. Since adjuncts and graduate students typically earn less on a unit time basis than do regular faculty members, this practice means that USM is under-recovering the cost of the release time, as well as benefits and indirect costs.

We strongly recommend that OSP be directed by the new CRO to budget release time in the conventional manner based on the value of the salaries and wages being released. The difference between the value of the release time and the cost of a temporary

replacement, or so-called salary savings, can then be passed back to the department or the college to provide some additional discretionary funds to be reinvested in the research enterprise. (This raises the question of which academic level should enjoy the benefits of the salary savings—the provost, the dean or the chair. Resolving this is largely a matter of balancing the positive incentives at the lower levels to manage course staffing creatively, with the benefits at the higher levels of being able to aggregate salary savings to make larger, strategic investments in the institution’s future.)

Finally, in the area of release time management is the question of how much release time salary support should be required to warrant buying out one course. This is closely associated with the discussion of how faculty workload is defined and managed, and is, thus, a matter for institutional decision in light of collective bargaining agreements and other considerations we have not examined. However, as a rough rule of thumb, if a “full load” is four courses each term, then one course is associated with a quarter of a faculty member’s effort; that is, a one-course buy-out would be equivalent to 25 percent of salary for the period of the course. Lower or higher amounts would be expected, depending on national and regional norms for full load in different disciplines and professional schools. We think it unlikely that a uniform university-wide policy on course buy-outs and loads will be workable in a complex university with many different disciplines and fields.

Research compliance seems to be in good hands at the moment.

The Assessment Team was impressed with the recent strides made to upgrade and implement research compliance policies and practices across the institution in such areas as human subjects review, animal use and care, and laboratory safety. At the same time, various “walk through” experiences suggest that there is still some distance to go to bring all parts of the university up to speed in compliance with basic laboratory safety expectations. (Although we did see some high spots here as well, such as the new life sciences research facilities and the renovated printmaking shop in the art department.) Nonetheless, as the university expands its research activities, it will need to ensure that all of its policies, procedures and practices are up to national norms and regulatory expectations. Faculty-based oversight committees can be most helpful in this regard, as their members are typically highly motivated to ensure that the work of their colleagues is up to par and does not put their own work at risk.

X. USM Must Seek Stronger Support from the UM System and State Government

The Assessment Team is concerned that USM is not participating in state funding opportunities at a level appropriate to its current standing or its aspirations. The Team members saw scant evidence that the University was playing a significant role in the state's EPSCoR program, and its share of the Maine Economic Improvement Fund (MEIF) was very modest compared to the amount provided to the University of Maine at Orono. The team believes that USM can make a strong and well-substantiated case that its participation in EPSCoR be raised to a higher level and that the University receive a larger share of new MEIF funds.

The Team believes that USM should have its position with respect to state funds readjusted in light of its recent growth as well as its mission in research, scholarship, and community engagement. When making a case for additional funds, USM ought not argue about what constitutes a "fair share," but should instead aim to bring state leaders into a shared vision for USM that calls for additional investment to support enhanced economic development and improved quality of life for the greater Portland area and for the citizens of Maine. We believe that there exist champions for USM at the state level if USM provides a plan that can be championed.

State Funding and other Sources of Revenue.

The Assessment Team was not charged to evaluate revenue streams for USM, but the issue of state funding cannot be ignored, since it shapes the overall fiscal environment for the University. Given that state funds are not formula-driven, the allocation of state funds is difficult to understand.

- It appears that USM tuition is low compared to its peer institutions in other states (\$154 per credit hour for undergraduates, \$229 for graduates). Although the University may be concerned about competition from community colleges (\$70 per credit hour), tuition levels for a university with the breadth of programs such as USM appear very competitive with comparable institutions. The Assessment Team did not ascertain whether USM was benchmarking its tuition against its peers and whether there was more flexibility in increasing University revenue through tuition increases. If there is, USM may want to consider a 6 percent tuition increase plus another 3 percent for financial aid.
- The Assessment Team sees opportunities for alternative sources of revenue that USM may not currently be tapping. For instance, Portland is certainly an attractive holiday destination in the summer. The University should take maximum advantage of its facilities and faculty during this period (NEH Summer Workshops, short courses, etc.). The state funds being placed into Tourism and Outreach offer great opportunities to USM through the newly established Center for Tourism Research and Outreach developed by USM and the U Maine.

- USM should work to increase the amount of finance and administration (F&A) support included in external projects. Although some flexibility is always needed when dealing with local governmental agencies and non-profits, there is no reason for the University to be losing as much money as it appears to be in connection with sponsored projects. The fact that the state system takes F&A funds off the top is not necessarily unique, but reduces the University's ability to pay for its research enterprise.
- The Assessment Team agrees with USM leadership that the total endowment is low. Team members were not clear about how well the staff in the University's Advancement Office worked with college deans or the alumni association in raising additional gifts.
- Although there may be push from the state to increase USM's technology transfer activities, USM must be cautious about putting funds into patents that do not have a strong probability of being licensed. The University should build up its research portfolio then expand its technology transfer and commercialization activities accordingly. A statewide technology transfer office might be worthy of consideration.

The Maine Economic Improvement Fund (MEIF).

According to the description of the program, the Maine Economic Improvement Fund was established in 1997 to help the State develop a critical mass of infrastructure, expertise, and equipment in targeted areas needed to compete for federal research and development grants. The Assessment Team learned that the \$10 million allocated to the university system was split 80/20 between the University of Maine at Orono and USM. We understand that the decision on this split was not made by the legislature, but rather in the system office.

Although the Assessment Team questions the percentage split given the comparative sizes of the institutions, it appears that the \$10 million has been base-budgeted at both institutions so that little flexibility in redistributing these funds exists, at least for the next biennium. From the information gathered during the site visit, the Assessment Team did not see an opportunity to redistribute MEIF funds across campus. However, with a well-developed research infrastructure investment plan along with USM campus expansion, USM should be able to make a compelling case to adjust this ratio in future allocations toward a more favorable split toward USM. If the decision for this split was indeed made in the system office, then USM leadership should be more aggressive in positioning the university for a larger share of future allocations.

EPSCoR

The Experimental Program to Stimulate Competitive Research (EPSCoR) was initially developed by the National Science Foundation in 1979 in response to concern expressed by Congress that certain states were not participating fully in federal R&D programs. Maine was one of the original five states to receive NSF EPSCoR funding. Initially

providing modest seed funds to only five states, the program has expanded in terms of the number of jurisdictions participating in the program, the number of federal agencies dedicating funds to the program, and the amount of funding available to support EPSCoR activities.

EPSCoR funds are valuable to universities in less research-intensive states in building research infrastructure in line with university and state plans, and allowing faculty to compete in sheltered competitions across a number of agencies.

The Assessment Team was surprised at the low level of understanding of EPSCoR across campus, at USM's low level of participation in EPSCoR projects across campus, and at the lack of participation of campus leaders and advocates in working with EPSCoR state leaders in building research infrastructure and projects on the USM campus. The impression that USM was a marginal player in EPSCoR was confirmed in a follow-up telephone interview with the Maine EPSCoR director after the site visit (rescheduled because of weather).

The State EPSCoR director, who is also the Director of the state Office of Innovation within the Office of Community and Economic Development, spends only about one-fifth of her time on EPSCoR, and does not take an active role in communicating information about EPSCoR opportunities to Maine's research institutions, including USM. The PI of the NSF EPSCoR program (the largest of the various federal agency programs) is located at the University of Maine at Orono and that institution is the major participant and driving force in Maine's NSF EPSCoR program. This model is not necessarily unusual, but what is unusual is lack of participation in this program by the state's second largest university. It does not appear that there is widespread communication of EPSCoR opportunities across the USM campus nor does it appear that the USM has a plan to position itself or to build capacity for EPSCoR support.

The Assessment Team recommends that USM take a more aggressive position toward EPSCoR, develop mechanisms to energize faculty and chairs toward EPSCoR opportunities, and include EPSCoR funding as a possible resource in building core capacity of state interest. The Chief Research Officer should be an advocate for USM as EPSCoR proposals and investments are discussed at the state level and should also seek to raise the visibility of USM in Washington and within the national EPSCoR community. The CRO could also work with USM faculty to prepare stronger and more proposals for DoD EPSCoR competitions. For instance, having USM faculty identify funding priorities of the DoD agencies, making contact with DoD laboratories and keeping budget requests modest would increase the chances of DoD EPSCoR awards.

XI. Broaden and Focus Community Support for USM's Enhanced Research Role

The Assessment Team's interviews did not convey a strong sense of collaboration and involvement between USM as a research and scholarly institution and the Greater Portland community, with the exception of the developing ties to the Gulf of Maine Research Institute.

The Team believes that forging stronger ties between the university's research and scholarship and the community will benefit both sides in the relationship. The region has much to offer. Portland is a vibrant and attractive city with the strongest and most diverse economy in the state. The region's physical environment also provides rich and inviting possibilities for interesting research. USM is the only local institution with the breadth of mission to support a broad range of collaboration with the region, and the growth and development of the community in the 21st century knowledge economy will of necessity be closely intertwined with the growth of USM. Enlisting the support of community leaders will help generate the support needed to increase the state investment in the University of Southern Maine.

Although the Assessment Team did not hear much about research and scholarship tied to the community, it seems likely that much outreach and engagement does exist "below the radar." The Assessment Team suggests that the University conduct an inventory of engagement activities in preparation for development of a marketing strategy to show the community the value of the University to the region. For instance, it should become well known throughout the community that the University of Southern Maine has excellent work underway on the Gulf of Maine and is the place to go for expertise and instruction on environmental issues on this topic. The Assessment Team believes that the University should develop a clear and consistent message led by the President and that this message be part of a long-term marketing strategy. The President appears to have much standing in the community and should use this standing to further develop his role as a person with a vision not only for the University, but for the region as a whole. The new CRO should also be a major participant in outreach to the community.

Importance of collaborative research.

The Assessment Team believes that there exists great potential for collaborative research with regional partners that will benefit the university, the partners, and the region. For example, collaboration with the Gulf of Maine Research Institute will bring USM faculty into the GoMoos project that could connect well to faculty involved in GIS, biology, geosciences, education, and information technology. If the university decides to continue with the earmark process, collaborative projects with community organizations will help bring more political muscle to the process. The President and Provost should encourage collaborations and use the office of the Chief Research Officer to develop stronger and new collaborations.

Greater Portland Science and Technology Council.

The Assessment Team did not see evidence or mention of a regional technology organization or council in the Greater Portland area. The Team suggests that the USM President take the initiative in creating such a council that would be composed of the leadership of the region's technology companies and organizations, the leadership of USM and other higher education institutions in the area, and the region's top political and civic leadership. The Council should not be part of USM but an independent organization whose mission is promoting the development and economic diversification of the economy through investments in and expansion of knowledge-based assets. The Council members should be interested in working together to attract more state and federal technology funds to the region and should serve as an advocate in Augusta in bringing project funds to the region. Council members should include major corporations who are able to open up new avenues for collaborative projects with USM faculty. Forming this Council will require the personal involvement of the USM President who needs to identify champions in the community who are committed to this joint vision for community development.

The Council should aim to become a major force in the state capital and should have a strong interest in seeing USM grow its research and scholarship activities. The Council should be able to weigh in on the need for a proper distribution of state funds in support of higher education and research facilities needed to support a growing regional economy. Council members will likely be members of important statewide boards and organizations and will have the opportunity to connect USM into broader statewide initiatives as a full participant.

XII. The Mission and Direction of the Muskie School Deserve Special Attention

The Muskie School is an important asset for the University and the state. Its unique public service activities are no doubt regarded with envy by many public universities in this country. Many universities are developing strategies to increase outreach and engagement, as the Muskie School is already doing. As a single entity, however, it represents an unusually large portion of USM's externally funded activity. The Assessment Team notes that only a small portion of the Muskie School's external funding supports research, while its largest programs deliver services to citizens on behalf of the State government. It appears to deliver these services to and for the state at well below cost. For example, while USM's overhead rate is 46 percent, it appears that the actual overhead recovery rate for projects at the Muskie School is approximately 13 percent. Add to this the fact that a substantial amount of the space utilized by the school is rented (the rental cost is probably substantially more than the overhead recovery for space) and this makes the cost to the University even more substantial.

Apart from these cost issues there is the question of the School's contribution to USM's academic enterprise. While the school is nationally recognized for its public service, it seems to have a limited impact on the academic environment and the educational mission of the university. Out of more than 200 professionals associated with the center, only eight faculty and 11 of the research adjunct faculty are involved in teaching the 200 students taking courses in the school. The Team's information and time were limited, but in view of these uncertainties about the relative costs and benefits, we believe that an objective review of the school's objectives and directions would be in order.

It appears that the leadership of the Muskie School has a realistic understanding of the School's contributions to the University and state as well as its limits. We agree with them that the Muskie School needs to become more nationally known for research, scholarship, and academic programs; it needs to recruit more faculty and students, and needs to move to the next level of research prominence. The four areas that the School has identified (public health; tourism; rural policy; and environmental policy) appear to fit well with state needs and institutional strengths. Expanding the School's research role (as opposed to its service role) will help to integrate it more effectively with the rest of the campus.

Appendix – Site Visit Agenda

Sunday, March 6

7pm Dinner with Provost and Site Team

Monday, March 7

Portland Campus

8am Meeting with President, Provost, and Site Team

9am Meeting with Deans

11:15am Margo Wood, Associate Provost and Dean for Graduate Education

Noon Brief tour of facilities; lunch with researchers in Research Initiatives

1:30pm College of Arts & Sciences – Science Faculty

2:15pm College of Arts & Sciences – Social Science Faculty

3pm Financial Matters
Chief Financial Officer, Director of Sponsored Programs, Development Officer

Gulf of Maine Research Institute

4:30pm Conference call with representatives of Maine Biomedical Research Coalition

5pm Conference call with representatives of Maine Marine Research Coalition

5:30pm Tour of GMRI

The Cumberland Club

6pm Dinner with representatives of Board of Visitors

Tuesday, March 8

Gorham Campus

8:30am Tour of facilities with Associate Dean ASET.

9am College of Arts & Sciences – Arts Faculty

10am Conference call with University of Maine Orono representatives
Vice President for Research, Executive Director for Research and Economic Development, and Professor of Computer Science

11am Conference call with University of Maine System

Vice Provost for Academic Affairs

Noon Brief tour of Arts facilities

Portland Campus

12:30pm Lunch and discussion with Research Initiatives staff
 Director of Operations for Research Initiatives
 Coordinator of Undergraduate Research Program and Director of the
 Office of Proposal Development
 Director of Research Compliance

1:45pm Research Initiatives
 Director of Research Initiatives
 Brian Hodgkin

2:30pm Center and Institute Directors

3:30pm Muskie School
 Associate Dean and Institute Directors

Wednesday, March 9*Portland Campus*

9:30am Panel report on its preliminary observations
 President, Provost, Chief Financial Officer, Site Team.

Tuesday, March 15*Conference call with panel members Derrick and Calzonetti*

3pm Discussion with Dr Yancey-Wrona, Director of State of Maine
 Office of Innovation and state EPSCoR Director.

Thursday, March 24*Conference call with panel members Derrick, Calzonetti, Owens and Prior*

2:30pm Discussion with Dr. Wise and Dr. Incze.