A New Vision for University of Michigan Academic Programs in Sustainability, Environment, and Society

Submitted April 4, 2016

Committee on Academic Programs in Environment and Sustainability

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# TABLE OF CONTENTS

Executive Summary ................................................. i

I. Background, Charge, and Committee Process.................. 1

II. The Committee’s Approach to a New Vision .................. 3

III. Vision and Scope of a Structure for UM Programs in Sustainability, Environment, and Society ............... 5

IV. The New School: the School of Sustainability, Environment, and Society ......................................................... 8
   A. Mission and Scope ........................................... 8
   B. Thematic Structure for Research and Teaching .......... 9
   C. Faculty Size and Recruitment .............................. 10
   D. Education Programs in SSES .............................. 12
   E. Evaluation and Promotion of Excellence ................ 16

V. Undergraduate Education: the Program in Sustainability, Environment, and Society (PSES) ................. 18
   A. Mission and Scope ........................................... 19
   B. Structure .................................................... 19
   C. Curriculum and Innovative Pedagogy .................... 22
   D. Sustainability Literacy ....................................... 23

VI. Graham Sustainability Institute .................................. 25
    A. Mission and Scope ........................................... 26
    B. Structure .................................................... 27
    C. Functions ................................................. 29

VII. Campus Sustainability ........................................... 32

VIII. Space and Facilities ............................................ 34

IX. Other Considerations: Development and Communications ................................................................. 36

X. Transition and Implementation Planning ....................... 38

LIST of APPENDICES .................................................. 40
Appendix A: Report from External Review Committee
Appendix B: Committee Charge
Appendix C: Reference Materials
Appendix D: SSES Organization Examples
EXECUTIVE SUMMARY

The University of Michigan (UM) has impressive strengths in environment and sustainability research and education distributed across its 19 schools and colleges. The depth of the university’s research and scholarship, the diversity of its educational programs, and the reach of its global engagements are both striking and admirable. The collective reputation and influence of UM’s environmental and sustainability programs, however, have been limited by their diffuse nature and by competition and insufficient collaboration among schools, colleges, programs, and institutes.

UM is uniquely placed to provide global leadership through innovative research, scholarship, and education to address the most pressing sustainability challenges facing our environment and society. To do so most effectively, UM must create an integrated, collaborative, and dynamic structure to magnify the impact of the University’s investments in sustainability research and programs. These changes will position UM to be a leading voice for creative solutions to prodigious contemporary and future sustainability challenges. The need for such a voice has never been greater in human history.

Members of the Committee on Environment and Sustainability Programs unanimously agree that the University of Michigan must have a world-renowned, top-ranked, interdisciplinary sustainability school as the focal point and leading voice of the campus community on sustainability in association with environment and society. The Committee therefore recommends that the University of Michigan create a School of Sustainability, Environment, and Society (SSES). This school will provide a dynamic, transformative, interdisciplinary approach as it pursues its mission to “address global sustainability challenges at the intersection of environment and society through research, teaching, and civic engagement.” SSES will have permeable boundaries so that it can provide leadership and work collaboratively with other schools and programs at the university to develop solutions to the most challenging global sustainability issues (Figure 1).

SSES will replace the School of Natural Resources and the Environment (SNRE) and dramatically expand both its mission and the quality of its partnerships with other schools and programs at UM. SSES should have a distinguished faculty that is substantially larger and more diverse than SNRE. The faculty will include both full-time appointments at SSES and faculty who are jointly-appointed with other UM schools and colleges. SSES should organize its research and curriculum around disciplinary clusters and sustainability themes that foster interdisciplinary excellence and transform existing approaches to sustainability research and education. SSES should develop and train a new generation of leaders and educators, create internal metrics and evaluation processes for research and instructional excellence, and work with other UM
schools and colleges to help craft sustainable environments and societies through undergraduate, master’s, doctoral, and post-doctoral programs.

The Committee recommends that the University restructure the existing Program in the Environment (PiTE) to develop a new undergraduate Program in Sustainability, Environment, and Society (PSES). The mission of PSES will be to “engage students in developing their interdisciplinary knowledge and skills to understand and solve the Earth’s sustainability challenges.” Setting a novel model of interdisciplinary education, PSES should be jointly owned by SSES, LSA and possibly additional schools and colleges that contribute instructional resources through a shared governance model rather than sitting in any one school or college. The program should be governed by an Executive Committee made up of members of the program’s faculty and appointed by the deans of schools and colleges that jointly own PSES. The Director of PSES should be appointed by and report to the Dean of SSES in his/her role as Chair of the PSES Executive Committee.

The Committee recommends that the mission of the Graham Sustainability Institute (GSI) should be to “empower and support faculty and students across the University of Michigan, and engage external stakeholders, to foster sustainability solutions from local to global scales.” The language is not significantly different from the current GSI mission statement. But the structural changes recommended by the Committee emphasize GSI’s primary role as a cross-campus program that promotes and facilitates interdisciplinary research and scholarship through greater collaboration. The Committee recommends that GSI be closely affiliated with SSES and governed by an Executive Committee that is chaired by the SSES Dean and composed of members appointed by Deans of the relevant Schools and Colleges. The Director of GSI should report to the Dean of SSES in his/her role as Chair of the GSI Executive Committee.

We recommend restructuring campus sustainability by elevating Planet Blue into an executive-level office with its own Director who would serve as the central, lead administrator for all programs and activities related to campus sustainability. Planet Blue should be guided by an Advisory Board made up of representatives from SSES, GSI, the PSES, the Office of Campus Sustainability, Student Life, Facilities and Operations, Planet Blue Communications, and representatives from relevant student groups (such as the Student Sustainability Initiative (SSI)). This Advisory Board should promote mechanisms to increase use of the campus as a living laboratory for research and education. UM should become an international leader and model of sustainability for its own academic environments.
The novel structural changes and relationship proposed above will provide the foundation for programmatic solutions to emerge. In addition, the Committee report includes programmatic recommendations, and discussions of suggestions by community members, collectively designed to facilitate synergistic and collaborative teaching and research efforts. These recommendations include, but are not limited to, a focus on engaged learning at all levels by using the campus and local communities as a living laboratory, the creation of interdisciplinary University Distinguished Faculty Research Groups, and the development of suites of courses for online learning to supplement classroom instruction in both SSES and PSES. The Committee encourages the faculty of PSES and SSES, in coordination with GSI where appropriate, to consider these and other programmatic recommendations contained in the report.
A New Vision for University of Michigan Academic Programs in Sustainability, Environment, and Society

I. Background, Charge and Committee Process

In the Fall of 2015, an external committee of faculty in the fields of sustainability and the environment assessed the University of Michigan’s academic programs in these areas. They produced a report identifying enormous potential – but also concluded that UM is hampered in significant ways by misalignment and lack of effective coordination among its programs. The central recommendation of the external report was to create a new School (encompassing the School of Natural Resources and the Environment (SNRE), the Graham Sustainability Institute (GSI) and the Program in the Environment (PitE)) with strong ties to faculty across campus. The report from the External Review Committee is included as Appendix A.

In late December of 2015, the UM Provost charged an internal committee of fourteen faculty members to “explore ways to make progress based on the (external) report’s findings and recommendations”. The provost’s charge explicitly asked the committee to recommend a new structure that includes a significantly greater degree of integration and involves: the creation of a new school, continuation of a liberal arts and sciences undergraduate program, and greater coordination of the activities of the Graham Institute (while still functioning as a campus-wide resource). The committee charge, including its membership, is included as Appendix B.

The committee’s goal was to develop structures and relationships that would maximize the university-wide impact and standing in education, research, scholarship, and outreach in sustainability and the environment. Throughout its deliberations, the committee evaluated different options against four general principles:

- Strengthen connections between people and programs
- Eliminate silos of excellence in favor of integration of excellence
- Ensure a balance between integration across units and cohesion within units
- Minimize territoriality and competition

Process and Community Engagement: The internal Committee on Academic Programs in Environment and Sustainability convened in January 2016. The group met once to twice each week through March of 2016 and held a full day Retreat in late March to finalize recommendations. The committee chairs met with the leadership of SNRE, LSA, PitE, the Graham Institute and the College of Engineering in January, and several of these unit leaders met with the full committee. The committee chairs also met with the SNRE Visiting Committee and student groups.
The Committee held four town hall sessions for faculty, staff, and students in late January and early February to gather constructive suggestions, insights, and inputs from the UM community interested in the environment and sustainability. A separate meeting was held with SNRE graduate students in March. Over 120 members of the campus community participated in these sessions.

We also met in a fifth town hall meeting with the campus community in mid-March to share initial conclusions and ideas and to gain feedback, with a goal to ensure that the committee incorporate the views of colleagues, students, and other interested stakeholders as it moved toward a final set of recommendations. Over 50 members of the campus community attended.

Additional input and feedback mechanisms were available, including a website (https://www.umich.edu/~provost/), an anonymous feedback survey, an email address for comments, and office hours with the committee chairs. To date, we have received and reviewed written feedback/comments from approximately 75 members of the campus community.

In addition to input from the campus community, the committee received the same extensive background information that was provided to the external review committee, including program reviews and profiles of the various units. We also compiled and reviewed the mission statements of various environment and sustainability schools, programs, and institutes across the country and held phone conversations with several peer universities about their structure and governance. A list of reference materials is included as Appendix C.
II. The Committee’s Approach to a New Vision

More than any other major area at UM, research, scholarship, and education in sustainability, environment, and society is deeply embedded across many of our schools and colleges, rather than centered in a single school. Even the word “environment” appears in multiple unit/department/program names in multiple schools. Moreover, the critical sustainability challenges to our planet emerge as part of human interactions with all types of environments, ranging from natural to built environments. Addressing these challenges inevitably requires working across conventional disciplines and diversifying approaches to problem-solving. Thus, excellence in meeting sustainability challenges hinges on a greater commitment to interdisciplinary and solutions-driven work than is typical of more traditional centers of excellence across campus.

The Committee also believes that external recognition of UM for global leadership in sustainability and environment requires a unified locus that represents its excellence to a broad range of audiences--academics, policy makers, NGOs and government agencies, foundations, the public, and perhaps most importantly, future students. For these reasons, UM must have a globally top-ranked, interdisciplinary school in sustainability, environment, and society that is also a major voice for the campus community for both external and internal stakeholders.

Indeed, as noted in the charge to our Committee, “the [new] school should be constituted such that it can serve as an interdisciplinary “front door” to Michigan environmental programs and scholarship, by developing strong relationships with all other schools and colleges in which faculty have interests and expertise related to environment and sustainability.”

This broad vision for a new school that gives it a leadership role related to sustainability at the university also suggests it should have a unique role in relation to two thematically-similar entities that have broad sustainability-related missions: the Graham Sustainability Institute (GSI) with its mission of connecting and supporting research in sustainability across the entire campus, and the undergraduate Program in the Environment (PitE) with a mission of providing undergraduate students in LSA and elsewhere with an interdisciplinary education in sustainability and the environment. These considerations led to what became a key question for the Committee: how do we balance the need to have a single strong voice for scholarship and education in sustainability for the University while recognizing and leveraging the incredible intellectual resources across the entire campus?

Many of the specific issues we debated were variants on this theme. If the new school is to be the central portal to external and internal stakeholders, does this modify the mission of GSI and its relationship with the new school and other academic and research units at UM? How does the new school achieve academic excellence and cohesion within its own boundaries and simultaneously work for the good of the entire campus community interested in sustainability issues? How can we harness the great breadth of scholarly excellence across the entire
university to enhance a focused undergraduate program in sustainability such as PitE, while maintaining it as part of a liberal arts education?

The solutions to these complex questions and to moving past the history of “fractured and fractious relationships” among units focused on sustainability at UM are necessarily complex. They require both structural and cultural changes. The Committee explored a wide range of approaches, including the extremes of retaining completely independent units and instituting processes and rules to ensure cooperation, or completely integrating the relevant units into an overarching unit (as recommended by the external committee) and instituting processes and rules that enable some independent functioning.

The need for a strong interdisciplinary school that synergistically amplifies voices for sustainability at UM led to an intermediate set of options between integration and independence. As detailed in the sections below, we recommend tightening formal relationships among the units included in our charge so as to provide a leadership role to the new school. But we also recommend new checks and balances that promote the need for and a vision of collaborative relationships across campus to support work on sustainability, environment, and society. The proposed structures may introduce some complexities: the Committee strove for the minimum that would be effective. As a culture of collaboration and cooperation becomes more entrenched, it may be possible to evolve towards new mechanisms.
III. **Vision and Scope of a Structure for UM Programs in Sustainability, Environment, and Society**

Although the charge to the committee referred to “Environment and Sustainability,” these terms have different meanings to different people, and the Committee spent considerable time defining the scope of the programs within our purview. Would the new school, as well as the Graham Sustainability Institute and the undergraduate program, deal with “sustainability writ large,” meaning the full spectrum of issues related to the health, wealth, and prosperity of human societies such as contained in the full list of the United Nations Sustainable Development Goals? Or, at the other extreme, would it focus narrowly on the sustainability of just natural environments, paying less attention to the human social systems that efforts towards sustainability are intended to support? How can we be both broad and inclusive, while providing some boundaries that allow for focus and excellence?

We resolved that the new school, the new undergraduate program and the Graham Sustainability Institute should all focus on sustainability at the intersection between environment and society. These concepts are inextricably linked—we can protect, conserve, manage, and design functioning environments only by promoting thriving human societies. Likewise, thriving human societies require the protection or establishment of functioning environments across the spectrum from natural to built, wild to human-dominated. Thus, we recommend that the name of both the new school to replace SNRE and the undergraduate program to replace PitE be Sustainability, Environment, and Society. As in the current (and continued) name of the Graham Sustainability Institute, when we use “sustainability” in this Report, we refer to the intersection between environment and society.

A common vision of the mission of the three concerned units creates a greater imperative for close and collaborative relationships. At the same time, the leadership of the three units must promote the larger goal of supporting, rather than attempting to take over, the outstanding and diverse range of sustainability-related research taking place at the intersection of environment and society at UM. We unanimously agreed that it is time to move beyond the current situation where the three units operate autonomously from each other, with independent reporting relationships, competing programmatic structures, and insufficient collaboration. Instead, we envision a strongly connected and synergistic structure of relationships through which the leadership in SSES, PSES, and GSI will work together and with other schools and colleges at UM to build and promote a common vision for sustainability.

Figure 2 below encapsulates the proposed relational structure for the **School of Sustainability, Environment, and Society (SSES)**; the **Program in Sustainability, Environment, and Society (PSES)**; and the **Graham Sustainability Institute (GSI)**. More details about the proposed relationship between the new school and both the undergraduate program and the Graham Institute are in Sections V and VI below (and illustrated by relevant figures in these sections).
Figure 2 represents a central role for SSES in the domain of sustainability at the intersection of environment and society. Although the undergraduate program and GSI are not embedded within the SSES, their missions intersect with that of the new school, and this overlap is represented by close reporting ties. All three units must promote collaborative relationships and joint programs with other schools and colleges at UM if the overall structure is to have greater impact than the sum of each unit’s impact. The remainder of our report elaborates on this ambitious, but appropriate, vision of an integrative structure for work on sustainability, environment, and society at UM.

The Committee realizes that the vision outlined in this report will require close, cooperative working relationships among the leaders of SSES, PSES, and GSI. The recommended reporting and oversight are designed to prevent friction that might otherwise arise between the leaders of these units if they seek to work autonomously. Our recommendations thus support an integrative structure of relationships that will require the leadership to work together, with other schools and colleges, towards the promotion and consolidation of a common vision for sustainability, environment, and society.

The Dean of the SSES, the Director of PSES, and the Director of GSI therefore must possess the following attributes:

- Demonstrated ability to work collegially and cooperatively by reaching across school/college/unit boundaries to form positive, productive relationships
• Ability to lead and manage via influence and collaboration (rather than through top-down authority)
• Ability to objectively consider issues and perspectives of multiple stakeholders and make decisions for the overall good
• Ability to create alignment between organizations despite different priorities and limited resources
• Evidence of leadership and administrative experience
IV. **The New School: the School of Sustainability, Environment, and Society (SSES)**

The School of Sustainability, Environment, and Society will build on existing strengths at UM to become a dynamic, transformative, and interdisciplinary institution. It will pursue innovations in research, scholarship, education, and civic engagement to address global, national, regional, and local sustainability challenges at the intersection of environment and society. To realize such an ambitious vision, committee members unanimously agreed that the new school needs to be larger than SNRE’s current faculty size, have more balanced strengths across multiple disciplines, enhance its research portfolio including a stronger Ph.D. program, become more visible at UM, and be more prominent nationally and internationally. The School must work collaboratively with other schools and programs at UM to develop solutions to the most challenging sustainability issues that face our environment and society.

A. **Mission and Scope**

**Recommended name:** School of Sustainability, Environment, and Society (SSES)

**Recommended mission statement:** *We address global sustainability challenges at the intersection of environment and society through research, teaching, and civic engagement.*

The School of Sustainability, Environment, and Society (SSES) aspires to be the paragon academic institution in the field of sustainability research, scholarship, education, and civic engagement. It will both advance and consolidate this fast-developing field through a problem-inspired, solutions-driven approach. Within the broad field of sustainability, SSES will focus on the *intersection* between society and environment, recognizing that the two are inextricably linked. This interdisciplinary nature, combined with the solutions-oriented, real world focus of SSES, provides a 21st century vision of sustainability research, scholarship, and education.

SSES will replace the School of Natural Resources and Environment (SNRE) at the University of Michigan. It builds on and honors SNRE’s 113-year legacy of leadership in research and teaching focused on protecting and managing Earth’s natural resources and, more recently, achievement of a sustainable society. At the same time, SSES embraces a broader mission of advancing scholarship and teaching in the new field of sustainability science, design, engineering, policy, and the humanities. The Committee also had considerable discussion about inclusion of the arts as part of the faculty in SSES because of its important role in catalyzing changes in perception, attitudes, feelings, and knowledge about sustainability. We weighed these benefits against the dangers of broadening the school to such an extent that (a) disciplines are sufficiently disparate that they might not work together effectively, and (b) SSES could become so diverse as to preclude developing a critical mass of faculty in relevant disciplines. The Committee ultimately decided that the faculty of SSES should be the ones to
make decisions about the exact mix of disciplines to be included, and the use of joint and/full-time appointments to integrate given disciplines. We also see this deferral to the future faculty in SSES as important since the mix of disciplines is likely to evolve as critical sustainability challenges evolve. Ultimately, we believe SSES constitutes an undertaking to galvanize effort and generate synergies across the campus so that UM is recognized as a world leader in sustainability research and education.

B. Thematic Structure for Research and Teaching

SSES will bring together researchers from a wide variety of disciplines that will pursue collaborative and highly interdisciplinary approaches to sustainability issues that affect our environment and society. SSES will balance the inherent trade-off between disciplinary depth vs. breadth that is required to solve sustainability problems by (a) maintaining core faculty with critical mass in closely related disciplines to guarantee a depth of expertise required for student training, while (b) bridging the wide variety of disciplines needed to cover the breadth of topics in sustainability.

**Recommendation:** SSES should organize its research and curriculum around new disciplinary clusters and sustainability themes that will foster interdisciplinary excellence in select topics in sustainability.

Disciplinary clusters are defined as stable, long-term discipline-based faculty groups that provide a critical mass of expertise required to foster interactions and student training within closely-related fields of scholarship. In contrast, sustainability themes are defined as flexible, interdisciplinary topics that will be reviewed at regular intervals (e.g., 5-years) and updated as societal and funding priorities evolve.

Figure 3 below illustrates one example of a set of combinations of disciplinary clusters and sustainability themes (see Appendix D for another example). These are not meant to make a definitive recommendation about which disciplinary clusters are critical to include in SSES or what the sustainability themes should be.
**Recommendation:** SSES should prioritize hiring, research, and curriculum design to ensure both a critical mass within each disciplinary cluster and to ensure that expertise from each disciplinary cluster is represented in each sustainability theme.

Just as a diversified investment portfolio maximizes the stability of financial returns, a diversified and balanced sustainability school maximizes the long-term success and stability of interdisciplinary collaboration and problem solving on sustainability. At the same time, a critical mass is needed within each cluster to sustain disciplinary collaboration and rigorous student training. SSES should have a regular review process to assess and re-balance disciplinary clusters when needed to ensure this representation and critical mass (e.g., on a five-year time scale). Moving towards greater balance in disciplinary representation will likely mean new faculty recruitment in the natural/biophysical sciences, engineering, policy and health fields, and joint appointments in the humanities and the arts, depending on how SSES faculty choose to evolve their disciplinary foci.

**C. Faculty Size and Recruitment**

**Recommendation:** SSES should be substantially larger than the current SNRE, perhaps up to twice the current faculty strength. The optimal size will depend on the disciplinary mix to be included and the critical mass needed to support graduate training and engagement in the school themes.

For SSES to be recognizably different, more prominent, and more successful, it MUST attract
new faculty – both as new hires, and where appropriate from within the university. Joint appointments with UM faculty from other schools and departments will serve to strengthen collaborative and interdisciplinary needs. New hires will be necessary to create and build the disciplinary clusters and sustainability themes illustrated above. The majority of the full-time appointments when SSES is initially established may come from the current faculty in SNRE, but some existing SNRE faculty may also wish to explore options for appointments in other schools/colleges. The provost should work with deans of other units to facilitate such exchanges.

**Recommendation:** Use the dynamic, interdisciplinary research and educational environment of SSES, along with its problem-inspired, solutions-driven orientation, to attract UM faculty from a range of disciplines to join SSES as full or jointly-appointed faculty.

Committee members were unanimous in their belief that the greatest incentive to attract faculty to SSES, both internally from UM and externally, will be its dynamic and interdisciplinary environment for research and education. Attracting faculty from other UM units to join SSES must be done with full knowledge and cooperation of the provost and deans of other units to avoid any perception of “poaching.” SSES leadership and faculty will have a special responsibility to develop concrete mechanisms to support collaborative opportunities with SSES to attract faculty to engage with SSES and join its faculty. For example, SSES could work with GSI to establish a competition for small teams of faculty to establish interdisciplinary working groups, which would lead to appointments of those faculty in SSES for periods of 1-3 years. These “Distinguished Faculty Research Groups” would increase the interdisciplinary capacity of SSES to focus on emergent and critically important sustainability themes, facilitate cross-campus conversations among faculty with a common set of interests, and engage faculty more deeply with the intellectual environment in SSES.

The joint Ph.D. program, interdisciplinary teaching opportunities in the Master’s and Undergraduate programs, and dual degree programs—all discussed in more detail below—may present additional opportunities to develop stronger relationships with UM faculty outside SSES. Other options may include joint teaching by SSES and other school/college faculty where each faculty member’s involvement receives credit for a full course, collaboration to develop new sustainability courses, creation of the online curriculum, and joint advising of doctoral students.

**Recommendation:** SSES should consider adding a small number of senior faculty to the ranks who are both top scholars in their field and highly interdisciplinary (e.g., members of the National Academy of Science or Engineering).

Strong scholars are essential to promote the research mission of SSES and fill core needs in the disciplinary clusters and sustainability themes described above and SSES should explore attracting senior faculty from external institutions, as well as internally. However, it is also
essential that SSES only recruits top scholars whose career provides evidence of facilitating collaborative mentoring and programmatic development

D. Education Programs in SSES

SSES will educate and train students on sustainability concerns at the intersection of environment and society at all levels, including undergraduate, master’s, doctoral, and post-doctoral. The curricular programs will develop and train a new generation of interdisciplinary leaders and educators to address sustainability issues that affect our environment and society.

Educational approaches: The interdisciplinary, problem-solving focus of research and instruction on sustainability creates a tremendous opportunity for SSES to assume a leadership role in transforming the nature of sustainability education through a comprehensive commitment to engaged learning. A specifically Michigan model of engaged learning in sustainability will require continuing innovations towards instructional excellence and the full commitment of all faculty and instructional staff in favor of engaged learning. SSES leadership must commit to a total change in teaching culture such that SSES is recognized internationally as a model of interdisciplinary engaged learning in sustainability. This will require a substantial investment of time and money.

Recommendation: SSES should develop mechanisms to promote new instructional models, especially those focused on interdisciplinary, cross-campus engagement and on engaged learning through the use of the campus and local communities as a living laboratory.

For example, the Michigan Sustainability Cases (MSCs) being developed as part of the Third Century Initiative constitute an evidence-based learning approach relevant to a wide range of students in diverse class settings. Beyond classrooms, MSC online materials, paired with engaged learning components, offer hands-on understanding of concepts and skills to help link classrooms across campus and build on student learning across iterative offerings of a case. The existing interdisciplinary, client-focused master’s projects in SNRE are another outstanding example of engaged learning. We describe additional opportunities for using the campus and local communities as a living laboratory in the section on the Undergraduate Program in Sustainability, Education, and Environment (see Section V.C). We also strongly encourage involving postdoctoral fellows and senior graduate students from across campus as part of teams developing new courses and instructional approaches. For example, SSES could hold a university-wide competition for proposals for new sustainability courses to be taught by postdoctoral fellows or advanced Ph.D. students, along with a faculty mentor/participant. Such a competition would bring new ideas for sustainability teaching into the curriculum, generate stronger engagement with other schools and colleges, and provide young researchers with valuable professional experience.
Finally, one critical instructional model to develop is an online program that goes beyond Massive Open Online Courses (MOOCs). The existence of such a program will be essential for small schools such as the School of Sustainability, Environment, and Society to compete in the future. A range of offerings will serve to position UM and SSES as the preferred locus of outstanding instruction and learning in sustainability and help improve recruitment to SSES by creating much greater visibility for their programs.

**Recommendation:** We recommend that SSES develop a tiered approach to **online offerings** that allow entrainment into the program, improve student recruitment efforts, and advance the national and international visibility of SSES.

Components of the on-line programs could include:

- **A core sequence of introductory undergraduate courses.** These courses will provide a comprehensive introduction to the range of instructional excellence pertinent to sustainability, and will represent the strengths of PSES. The target audience for such courses are all graduating high school seniors in the United States. Students will be able to take the courses in the introductory sequence for free, and may have the option to receive course credit with a fee-based test to ensure competence. These should be developed in collaboration with PSES (see Section V).

- **A core sequence of 4-6 MS level courses.** These will incorporate a comprehensive graduate level introduction to sustainability, a set of three-four electives representing the breadth of work on the subject, and a solutions-oriented capstone course. The target audience for these courses will be a global population with a potential certification counting towards the residential Master’s degree from SSES.

- **Short courses in selected SSES topics.** The target audience here is a global population, including college juniors and seniors. These would be non-degree credits and will include a certification of completion.

- **Michigan sustainability cases.** These courses would be available to UM undergraduate and graduate students and would add an experiential component into the online courses. They would be non-degree credits, aimed at enriching the sustainability curriculum across the university.

Implementation of these programs would require financial support for course development for the first two sequences. Some of this funding may be provided by the Digital Education Initiative (DEI), SSES and relevant participating colleges and units in PSES, and the Provost’s office.

**Undergraduate programs:** SSES will play a major role in the governance and instruction in the new undergraduate Program in Sustainability, Environment, and Society (PSES) that will be jointly owned with LSA and possibly other schools and colleges. This program is described in detail in Section V. Here, we make two additional recommendations about undergraduate education in SESS.
**Recommendation:** SSES should explore the potential for **undergraduate joint degree programs** in partnership with other schools and colleges.

Undergraduate joint degree programs could serve the needs of some students for more specialization than would be available in PSES, attract new students to UM and broaden interdisciplinary work in the field of sustainability. For example, sustainable design is emerging as an increasingly important theme of interest to students at UM; a partnership for an undergraduate degree in this area could involve SSES, the College of Engineering, the Stamps School of Art and Design, and the Taubman College of Architecture and Urban Planning. A joint-degree in Sustainable Urban Policy and Planning, with Taubman and the Ford School as partners, is another exciting possibility.

**Graduate programs:**

**Recommendation:** SSES should **offer both professional and research-based master’s degree programs**, all of which would have a strong interdisciplinary focus.

SSES should develop a Professional Master’s in Sustainability Management (MSM). This is a professional master’s degree to prepare students for positions in the public, private, and non-governmental/non-profit sectors to address sustainability issues at the intersection of environment and society. The professional master’s degree is course-work based, and culminates in a collaborative interdisciplinary capstone project. Curricula should be designed around sustainability themes while retaining a core subset of classes in the disciplinary clusters of the student’s professional focus (Figure 3 above). As a full development of curricular options is beyond the scope of this report, we recommend a committee be formed to develop a new curriculum over the coming year for the SSES professional master’s program.

The committee had neither the expertise nor time to discuss other professional degrees that should be offered in SSES. We therefore recommend that this be explicitly considered during the transition period, with the representation and involvement of concerned parties.

SSES should also provide research-oriented master’s training, with both M.S. and M.A. options, as vital to students seeking a degree that can be a springboard towards a Ph.D. or career in research. The M.S. degree is reserved for students who have backgrounds in sciences or engineering and are training in science-oriented coursework (physical, biological or social), whereas the M.A. degree is for students in select Social Sciences, Humanities and the Arts that are not science-based. Both degrees require a research thesis under the direction of SSES faculty and should therefore require less course work than the professional masters. These research-oriented master’s degrees should receive similar priority as the professional master’s degrees.
Recommendation: To enhance collaboration with other schools and promote greater educational opportunities for Michigan undergraduates, SSES should strengthen its Concurrent Undergraduate-Graduate Study (CUGS) program that accelerates academic progress for top undergraduate students, in coordination with other schools and colleges at the University of Michigan.

A CUGS program will enable students to receive an undergraduate degree from their home school or college (including from the Program in Sustainability, Environment, and Society) as well as a master’s degree from SSES after 5 years at Michigan. The committee recommends that SSES develop both Professional Master’s MSM and Research Track MS and MA options for this program. SSES should ensure that admissions standards for the CUGS equals or exceeds the graduate master’s programs, as the intent is to funnel truly exceptional students into SSES and careers in sustainability.

Recommendation: SSES should develop a vibrant interdisciplinary Ph.D. program that fosters excellence and, in collaboration with Rackham, should develop a funding model for a Ph.D. program that is significantly larger than that currently offered by SNRE.

The Committee feels it is critically important that SSES builds a large and vibrant Ph.D. program that maintains a culture of excellence in doctoral studies. Not only do individual research programs depend on strong Ph.D. programs, top research universities are partially judged by their mission to train the next generation of research scientists and scholars.

Sustaining a vibrant, and considerably larger Ph.D. program than currently supported in SNRE will require that the administration and faculty in SSES work together to provide a combination of sources for graduate student support so that the school can meet UM’s model of fully funded five-year Ph.D. programs. Important sources include GSIs supported through engagement in PSES, endowment funds, Rackham programs; and external fellowships. SSES should also expect faculty to obtain external research funding, where disciplinarily appropriate, to support Ph.D. students. The latter is both financially necessary and critical to creating the desired climate of vibrant scholarliness.

As an interdisciplinary school, SSES will be in a strong position to develop competitive training grant proposals and should work to identify opportunities and support faculty to develop such proposals, e.g., building on the disciplinary clusters/interdisciplinary theme structure. Finally, we believe that SSES can serve as a national model for training a graduate student community of global academic leaders through educational models that emphasize the integration of interdisciplinarity, innovation, global awareness, and solution-oriented research as tools for a uniquely outstanding graduate education.

Recommendation: Joint programs at the graduate level should be explored with other UM schools and colleges.
The master’s program in SNRE already has dual-degree programs with Engineering, Business, Urban Planning, and Law, and these should be continued in SSES. In addition, we recommend that SSES consider formalizing dual-degree master’s degree programs that have been pursued in the past by students working with other schools and departments (e.g., Economics, Public Policy, Education, Public Health, Ecology and Evolutionary Biology, Anthropology, and Sociology).

The new Ph.D. program will allow (and even target and encourage) Ph.D. students to be co-advised by a faculty member in SSES together with faculty members in other UM schools/colleges based on shared interests of participating faculty members and interested students. Students will be encouraged to pursue coursework in the participating units. SSES should invite expressions of interest from all faculty at UM who wish to jointly advise selected Ph.D. students. The leadership of SSES, with support from the provost, should also explore the prospects of a more formal dual-degree Ph.D. program in Sustainability, Environment, and Society with the Rackham Graduate School Dean and deans of other interested schools and colleges.

E. Evaluation and promotion of excellence

Achieving the high aspirations we propose for SSES will require the establishment, monitoring, and promotion of high standards of excellence in research, teaching, service, and civic engagement. All of these areas of academic excellence are important; however, the Committee wants to especially emphasize the need for SSES to achieve greater research excellence than is presently espoused by SNRE in light of the observations offered in the External Review Committee’s report (Appendix A). To have a domestic and international reputation as a leader in sustainability, an academic program must make the generation of new knowledge as important a priority as the distribution and application of that knowledge to sustainability challenges. SSES must work hard to foster a culture where faculty excel in all aspects of academic achievement, including research, and where transparent and fair processes for evaluation and promotion reward excellence among faculty.

**Recommendation:** Expectations for obtaining external funding, producing scholarly products, and international service, visibility and outreach must be clearly articulated for faculty who join SSES, along with behaving in a collegial and cooperative manner, and contributing positively to the team-oriented climate of the School.

To communicate these expectations, SSES should develop metrics against which to measure the productivity and quality of the research produced by individual faculty, and to provide direct comparisons to faculty in comparable disciplines at peer institutions. These metrics should be sensitive to the interdisciplinary mission and disciplinary diversity in SSES, but should not sacrifice more conventional criteria such as the quality of peer-reviewed publications and field-
adjusted impact factors and citation rates.

The success of SSES, including its ability to attract new faculty (whether full time or jointly appointed), Ph.D. students, and master’s students, will rest in no small measure on developing a climate of scholarly excellence. This climate will create a desirable environment for research-active faculty who are also focused on educational excellence and set an outstanding training environment for graduate students and post-docs, thus making SSES a desirable place to be. In short, the new school must move beyond the historical patterns within SNRE that have not universally emphasized the primary importance of scholarly research, publication, and external grant funding, where disciplinarily available, in setting expectations for faculty.

**Recommendation:** SSES should institute transparent processes for annual evaluation of faculty performance by an interdisciplinary, representative body of faculty. This process should result in appropriate incentives for above average and superior research- and education-related performance by individual faculty.

Such processes are necessary to provide clear feedback to each individual member of SSES, identify performance gaps, and ensure supportive actions for improvement. SSES leadership should hold annual performance meetings with all faculty members.

**Recommendation:** SSES should institute regular evaluation of the performance of the school as a whole in research, teaching, and civic engagement relative to peer institutions.

The Committee suggests assessment at 5-year intervals to evaluate the performance of SSES as a whole. Regular assessments of performance will enable the leadership in SSES to gain a clear understanding of the areas in the School where further work is needed to strengthen research capacity. To be viewed as a prominent locus of work on sustainability at the interface with environment and society at one of the premier institutions of higher learning in the world, SSES will need to demonstrate that it compares favorably as a whole to peer institutions and to other schools and colleges at UM.

**Recommendation:** SSES should have an effective and supportive mentoring system to communicate expectations clearly, identify and provide resources necessary for younger faculty to thrive, and ensure that superior performance is appropriately recognized and rewarded.

Communicating the high expectations for faculty is particularly important in the case of newly hired and untenured faculty. A mentoring program that embraces and launches Assistant and Associate Professors onto productive interdisciplinary career paths is critical to the success of the envisioned school. Providing appropriate resources and a supportive environment in SSES will be essential to attract and retain the best faculty, and ensure that all faculty make the best use of their full potential.
V. Undergraduate Education: the Program in Sustainability, Environment, and Society (PSES)

The Program in the Environment (PitE) was created approximately 10 years ago through the restructuring of undergraduate education on environment at the University of Michigan. PitE draws teaching faculty from a number of units on campus, although the majority are from departments within LSA and from SNRE. The Environment major is one of the fastest growing majors in LSA and PitE now offers several popular minors. The program has also been developing a core faculty with regular partial appointments and it has revisited and improved its curricular structure and offerings over time.

In its consideration of how to restructure the undergraduate program, the Committee focused on how to build on PitE’s success and to continue to nurture the program’s growth and development, as well as to move beyond the current contentious relationship with SNRE. To do so, it is critically important to cultivate and leverage relationships across units, with tremendous potential benefits by fostering deeper involvement of faculty in SSES whose primary focus is understanding and addressing sustainability challenges. We view this restructuring as an opportunity in other ways: greater engagement of schools/colleges at UM beyond LSA and SSES in undergraduate instruction in sustainability; a new undergraduate curriculum in sustainability that is developed holistically rather than piecewise; and a new model for interdisciplinary curricular collaboration.

Today, PitE is effectively an LSA program in its structure and administration. The Committee was asked to consider how best to integrate it more closely with the new school (i.e., with SSES). We considered multiple models, including an examination of existing precedents for cross-college undergraduate programs at UM, and evaluated them against six key principles:

- Develop the best program to serve student needs as the highest priority
- Promote an interdisciplinary, problem-solving approach consonant with a 21st century vision of a liberal arts education
- Make the program available to all undergraduates at UM without requiring students to transfer into a different school or college from their original unit
- Involve deep engagement by faculty with relevant expertise
- Attract faculty participants from across the University
- Ensure a fair and equitable distribution of costs and revenues.

We ultimately settled on a novel approach that can serve as a model for interdisciplinary undergraduate programs in other arenas at the university. The approach promises to yield one of the world’s premier undergraduate educational programs in sustainability at the intersection of environment and society.
A. Mission and Scope

**Recommended name:** We recommend that a new undergraduate program named **Program in Sustainability, Environment, and Society (PSES)** be created to replace PitE.

**Recommended mission statement:** We engage students in developing their interdisciplinary knowledge and skills to understand and solve the Earth’s sustainability challenges.

The proposed name better acknowledges the breadth of sustainability challenges resulting from the intersection of environment and society than does a simple reference to “the environment.” The mission statement is also deliberately broader than that recommended for SSES to allow for substantial flexibility in the curriculum. As a practical matter, and at least initially, the bulk of the curriculum may focus on a similar range of topics in sustainability challenges at the interface of environment and society as those concerning SSES. Over time, and depending on the nature and extent of engagement by different schools and colleges and on student needs, the curriculum for PSES, guided by its governing faculty, is likely to broaden further.

B. Structure

**Recommendation:** We propose a shared-ownership model, where PSES is a unit that “floats” between the owning schools and colleges rather than sitting within any single unit. Partial ownership of PSES by a school or college involves:

- Commitment beyond a minimum threshold of instructional FTEs
- Oversight of faculty governance on curriculum (e.g., through college-level curriculum committee)
- Appointment of members to a faculty Executive Committee for the Program
- Fair and equitable distribution of costs and revenues.
This “floating,” jointly-owned, interdisciplinary undergraduate program is a novel model, without clear precedent at the University of Michigan and, as far as we know, elsewhere. The ubiquitous interest in sustainability at UM has led us to the proposed model. The Committee argues that a jointly-owned program has the best potential to ensure long-term excellence of undergraduate education at UM. Such a model will ensure both breadth and depth of coursework, the participation of dedicated and intellectually-committed instructional faculty from across campus, and can enhance the financial stability of the program.

We expect that LSA and SSES will be the initial joint owners of PSES, but have also encountered enthusiasm from deans of other schools and colleges who may well choose to collaborate in the exciting vision of undergraduate education that PSES will represent. Indeed, addressing global to local challenges in sustainability requires knowledge and inspiration from the sciences and engineering to the humanities and arts.

**Recommendation:** The governing faculty of the program will be those with a fractional appointment in PSES.

Curricular design, tracking of student learning outcomes, faculty recruitment, and lecturer reviews for PSES will be conducted by its governing faculty. These are faculty with a fraction of their FTE in PSES, corresponding to some part/all of their instructional effort. Faculty appointments in PSES will be for renewable terms of 3-5 years to provide curricular stability.
Faculty from schools and colleges that do not have partial ownership in PSES could teach individual courses to broaden interdisciplinary offerings as defined through the program’s curriculum. In such cases, faculty would not become part of the governing faculty nor move part of their instructional FTE.

**Recommendation:** To ensure active involvement of participating faculty in program academics and a direct link to their home schools and colleges, we propose a **strong executive committee with decision-making and oversight responsibilities**, whose members are appointed from among the governing faculty by the deans of the owning schools and colleges. The executive committee will be chaired by the Dean of SSES.

A strong executive committee selected from the governing faculty of the program will represent the participating schools and colleges, ensure strong cross-campus faculty governance for the program, and provide input for programmatic innovations and evolution over time.

**Recommendation:** The Director of PSES will be appointed by the Dean of SSES in his/her role as Chair of the Program Executive Committee and in consultation and agreement with other ownership deans. The Director will report to the Dean of SSES, in his/her role as Chair of the Program Executive Committee.

In this model, the relationship of the dean to PSES is one of a “fiduciary responsibility” so that she/he acts in the best interests of university-wide undergraduate education in sustainability without subordinating those interests to those of SSES. The Dean of SSES should periodically consult with other ownership deans to ensure that PSES is meeting its programmatic mission and goals.

The director should be selected based on his/her accomplishments in undergraduate education and demonstrated ability to work collaboratively across schools and disciplines. He/she may be drawn from any of the owning schools or colleges.

**Recommendation:** Administrative support and student services (e.g., advising) for PSES will be housed within SSES, and the office of the Director of PSES and its core administrative functions will be integrated with SSES.

Given the overlap in the educational mission of the new school and the new undergraduate program, the critical mass of its faculty working on sustainability issues, the possibility of operational and educational synergies between SSES and PSES, and the need for closer integration between the new school and the undergraduate program, it is logical to house the administration of PSES in the new school.

While it makes sense to co-locate all student services for PSES majors and minors with the rest of the administration, it will be important to coordinate student advising with general advising
in the owning schools and colleges. For example, LSA students who are planning to major in PSES will be advised by professional staff in the Newnan Advising Center before they declare their major, as well as for general college requirements throughout their time in LSA. Thus, it is important both that Newnan advisors and PSES leadership understand the requirements of the PSES majors and minors and the PSES advisors are aware of general LSA requirements. We recommend the development of mechanisms to coordinate with advising in ownership schools and college (e.g., in LSA, the leadership of undergraduate programs in each department meets annually with the Newnan leadership).

C. Curriculum and Innovative Pedagogy

We envision a curricular design that requires students to consider solutions to sustainability challenges through a diverse array of methods, expertise, and disciplines represented in LSA and SSES, and other schools and colleges. Our conversations with leadership in the College of Engineering, Taubman College, the School of Nursing, the Stamps School of Art and Design, and the School of Music, Theater and Dance, suggest at least some initial enthusiasm for the idea. Engagement in PSES of faculty from multiple schools has the potential to create a network of engaged sustainability educators and lay the foundations for lasting commitment to sustainability education.

**Recommendation:** PSES should be a leader in interdisciplinary undergraduate education, innovating new models of student-centered learning by using the campus and local communities as a living laboratory.

PitE already requires field or internship experiences for all its majors, and PSES will be uniquely positioned to develop new models of student-centered learning because the campus itself, as well as local communities, can be used as a living laboratory for studies of sustainability. Third already happens in in a variety of ways, but we encourage additional ways for PSES to further increase student engagement in both curricular and co-curricular opportunities and experiences.

First, students can engage physically with the campus and local communities on various aspects of sustainability design and implementation. Examples include:

- Better coordination and use of UM properties such as the Matthaei Botanical Gardens and Arboretum and North Campus Woods locally, the Biological Station in Pellston, and Camp Davis in Wyoming. Another possibility is the Inglis House as an accessible campus farm for engaged instruction and learning related to food, nutrition, and health
- Expanded use of dormitories and academic buildings as real world laboratories to perform experiments regarding energy, water, and solid waste reduction
● Engagement with UM facilities and operations (mediated through Planet Blue, see Section VII) and with local governments and NGOs to design and implement sustainability projects
● Incorporation of sustainability related projects and instruction in initiatives such as the “Semester in Detroit” program
● Use of campus/community data in the classroom.

Second, we recommend that students become more engaged in evaluation and decision-making regarding sustainability across campus. Issues of sustainability represent complex, real-world challenges that involve consideration of multiple criteria, analysis of tradeoffs, and the need to make decisions under uncertainty. Increasing the involvement of students in campus sustainability decisions is a tremendous and unparalleled opportunity for engaged learning. If appropriately involved, students will be able to develop a better understanding and appreciation of the complexities and tradeoffs faced by decision-makers when confronting sustainability challenges, even if they do not agree with the final decision. For example, the issue of divestment from fossil fuels is a fascinating and important interdisciplinary case study that involves environmental science, ecology, engineering, business, economics, history, and ethics. To the extent possible, increasing participation from student groups in discussions of campus sustainability will both enhance the quality of the students’ educational experiences and provide decision-makers greater insight into the perspective of the upcoming generation that will need to live with those decisions.

**Recommendation:** Increase interaction between the PSES for undergraduates and graduate education in SSES as a mechanism to enhance engaged learning.

A wide range of mechanisms is available to strengthen the interactions between undergraduate students in PSES and graduate students in SSES and elsewhere for enhanced levels of engaged learning; these will be strengthened by close coordination with SSES. Avenues include involvement of undergraduate students in MSM projects, MS and Ph.D. students helping coordinate potential UG projects focused on client needs, involvement of UG students in cross-campus and engaged-learning teaching initiatives such as the Michigan Sustainability Case development initiative and the Michigan Engaging Community through the Classroom (MECC) initiative, incorporation of case-based teaching in the undergraduate sustainability curriculum, and the like.

**D. Sustainability Literacy**

**Recommendation:** The provost should encourage the creation of a sustainability distribution requirement for all undergraduate students within each of the University of Michigan’s Schools and Colleges.
As elaborated throughout this report, issues of sustainability are critical to the future of humanity and the planet, and the Committee agrees with proposals from many groups across campus to institute such a requirement, which could be met by selecting from a menu of courses appropriate to different units. We do not rule out the possibility of a single course meeting the sustainability distribution requirement together with another requirement. The Committee also recommends that the deans of schools and colleges participating in the undergraduate Program in Sustainability, Environment, and Society continue conversations in this regard with leadership in other schools and colleges after SSES and PSES are established.
VI. **Graham Sustainability Institute**

The Graham Sustainability Institute (GSI) has performed an important role on the UM campus promoting and supporting research on sustainability. Interest in the topic has blossomed, and GSI has stepped in to meet needs at almost all levels of work on sustainability. GSI’s accomplishments include the development of the Integrated Assessment approach for the UM campus and support for Integrated Assessments focusing on important sustainability challenges; organization of numerous roundtables, discussion workshops, and conferences; fellowships for undergraduate, graduate, and professional students and the postdoctoral program for Dow Sustainability Fellows; and a new U-M Journal of Sustainability run by students. GSI has helped coordinate work on campus sustainability and communications as part of Planet Blue and through undergraduate student campus groups such as the Student Innovation Fund and the Student Sustainability Initiative (SSI). GSI has also supported cross-campus research by funding faculty research teams, especially through the Water Center. Thus, GSI has contributed to work in sustainability on campus at almost all levels.

Despite these successes, many faculty members perceive GSI as insufficiently integrated with other programs on campus. GSI was established to be independent of specific schools and colleges to ensure robust outreach and collaboration across units. But GSI’s autonomy and lack of accountability to academic units has encouraged it to pursue independent initiatives at the expense of the cross-campus work it was created to promote. Indeed, in some cases GSI has competed with other programs and faculty rather than supporting them. In addition, through its involvement in Planet Blue, GSI has taken on a central role in communications, de facto moving into the role of the "front door" to sustainability programs on campus, a role that should be served by an academic unit that has research and education on sustainability as its primary mission. The situation is also complicated by the Director of GSI serving as the Special Counsel to the President for sustainability, which has resulted in further extension of the role of GSI beyond its originally-intended mission. These were important gaps that needed to be filled, but the end result is the current structure where GSI is the leading voice at UM on sustainability issues, a role that the Committee believes should be served by SSES. The Committee believes that we now have a unique opportunity to create a more deliberate, university-wide structure around sustainability than the ad hoc development that has led to the current fractured situation.

As noted in the external assessment, UM needs improved coordination, greater cross-unit consultation, and increased facilitation of work on sustainability across the entire campus, goals hindered by the autonomy of GSI and lack of faculty involvement in direction setting and its governance. The recommended governance and reporting structures will create a more collaborative environment for work on sustainability on campus. They will also substantially increase the likelihood of collegial engagement between GSI and SSES, thereby serving the entire university more effectively and allowing SSES to become the portal to UM sustainability programs, which was central to the Provost’s charge to the Committee.
Given these concerns, the Committee was charged to recommend mechanisms for tighter coordination and complementarity between SSES and GSI, even as GSI retains sufficient independence to function and be viewed as a campus-wide resource with stronger faculty governance. The Committee considered multiple options to achieve these goals. They ranged from minimal changes in current arrangements to fully including GSI within SSES. Four core principles guide our recommendations for GSI:

- GSI facilitates interdisciplinary work on sustainability to break down silos of excellence at UM rather than serve as a center of research excellence itself
- GSI serves UM as a whole
- GSI works closely and collaboratively with SSES because of the overlap between their redefined missions and scope of work
- GSI helps to reduce territoriality and competition in cross-campus work on sustainability, environment and society

These considerations led to recommendations that refine the current mission and suite of activities and restructure GSI’s relationship with SSES so that it is closely affiliated with the new school. Our recommendations also affect the relationship of GSI with campus sustainability, including Planet Blue, and the current Office of Campus Sustainability (OCS) (see Section VIII). The Committee believes that SSES and GSI must work together closely if UM is to benefit from synergies of collaborative work across campus units. The Committee therefore recommends a new structure for GSI that will facilitate greater collaboration while leaving the important cross-campus, interdisciplinary focus of GSI intact.

A. Mission and Scope

**Recommended mission statement:** We empower and support faculty and students across the University of Michigan, and engage external stakeholders, to foster sustainability solutions from local to global scales.

The proposed mission statement is essentially unchanged from what exists currently. However, over time, GSI broadened its activities beyond the above mission in order to fill key gaps in sustainability activities across campus. These included a focus on campus sustainability through the role of the GSI Director as Special Counsel to the President on Sustainability and work to coordinate sustainability communications through Planet Blue.

**Recommended scope statement:** GSI should serve as the catalyst for interdisciplinary research by sustainability scholars across the university. As part of this, GSI will: (i) promote and support cross-campus faculty-demand-driven groups for sustainability research, (ii) support preparation and submission of cross-campus research proposals on sustainability;
(iii) support the development of campus-wide programming to increase intellectual engagement (e.g., speaker series, workshops, conferences), (iv) coordinate solutions-oriented analyses of emerging and key problems, (v) develop, coordinate, and support programs that facilitate cross-campus student research as individuals and as teams (e.g., engaged-learning research projects by interdisciplinary student teams working for client organizations with sustainability problems), and (vi) coordinate campus wide engagement with NGOs and government agencies from local to larger scales (e.g., through sustainability policy dialogues and sustainability research translational workshops).

As part of our recommendations for overall restructuring, we recommend a return for GSI to the sentiment embodied in the recommended mission statement above. Such a return would re-emphasize the core functions of supporting faculty-demand driven interdisciplinary research on sustainability, developing and coordinating solutions-oriented analyses of emerging and key problems, and coordinating engagement of the campus community with external stakeholders. In response to its recent external review, GSI has already begun acting on the first of the points above. Our recommended changes for GSI will allow it to remain focused on its mission.

B. Structure

That GSI has had limited success in coordinating efforts with other units is at least partially due to the facts that GSI has a weak Executive Committee that meets infrequently, largely to view changes that GSI has already instituted, and GSI has no formal coordination with efforts of SNRE or any other unit. The Committee therefore recommends a modified organizational structure that involves a stronger governing body and with oversight and required participation by SSES.

**Recommendation:** We recommend the creation of a GSI Executive Committee with decision-making and oversight responsibilities for GSI:

- The SSES Dean will chair the GSI Executive Committee
- Members of the GSI Executive Committee will be faculty engaged in sustainability research and be appointed by deans of schools and colleges that self-define as having an interest in sustainability
- The GSI Executive Committee will have real and substantial oversight powers over the Institute’s direction and activities
- The Director of the Institute will report to the Dean of SSES in his/her role as chair of the GSI Executive Committee
- In the committee chair role, the Dean of SSES has a fiduciary duty to the university and not just to SSES.

The proposed reporting line for the Director of the Graham Sustainability Institute will strengthen the affiliation between GSI and SSES, lead to greater cooperation and
communication, and eliminate competition and turf battles. Simultaneously, strong and representative faculty governance together with the fiduciary responsibility of the SSES Dean in the role as Chair of the GSI Executive Committee, where this duty is considered as part of the evaluation of the dean of SSES, will ensure that GSI remains focused on its campus-wide mission (see Figure 5 below).

The proposed Graham Executive Committee chaired by the SSES Dean will provide both expanded faculty input and broader faculty governance to help GSI achieve its primary mission to facilitate and support cross-campus research on sustainability. The success of GSI, and the success of sustainability programs at UM, depends on faculty inputs, buy-in, and governance for mechanisms that are expected to support cross-campus research on sustainability.

![Diagram of administrative and governance structure]

**Figure 5. Recommended structure and governance of the Graham Sustainability Institute (GSI)**

GSI works with SSES to facilitate cross-campus coordination of sustainability related research, student and postdoctoral fellowships, and intellectual engagement. A strong GSI Executive Committee comprises faculty sustainability researchers appointed by deans of schools and colleges. The SSES Dean chairs the GSI executive committee. The GSI director reports to the SSES Dean in his/her capacity as chair of the GSI executive committee. Administrative functions between GSI and SSES are shared.

**Recommendation:** GSI and SSES should review their administrative functions, including but not limited to finance, accounting, and human resources, to determine whether any of those functions should be combined to promote greater coordination between GSI and SSES and more efficient and effective resource allocation.

There may be administrative functions that should be housed separately within GSI, but other functions might be effectively coordinated with SSES to promote the missions of both organizations. To implement this recommendation, the key administrators of SNRE and the Graham Institute should hold a meeting prior to the creation of the new school to undertake a
good faith and collegial effort to determine whether there are administrative functions that should be combined to more effectively and efficiently support the missions of both units. Although the Committee believes that operational efficiencies can likely be harnessed through the proposed integration, the level of consultation and engagement required to identify those functions were beyond the scope of what could be accomplished by our Committee.

**Recommendation:** The office of the GSI Director and at least some of the core operational functions of the Institute should be co-located with SSES. The scope of GSI’s activities requires space that cannot all be provided within the confines of the proposed home of SSES (the Dana building). Co-location of the GSI leadership with SSES will substantially aid interactions and synergies promoting collaborative planning, implementation, and review of university-wide sustainability efforts by the SSES and GSI.

The above recommendations regarding the structural relationship of GSI with SSES and other Colleges and Schools at the University will preserve GSI’s charge to serve the whole university, create a strong and synergistic relationship between the Institute and the School, and substantially reduce or eliminate turf battles that have characterized many interactions over sustainability focused work at the University.

### C. Functions

As we have stated above, the Committee’s recommendations regarding the functions of Graham Institute leave many of its current activities unchanged, but focus on a reorientation towards supporting, facilitating, and coordinating cross-campus work on sustainability, environment, and society. The GSI and PSES Directors and the SSES Dean should consult regularly to remove duplication and redundancies in areas of mission overlap.

**Recommendation:** GSI should promote and support cross-campus faculty-demand-driven groups for sustainability research.

GSI has funded considerable faculty research on the UM campus that has brought together new interdisciplinary teams and generated important research. In the service of the mission to support cross-campus work on sustainability, GSI should continue to focus on areas where UM excels and promote research excellence in areas of emerging needs as defined through faculty participation and governance.

**Recommendation:** GSI should support preparation and submission of cross-campus research proposals on sustainability so as to promote collaboration and reduce unnecessary competition.

GSI has attempted to support faculty research proposal preparation but these efforts have
been hampered by the interest of each unit in the indirect costs associated with successful grants. GSI should strengthen its efforts in this regard by providing staff support for development and submission of sustainability oriented research proposals, including center and infrastructure proposals, by faculty teams from across the university. GSI should go beyond assisting with budgets and submission and provide support for bringing together proposal-writing teams, and professional editing and graphic support for those teams. If proposals are submitted by GSI, IDC should nevertheless go back to home units where the research is being conducted.

**Recommendation:** GSI should support the development of campus-wide programming to increase intellectual engagement (e.g., speaker series, workshops, conferences) and better coordinate such programming with existing centers, programs, schools, and colleges.

Work and interest in sustainability is ubiquitous across the UM campus. As such, there is often overlap between efforts to increase awareness, visibility, and strength of sustainability research on campus and hosting external scholars and practitioners. GSI should support and help coordinate campus-wide program development for greater intellectual engagement. Where such programming is missing or in critical areas where it is needed, GSI should solicit faculty involvement to develop broader intellectual engagement.

**Recommendation:** Establish a task force to assess the missions and functioning of the full range of research centers and institutes with sustainability-related missions across campus, including those within GSI, within the current SNRE, and elsewhere on campus.

A task force should be formed to determine the degree to which sustainability-related centers and institutes have overlapping and competing missions/functions, and whether their placement in the university is appropriate to their mission. The task force should make recommendations to clarify missions and possibly for restructuring to increase complementarity and coordination. The goal should be to maximize potential synergies and the campus-wide impact on research, education, and civic engagement. Included in the purview of this task force should be the Water Center and the Climate Center within GSI; the Cooperative Institute for Limnology and Ecosystem Research [CILER], Michigan Sea Grant, the Institute for Fisheries Research [IFR], and the Center for Sustainable Systems [CSS], all currently within SNRE, and other centers such as the Energy Institute.

**Recommendation:** The Graham Institute should continue to coordinate solutions-oriented analyses of emerging and key problems, and do so where feasible and useful through coordination of campus-wide engagement with NGOs and government agencies from local to larger scales.

Activities such as sustainability policy dialogues and sustainability research translation
workshops could serve to connect faculty, students, and staff to leading policymakers, practitioners, and other stakeholders. These activities showcase the interdisciplinary, cross-campus research that is catalyzed by GSI and contribute to the mission of a great public research university to provide the rigorous analyses that must inform public, and private, policy and activities.

**Recommendation:** GSI should develop, coordinate, and support programs that facilitate cross-campus student research as individuals and as teams (e.g., engaged-learning research projects by interdisciplinary student teams working for client organizations with sustainability problems).

GSI has a history of excellence in supporting students from across the campus whose work is related to sustainability. We believe that this work needs to be continued although it may suffer some reduction depending on whether support from Dow is continued for sustainability scholars from the undergraduate to the postgraduate levels.

**Recommendation:** Campus sustainability coordination efforts should be moved out of GSI and the position of Special Counsel on Sustainability to the President be eliminated.

See the next section for the Committee’s recommendations on strengthening campus sustainability efforts and their interactions with academic programs.
VII. **Campus Sustainability**

As we aim to better position the University of Michigan as a leader in sustainability research and education, we must also strive to lead in on-campus sustainability efforts. The External Review Committee noted that “UM’s efforts to increase the sustainability of the UM campus appear poorly coordinated and are not at the level of peer institutions.” While progress has been made in recent years with the Sustainability Initiative, Planet Blue, the Graham Institute, the Office of Campus Sustainability and other efforts, we agree that the University is hampered by an organizational structure that does not effectively and efficiently facilitate sustainable campus operations which are coordinated with academic research, faculty expertise and the educational mission of our students.

Currently, Planet Blue is a virtual consortium of the Graham Sustainability Institute and Facilities/Operations (Office of Campus Sustainability - OCS). Planet Blue also has a professional communications staff.

**Recommendation:** We recommend restructuring campus sustainability in the following ways:

- Elevate Planet Blue into an executive level office with its own Director. This director would serve as the central, lead administrator for all programs and activities related to campus sustainability.
- Eliminate the existing “Special Counsel” position, currently held by the Director of the Graham Sustainability Institute.
- Operate the new Planet Blue office with the assistance of a Campus Sustainability Advisory Board made up of representatives from SSES, GSI, the PSES, the Office of Campus Sustainability, Student Life, Facilities and Operations, Planet Blue Communications, and representatives from relevant student groups (such as the Student Sustainability Initiative (SSI)). The Director of Planet Blue should serve as the chair of the Advisory Board. The goal of this Advisory Board is a) to ensure regular, substantive and collaborative discussions across units about designing facilities and operations initiatives with known, effective strategies on behavior change, and b) facilitate direct communication between faculty and students involved in engaged learning projects through SSES, PSES, and GSI and the facilities and operations administrators overseeing day-to-day campus operations.
- Elevate the Office of Campus Sustainability (OCS) within the Facilities and Operations organizational structure so that it has its own Director that is separate from Occupational Safety and Environmental Health (OSEH). The Director of OCS should be evaluated in part on the degree to which the individual promotes sustainability effectively on campus and engages with campus academic programs (i.e., curriculum, student groups, research), mediated through the Campus Sustainability Advisory Board chaired by the new director of Planet Blue.
• Institute incentives for the leadership of the Facilities and Operations organization to increase campus sustainability, reduce waste, and save energy through creative, novel, forward thinking solutions and active engagement of campus stakeholders.

The Planet Blue Office’s functions include:

• Actively monitor and advocate for innovations in waste reduction and energy saving to institute campus-wide changes in infrastructure or operations that reduce our footprint
• Facilitate discussions across units about designing facilities and operations initiatives with known, effective strategies on behavior change through the Advisory Board.
• Make recommendations and help promote, coordinate, and implement sustainable campus initiatives, including student initiatives
• Coordinate academic/student interface with campus sustainability initiatives, including facilitating the use of campus as a living laboratory for sustainability research and education through the sustainability Advisory Board.
• Provide support for campus-wide student organizations promoting sustainability (e.g., through the student sustainability council).
VIII. Space and Facilities

Committee members received repeated feedback from current faculty and staff about the critical importance of co-location of the campus academic programs in sustainability and the new school, as well as appropriate space for housing the enhanced activities and new faculty in the proposed School of Sustainability, Environment, and Society. Against this feedback, we must balance the difficulties of constructing a new building on central campus. We believe that creative solutions for finding additional space and co-location of sustainability programs are available in the short run, although in the medium to longer run the university must place a high priority on the need for a new building on central campus for SSES and related units and programs.

Our recommendations regarding space cover a) the most urgent needs for co-locating sustainability programs on the UM campus, b) the needs of the growing faculty, students, and research programs of SSES in the coming 3-5 years; and 3) the full strength of the enhanced programs, faculty, students, and staff, and campus-wide activities facilitated by SSES, in relation to the ideal of co-location of all of the broad academic programs in sustainability. Given the familiarity of the SNRE administration with the space available in the Dana Building, we also consulted with SNRE Dean Daniel Brown regarding the space recommendations below. Although additional planning will be necessary during the transition and implementation phase, we believe the recommendations below can feasibly be accommodated.

**Recommendation:** In the short-intermediate term, the highest priorities for space in Dana should be the SSES faculty and their research programs, the Dean and administration of SSES, and the core administrative functions and the offices of the Directors of the undergraduate Program in Sustainability, Environment, and Society and the Graham Institute. Space for undergraduate student advising for the PSES should also be made available in Dana. Some staff offices and meeting spaces necessary for the activities of the Graham Institute will need to remain where they are currently located. Assuring adequate space for PSES and GSI is a key responsibility of the SSES Dean.

The spatial proximity of core administrative and dean/director offices for the three units will promote regular interactions, strengthen collaborative engagement, and reduce the costs of meetings for joint planning and program development by senior decision-making officers in the three units. The role of space and design in enabling greater synergies and signaling UM’s commitment to collaborative relationships among these three units cannot be underestimated. These changes will require roughly 3,000 to 4,000 sq. ft. of space which can be found in Dana Building with relatively small disruption of activities and tasks across the three units.

In the intermediate term, increases in faculty strength for SSES will lead to greater space needs for faculty offices and research space. Although Dana is likely to be able to accommodate some of this increased need for space by focusing on the priorities recommended above, university
and SSES administration should seriously investigate the possibility of allocating additional space for SSES, PSES, Graham Institute, and for research centers within SSES. This should be contiguous space, and as near to Dana as possible to promote programmatic synergies, interactions, and potentially research innovations. A potential option is to rent or acquire a house or building near Dana on Central Campus for programs that primarily require only office or computational space. Another option is a cluster of SSES faculty with biologically-oriented research in the new Biological Sciences Building being constructed in close proximity to Dana; this would result in additional synergies with the ecology faculty who will move there. A final option is to use part of Ruthven; the committee is unaware of any final decisions about the use of Ruthven once the Biological Sciences Building is complete.

**Recommendation:** The University and SSES administration should work towards identifying resources for a new building on central campus, in addition to Dana, that would both exemplify sustainability ideals in its structure and operations and provide a space to co-locate the major academic programs in sustainability of the University, i.e., SSES, PSES, and the Graham Institute.

The committee strongly believes that a new building on central campus is essential for the highest level of synergies to arise from the proposed restructuring. This will send a strong signal to both internal and external stakeholders regarding the commitment of UM to future work on sustainability at the intersection of environment and society.
IX. Other Considerations: Development and Communications

The explicit charge to the Committee concerned the structure and relationships of programs in Environment and Sustainability. Our examination of these programs also raised two additional issues -- development and communications -- that are critical to the success and visibility of the proposals advanced in our report.

A. Development

Many UM schools and colleges beyond the current SNRE and the future SSES have substantial engagement with sustainability. Work on sustainability extends into LSA, Engineering, Law, Public Health, Urban Planning, Art and Design, Public Policy, and Business, and indeed, other Schools and Colleges. There is, thus, potential for competition and/or confusion in fundraising and communications around sustainability.

**Recommendation:** Given the breadth of sustainability-related issues across the UM campus, we recommend the creation of a group/committee that will coordinate fundraising for sustainability. We envision this group will be supported by the Office of University Development, and will have strong representation of SSES and other relevant units.

Although such a group will not control all fundraising activities that touch on sustainability, it can still ensure coordination, cooperation, and consistency of messages to donors.

B. Communications

More effective communication of sustainability related academic programs, research, outreach, and other activities at UM are fundamental for the University to be, and to be viewed as, a leader and innovator in sustainability. Stronger coordination of communications and messaging will require a staff that is both familiar with ongoing changes in the field, has translational capacities, and is able to craft compelling messages based on research findings and curricular innovations. The SSES will have a significant concentration of work on sustainability and will also have strong ties to other units where sustainability focused research and instruction is ongoing. We believe that SSES and other academic units on campus will need to play a strong role in facilitating communications regarding sustainability to both external and internal stakeholders, in partnership with GSI.

**Recommendation:** There should be a single web entry for all diverse internal and external audiences interested in sustainability and strong coordination across web sites representing the diverse programs involved in sustainability.
Initial pages should clearly direct visitors to such large categories as academic programs, courses, news items, campus sustainability, and events. It should also be managed so as to provide interested audiences a clear sense of the breadth of ongoing programs, research, instruction, and intellectual work at UM. For example, rotating profiles and faculty and student research as well as innovative teaching experiments can offer audiences windows onto this exciting arena. The portal must be able to communicate effectively to diverse audiences including prospective and current students, faculty and researchers, policy-makers and industry, and the general public.
X. Transition and Implementation Planning

Once decisions about our major recommendations on structural relationships among SSES, PSES, and GSI have been finalized, a number of implementation task forces will need to be appointed to chart a path forward and to ensure a smooth transition to the new structure.

A. Transition from SNRE to SSES

Some of the critical components of the creation of SSES will need to await the appointment of a new dean, most notably recruitment of new faculty. Similarly, finalizing new governance structures and policies and procedures will require a new dean. Nevertheless, much work can be done during a transition period.

**Recommendation:** A transition team should be appointed that will embrace this collaborative vision of a School of Sustainability, Environment, and Society and the opportunities it creates for reimagining how UM approaches research, scholarship, education, and civic engagement around sustainability.

The transition team should be co-chaired by one faculty member invested in sustainability research but not in SNRE, and one faculty member currently in SNRE and committed to the vision of the SSES. Members should include current SNRE faculty, faculty not currently in SNRE but who may join SSES or who have a strong record of work on sustainability, and student representatives. Where appropriate, the team should also secure input from key staff, e.g., on administrative arrangements and space allocation. The charge to the transition team should specify clearly that SSES not be SNRE under a different name, but rather a new unit that embraces broad sustainability challenges and in particular collaborations across campus.

The transition team should embrace the opportunity of creating a new unit to move beyond historical ways of doing things, look at a wide range of best practices for governance, faculty evaluation, mentorship, etc., and develop new policies and procedures appropriate for a 21st century, interdisciplinary unit that is a global leader in research, scholarship, teaching, and civic engagement.

Tasks for the transition team (or its subcommittees, designated as needed) should include:

- Establish criteria and a plan for space prioritization and allocation, in collaboration with GSI and PSES as appropriate
- Develop a staged plan for growth of the SSES faculty that allows the new school time to agree on hiring priorities and find the required space
- Develop draft bylaws, policies, and procedures for faculty governance, evaluation and promotion, and mentoring
● Review the current professional master’s degrees in SNRE and make decisions about which belong in SSES
● Develop a new curriculum for the master’s degree in sustainability management

B. Transition from PitE to PSES

● A task force to reach agreement on the financial aspects of PSES, including the details of joint ownership. This task force should comprise appropriate leadership and staff from interested participating units and the Provost’s office. The task force should be charged with ensuring fair and equitable sharing of resources and revenues, and with creating a plan for periodic review of the functionality of the financial arrangement once PSES has been established.

● A task force to develop the curriculum and an implementation plan for PSES. This task force should comprise current faculty who teach within PitE, faculty with potential interests in involvement within PSES, and undergraduate student representatives. The task force should be charged with reviewing the current curricular offerings, developing a new curriculum for PSES, and determining details of the faculty governance structure for the PSES curriculum.

C. Better coordination of sustainability-related Institutes and Centers

As described in Section VI.C, a task force should be appointed to inventory all the centers and institutes on campus that are related to sustainability issues, assess the degree to which they have overlapping and competing missions or redundant functions, and recommend clarifications in missions and even perhaps, mergers, to increase complementarity and coordination and thereby maximize potential synergies and the campus-wide impact on research, education, and civic engagement. This committee should also recommend processes for ongoing review and coordination.
**LIST of APPENDICES**

Appendix A: Report from External Review Committee

Appendix B: Committee Charge

Appendix C: Reference Materials

Appendix D: SSES Organization Examples