The Imperative of Sustainability
And
Opportunities for Unity College

A Platform for Strategic Planning

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The Imperative of Sustainability and Opportunities for Unity College -

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**Executive summary**

Unity College must make a crucial decision about its identity for the coming decade and beyond. Enrollment numbers from recent years show signs of significant weakness that is likely to get worse as the new-normal economy continues to erode the affordability of college. The higher education marketplace is rapidly changing to emphasize the return on investment for students and parents. The connection between curriculum and employment opportunities is more than ever a top concern. At the same time, multiple environmental crises are coming to a head and enrollment in environmental programs continues to increase. There can be little doubt that the clean economy will continue to grow and that there will be increasing demand for an environmentally literate workforce. Colleges and Universities are moving swiftly to develop or enhance appropriate programs. Unity College must address two fundamental issues. First we must develop distinctive, premium products that are in high demand, and second, we must significantly expand our brand awareness and move into new markets. This whitepaper offers a platform for development of strategic planning that will address these issues.

Over the last 50 years environmental concerns have become an increasingly urgent theme in public discourse. Students in college today face the prospect of living in a progressively diminished world unless we are able to make significant adjustments in our use of natural resources, and bring carbon-neutral sources of energy rapidly on line. Within the next 20 years, climate change will become expensive and dangerous for societies worldwide, driving and amplifying global environmental degradation, including biodiversity loss, nitrogen cycle disruption, phosphorus cycle disruption, and ocean acidification. It is likely that we have little more than a decade to vigorously begin the transition towards sustainability. Humanity faces an imperative: we must live more sustainably on this planet or suffer increasingly severe consequences.

In response to this imperative, sustainability programming is rapidly expanding at institutions throughout the world. For most colleges and universities this is a
natural extension of existing programs in environmental science and environmental studies. With the exception of some programs in elite, older schools, these programs are poorly funded. Despite this lack of support, enrollment in environmental programs has soared over the last two decades.

The clean economy is rapidly growing and employment prospects for graduates in environmental and sustainability programs are bright and will likely improve as society responds to the sustainability imperative. The mission of Unity College has never been more relevant or necessary, but we must sharpen our programming to attract the future leaders of the environmental and sustainability professions.

As scholars and practitioners in our respective fields, we know that scholarship and research are essential to making informed choices and taking prudent actions. We are already skilled in the hands-on application of scholarship and research to create solutions. The existing curriculum at Unity College can be progressively refined to help us and our students meet the sustainability imperative by embracing sustainability science as a framework.

Sustainability science is the application of science from many disciplines to develop sustainable solutions to environmental problems. While this could be accomplished by the independent and usually sequential application of various disciplines to a problem, the most effective approach is recognized to be transdisciplinary, which means that the perspectives of various disciplines are integrated through the problem-solving process. Sustainability science is not yet an autonomous field, and it is most appropriately viewed as a vibrant framework that is bringing scholarship and practice together through global and local perspectives. Sustainability science is endorsed by the U.S. National Academy of Sciences, the National Science Foundation, and the American Association for the Advancement of Science.

Sustainability science is neither applied nor basic science, but is a field defined by the problems it addresses rather than by the disciplines it employs. This approach will be familiar to those of us who already employ problem-based learning models. It endeavors to advance a basic understanding of the dynamics of coupled human-natural systems, and it facilitates the design, implementation and evaluation of practical interventions that promote sustainability. It is problem-based and solution-oriented. This is wholly consistent with the mission of Unity College, and it accurately describes much of our current pedagogy.

Sustainability science is reliant on foundational disciplines including chemistry, biology, physics, math, ecology, conservation, and is variously supported by the social sciences, humanities, economics, and teacher education.

Unity College should invest in the human resources necessary to provide premium programming in pragmatic and scholarly aspects of sustainability science. I am not suggesting that sustainability science should replace our existing degree programs. Instead, I propose that we embrace this as a proactive and process-oriented framework that can guide the pedagogy of our
existing programming. As an integrative and inclusive framework, it is built upon and enhances our existing strengths in conservation and natural resources.

There are two important consequences of framing our environmental science in terms of sustainability science. First, it defines us as a sophisticated and mature institution to the outside world. Very few university or college programs have embraced sustainability science as a framework. This is a niche that Unity College should aggressively claim. This framework has the potential to move Unity College to a higher profile among competing environmental programs, thus enhancing the post-graduate success of our students. Second, it defines our internal understanding of how to address global environmental change. The scholarship of sustainability science is an overarching conceptual home for all of the existing environmental perspectives at Unity College.

Rather than relying on the failing environmental strategies of the previous century, sustainability science is proactive and future oriented. Embracing sustainability science will lead us to understand our existing curriculum in the context of the concepts of mitigation, adaptation, and resilience. These terms are not limited to their reference to climate change, but instead refer more broadly to a portfolio of responses to environmental change. Focusing on these concepts could provide unique opportunities for undergraduate research, thus adding to the premium value of our degree programs.

A liberal arts education is an essential foundation for sustainability science and offers the best mix of applied and theoretical understanding. It enhances any scientific or technical training through the teaching of critical thinking, written and verbal communication, and the complex ethical context typical of tradeoffs in the 21st Century. Mastering these skills will give our students a strong competitive advantage in a job market increasingly characterized by applicants with a narrow technical focus who lack transdisciplinary, multi-media literacy. With rigorous training in both analysis and creation of written, oral, and visual texts, our students will be better professionals and more highly valued employees. I recommend that we add management and economics to our liberal arts programming.

A recent study by Stamats confirmed that our market penetration is very shallow and that we leave large sectors of our potential market untouched. While building our academic programs, we must vigorously market the value of our sustainability science programming in the context of a liberal arts education. In short, we must take our programming and marketing to a more sophisticated level, distinguishing Unity College above the competition as providing premium value in comparison to degrees from other institutions. Vigorous and integrative marketing is necessary to reap the benefits of embracing sustainability science as the educational and operational framework of the College.

The College must make a fundamental choice about its target markets. Our admissions data show that the increasing number of students with unmet need is a significant factor in our struggle to maintain enrollment. In short, the lower end
of our market is collapsing. In addition, we frequently lose highly qualified students who have the ability to pay to institutions offering more competitive funding packages. We must continue to enhance our scholarship endowment, offer a premium product to parents and students who have the ability to pay, and be more competitive in our scholarship offerings to students from more affluent backgrounds.

Several options could diversify the College’s income stream and support the core mission. These include forms of hybrid distance programming, collaboration with affinity institutions, enhanced articulation with secondary schools and community colleges, development of summer programs, and recruitment of international students.

I propose that Unity College engage in a business restart, and develop prospective markets rather than continuing our retrospective emphasis on markets that are increasingly less viable. Recurring resources will be needed for strategic development of the faculty, staff, and enhancement of administrative processes including marketing. Concomitant with development of the strategic plan, the College administration and Board of Trustees will develop financial scenarios and resources to support this new direction. These scenarios should include various levels of tuition and fees in the context of the opportunity for enhancing total revenues. Sources of funds for the proposed expansion of the faculty, staff, and administrative processes must be identified.

Overarching recommendations:

(1) Develop through existing and new programming greater capacity to address environmental issues through the scholarship and application of sustainability science.

(2) Explicitly identify Unity College and our programming in sustainability science with the Earth’s deepening environmental crises and the changed economy.

(3) Strengthen the liberal arts foundation of the College.

(4) Progressively increase the premium value of our degree.

(5) Significantly develop the marketing capacity of the College.

(6) The College administration and the Board of Trustees will identify sources of funding and develop scenarios to support a business restart.
Context for this document

As we begin 2012 Unity College holds a balanced scorecard in terms of liabilities and assets. The College has weathered the initial years of an ongoing worldwide economic recession with its finances intact and the books balanced. Our debt burden is small relative to our assets. Our cash on hand is adequate, has improved during recent years, but remains vulnerable to enrollment shortfalls. Our students are unique among the ranks of small liberal arts colleges and, among those students and parents who know us well, we enjoy unprecedented identification and loyalty. Our general mission as an environmental college has never been more relevant, and we have a modest but growing national reputation for occupying the niche of sustainability programming. Faculty, administrators and staff work here because of their belief in and dedication to the mission of the College. Due to a recent anonymous gift, we now have an additional $10 million in our small endowment that can contribute income to student scholarships and the development of new programming.

These assets provide a foundation for development of the College and they provide resources for facing significant challenges. As I will articulate in this whitepaper, we have an extraordinary opportunity to develop Unity College as one of the best small colleges in the U.S. specializing in providing students with scholarship and experiential learning for building a sustainable society. Unity College could position itself nationally to be a magnet for the increasing numbers of parents and students who identify sustainability as an essential part of our future.

Meeting this opportunity will require us to overcome several immediate challenges. Presently our enrollment is falling and higher education is increasingly unaffordable for many students and their parents. Our enrollment data show that students from families with incomes less than $100,000 per year find Unity College increasingly unaffordable. The niche for a relatively inexpensive private college without a distinctive premium product is rapidly disappearing. Our faculty is too small to effectively take advantage of new opportunities for programming in sustainability. Our infrastructure is used to its fullest capacity and in need of repair and expansion. Selectivity of admissions should be increased. Programming rigor is questionable for parts of our curriculum. The penetration of our brand at the national level is very shallow. Most important among our liabilities is the likelihood of a contracting budget and the lack of capital necessary for programmatic improvement and expansion of our facilities.

The purpose of this whitepaper is to provide an analytical platform for strategic planning. There are two parts to the strategic planning process. First, as part of our accreditation processes the faculty and administration must write a new strategic plan. Secondly the Board of Trustees is required to articulate its vision for development of the College. Strategic planning is part of the Board’s fiduciary duty and such an exercise is timely because the Board has recently expanded and will experience further turnover in membership. I believe that an
understanding of the historical, economic, and academic context of the College is necessary to support both of these processes. After reviewing what we know about national and global environmental and economic trends, this whitepaper will focus on opportunities and constraints that are determinants of the College’s future to provide all those engaged in strategic planning a common understanding necessary to identify an appropriate path forward.

The imperative of environmental sustainability

Over the last 50 years environmental concerns have become an increasingly urgent theme in public discourse. The science is quite clear about current environmental trends (Orr 2004, Speth 2005). Students in college today face the prospect of living in a progressively diminished world unless we are able to make significant adjustments in our use of natural resources, and bring carbon-neutral sources of energy rapidly on line. It is likely that we have little more than a decade to vigorously begin the transition towards sustainability. Failure to do so risks profound and irrevocable consequences over a millennial time scale.

Climate change as a driver and amplifier of global environmental change. Presently the average warming for the planet has been about 0.8°C since 1900, a deceptively small number that belies profound changes in thermal regime at high latitudes and massive shifts in weather and ocean currents that are presently underway in all quarters of the planet. While other components of global environmental change such as resource depletion and deteriorating food security are vitally important, climate change amplifies and exacerbates these trends. Some greenhouse gases such as methane and ozone have relatively short-lived impacts on climate, but additions of CO₂ to the atmosphere are for all practical purposes permanent because this gas changes the temperature of our planet for millennia.

The consequences of climate change will affect the wellbeing of humans for generations, long after human emissions have ceased. Human-caused climate change will be the single most important determinant of ecosystem form and function in the 21st Century. This reality makes it inevitable that the U.S. will deal with this issue as a threat to our security. Concise reviews of climate change are offered by Allison et al. 2009, Karl et al. 2009, and the National Climatic Data Center (NOAA) 2011.

Near-term impacts of climate change. Although it is not possible to link any single disaster or weather event to human-caused climate change, extra energy aloft drives such events and it is likely that climate change has been a factor in recent extreme weather. The decade from 2000 through 2010 was the warmest decade on record. 2011 was 9th warmest year and the second wettest year as evidenced by massive flooding in several parts of the world. The Southwestern U.S. experienced the worst drought on record and dryness is projected to continue through the coming decade and beyond. Recent years have been record years
for wildfires (NOAA 2011); in 2011, we witnessed weather related disasters that cost the U.S more than $15 billion (estimated by Munich Re).

Despite these recent impacts, the consequences of climate change have thus far been perceived by most governments as relatively manageable. This will change markedly over the next few years and beyond as extreme weather becomes more common, and drought and floods severely affect parts of the continental U.S. and the world (IPCC SREX 2011). The level of warming considered by most experts to be damaging to living systems (2°C global average warming; European Union 2008) will be crossed within the next 20 years. A substantial and increasing number of scientists (myself included) think that this point will be crossed in less than 15 years. We now realize that the safe level of atmospheric CO$_2$ (350 ppmv, Rockström et al. 2009) was exceeded during the late 1980’s. Because it takes 30-40 years for ocean heat to equilibrate with the atmosphere, it is likely that warming will accelerate in the near term because of increasingly higher emissions during recent past decades (Hansen et al. 2005). Longer-term prospects for climate stability are unfavorable given that as warming progresses the Arctic will become a net source of carbon emissions sometime before 2030 (Schaeffer et al. 2011). Efforts at climate mitigation will need to be increasingly strenuous as positive feedbacks from natural sources of CO$_2$ reinforce emissions-driven climate destabilization.

The rapid northward movement of growing zones in temperate North America and Eurasia will fundamentally affect the ability of biological communities to deliver ecosystem services and economic utility. During the coming decades Maine will progressively become a refuge for plants, animals, and people from the south. Our climate-buffered maritime habitats will be especially attractive because of their relative stability. Maine’s fertile farmland is amendable to smaller scale agriculture that is consistent with re-localizing our food production, but negative impacts of climate change on forestry and the maple sugar industry will be profound (Jacobson et al. 2009). We have relatively abundant water and resources for renewable energy.

Environmental degradation. In September 2009, Nature published a special feature in which 29 leading environmental scientists quantified the planetary boundaries that must not be transgressed lest unacceptable environmental damage endanger civilization and even survival. They identified nine interlinked boundaries for environmental factors necessary for planetary health. Besides climate change, the boundaries that have been overstepped or soon will be include biodiversity loss, nitrogen cycle disruption, phosphorus cycle disruption, and ocean acidification. Other environmental boundaries at risk include land conversion and freshwater depletion (Rockström et al. 2009). The figure below illustrates the imminent risks for humanity and represents the most important targets for our efforts at sustainability. In summary, these environmental issues require urgent attention and sustainability is essential if we are to continue to thrive.
Implications of the sustainability imperative for Unity College. Clearly humanity faces an imperative that we live more sustainably on this planet or suffer increasingly severe consequences. Climate change has arrived in a world that is primed with a convergence of economic, environmental, and political crises. This has been referred to as catastrophic convergence (Parenti 2011), reflecting that these crises amplify each other. What matters most for Unity College is that our programming must meet the challenge of this convergence by educating leaders and cutting-edge practitioners in environmental and natural resource sciences and environmental studies. We must prepare students to address the myriad environmental problems resulting from overexploitation of natural resources summarized by the concept of planetary boundaries. Foremost among these is the issue of freshwater. Although worldwide there exists an abundance of freshwater, its distribution is critically limited and many areas, including the American Southwest, face severe near-term water limitations. Similarly severe constraints exist in availability of energy, wood and fiber, and a variety of minerals.

It is my observation that enrollment in environmental fields has soared over the last two decades, and this is validated by national trends (Galbraith 2009). As the effects of global change become increasingly apparent, sustainability is
poised to become a top policy priority for governments. The National Science Foundation has developed a coordinated research and education framework for sustainability science and engineering, and the National Academy of Science has identified sustainability science as an area of top priority for research and education. One recent example of regional government response is the Southeast Florida Regional Compact in which four counties in south Florida are preparing sustainability scenarios for sea-level rise and associated disruptions. There are numerous other examples of such early responders throughout the U.S.

The mission of Unity College has never been more relevant or necessary, but we must sharpen our programming to attract the future leaders of the environmental and sustainability professions. Although climate change will define much of what we do, the mission of the College is broader than this overarching issue and must include sophisticated programming relevant to resource depletion and overexploitation of plants and animals. Adequately preparing our students for these careers will require us to emphasize concepts such as environmental mitigation, adaptation to environmental change, and the emerging scholarship of social and ecological resilience. According to the U.S. National Academy of Science, understanding today’s interlinked environmental issues requires a transdisciplinary problem-focused application of expertise known as sustainability science.

Strategy statement

My recommendation for development of Unity College has two components. First, we must reinvest in the human resources necessary to provide premium programming in pragmatic and scholarly aspects of sustainability science. The recommendations throughout this document offer suggestions for where we might make such investments. Secondly, we must vigorously market the advantages of our sustainability and environmental programming and the high value of this in the context of a liberal arts education. We must take our programming to a more sophisticated level that distinguishes Unity College above the competition by providing premium value in comparison to degrees from other institutions. The frame of sustainability science can enhance our existing strengths in conservation and natural resources. It is integrative, transdisciplinary, and inclusive of all parts of our existing academic programming.

Creating a premium product is central to my strategy for moving the College beyond its worsening economic constraints. While we should continue to expand scholarships and financial support where possible for students of need who meet high academic standards, we should also offer distinctive, premium programming and attract students with greater ability to pay. Signature programs in conservation -- the academic foundation for Unity College -- should maintain their distinct identity and be included in, not subsumed by, the sustainability banner.

Overarching recommendations: (1) Develop through new and existing programming greater capacity to address environmental issues through the
scholarship and application of sustainability science. (2) Explicitly identify Unity College and our programming in sustainability science with the Earth’s deepening environmental crises and the changed economy. (3) Strengthen the liberal arts foundation of the College. (4) Progressively increase the premium value of our degree. (5) Significantly develop the marketing capacity of the College. (6) The College administration and the Board of Trustees will identify sources of funding and develop scenarios to support the proposed changes.

Sustainability science

The existing curriculum at Unity College can be progressively refined to meet the sustainability imperative by embracing sustainability science as a framework. The term sustainability science is self-explanatory. It is the application of science from many disciplines to develop sustainable solutions to environmental problems. While this could be done as the independent and usually sequential application of various disciplines to a problem, the most effective approach is transdisciplinary, and this is increasingly recognized as the emerging paradigm of sustainability science. The multidisciplinary (a), interdisciplinary (b), and transdisciplinary (c) approaches are illustrated here (Kajikawa 2008).

Sustainability science is not yet an autonomous field, and it is most appropriately viewed as a vibrant framework that is bringing together scholarship and practice through global and local perspectives. Sustainability science is endorsed by the U.S. National Academy of Sciences, the National Science Foundation, and the American Association for the Advancement of Science. It is inappropriate to think that sustainability science would replace our existing degree programs. Instead, I propose that we embrace this as a proactive and process-oriented framework that can guide the pedagogy of our programming.

To a significant degree essentially all of our current programming is pre-adapted to fall within the integrative framework of sustainability science. Indeed, many of our classes already incorporate interdisciplinary and transdisciplinary scholarship. Over the last ten years, the faculty have progressively incorporated elements of sustainability science into our curriculum. This is especially true for our ecology and conservation programming, which must anchor our application of sustainability science. Sustainability science conceptually connects all of our
degree tracks, and identification with this scholarship will strengthen our niche in the higher education marketplace.

Sustainability science is neither applied nor basic science, but is a field defined by the problems it addresses rather than by the disciplines it employs (Clark 2007). It endeavors to advance a basic understanding of the dynamics of coupled human-natural systems, and it facilitates the design, implementation and evaluation of practical interventions that promote sustainability. It is problem-based and solution-oriented. This is wholly consistent with our mission, and it accurately describes our experiential learning tradition, and much of our current pedagogy. Sustainability science is reliant on foundation disciplines including chemistry, biology, physics, ecology, conservation, and is variously supported by the social sciences, humanities, economics, and teacher education.

There are two important consequences of framing environmental science in terms of sustainability science. First, it defines us as a sophisticated and mature institution to the outside world. This framework has the potential to move Unity College to a higher profile among competing environmental programs. The time is right for us to aggressively occupy this niche, and other institutions are quickly moving in a similar direction. Second, and more important, it defines our internal understanding of how to address global environmental change. As such, the scholarship of sustainability is an overarching conceptual home for all of the existing environmental perspectives at Unity College. For example, programs in the Center for Experiential and Environmental Education will likely acquire new value as there is increasing demand for experiential educators who understand the scholarship of sustainability. Our programs in conservation and natural resources are supportive of this.

In terms of pedagogy, embracing sustainability science will lead us to understand our existing curriculum in the context of the concepts of mitigation, adaptation, and resilience. It is important to realize that these terms are not limited to climate change, but instead refer more broadly to a portfolio of responses to environmental change. Focusing on these areas could provide unique opportunities for undergraduate research, thus adding to the premium value of our degree programs. Moreover, as we invest in additional faculty, we should look to expand our teaching portfolio to progressively include content relevant to these concepts. Here I suggest some paths for consideration, but I recognize that it is the faculty who must decide how best to integrate our programming with the needs of the 21st Century.

Mitigation. Mitigation is the action of reducing the severity of an ongoing environmental degradation. With respect to climate change, Unity College already provides instruction in management of energy systems, which is a mitigation strategy. Other examples of this could include basic climate mitigation concepts such as how to conduct an energy audit, calculate the total lifecycle carbon costs of a product or process, and estimate a greenhouse gas inventory for a home, business, institution, or geopolitical entity. Similarly, students concerned with ecology and conservation could learn to work with energy and
material input and output for coupled human and natural systems. This is a natural extension of our existing programming in ecology, which includes instruction in energy and nutrient exchange functions in biological communities. Habitat restoration and assisted colonization of species could be part of our conservation portfolio.

An important and long-term investment in instruction in mitigation is the teaching of technologies for a return to 350 ppmv CO₂. This scholarship will require us to expand our training in sustainable energy management and develop curricular modules focused on ways that the carbon cycle can be managed to enhance carbon sequestration. Although relatively new, there is little doubt that such skills will be in demand as we turn our attention to the imperative of climate mitigation.

**Adaptation.** Adaptation can be thought of as any measure designed to adjust to new conditions, and understanding how this concept applies to the challenges of this century should be a primary goal of our instruction. With respect progressively worsening environmental conditions, proactive adaptation is a superior management strategy to reactive adaptation. Adaptive management is one conceptual element of adaptation that is already taught in our ecology and conservation curriculum. A key example that is relevant to our sustainable agriculture track is new approaches to plant propagation and animal husbandry under changing soil conditions (e.g., acid rain), or as climate zones shift. As noted below, we could use the Unity College grounds as a working landscape for the teaching of adaptation. Numerous other examples of the study of adaptation can be found across our existing curriculum.

An essential part of how we include adaptation in our curriculum must be an understanding of economic principles. We should think less like ideologues and more like employers. There is little doubt that the green economy is growing and viable (Muro et al. 2011). This is especially impressive when one realizes that this growth has occurred with a mere fraction of the subsidies that annually support the fossil fuel industry. Our graduates in the natural resource sciences will have an advantage if they understand how adaptation applies to the economics of 21st Century conservation issues. Part of our approach to agriculture could be to teach an introduction to agricultural markets and climate-driven changes in seasonal supply and demand.

**Resilience.** Resilience is the ability to resist and absorb small perturbations, and the ability to recover from disturbance. This subset of sustainability science focuses on vulnerability reduction, anticipation of changes, disaster response, and recovery. This growing body of scholarship is still in development, but could represent a cutting edge innovation in the curriculum at Unity College. An example of this approach is building functional resilience through localizing power production, economies and food production closer to where people live as fossil fuels become more expensive and increasingly rare over the coming decades. [Thanks to Professor Doug Fox for text used in this section]
Recommendations: (1) Progressively integrate the scholarship of sustainability science into the Unity College curriculum in ways that enhance our existing strengths. (2) Provide professional development in sustainability science for existing faculty. (3) Expand the ranks of the faculty with new hiring that emphasizes sustainability science and related areas with attention to meeting existing needs in our core science curriculum.

The power of the liberal arts

In coordination with the science curriculum, we have an opportunity to recast environmental studies in the frame of sustainability and link it to the paradigm of sustainability science. Human ecology can be a primary focus of sustainability studies within the liberal arts. This focus will emphasize many of the concepts I have reviewed above, but it will also frame a large, existing body of scholarship in terms of human wellbeing and preservation of present and future natural systems. The social sciences, literature, and the arts are all critical to this mission. Economics and management, while not a part of the current curriculum at Unity College, can be included as part of the sustainability programming in the humanities.

The liberal arts framework enhances any scientific or technical training through the teaching of critical thinking, written and verbal communication, and the complex ethical context typical of tradeoffs in the 21st Century. A liberal arts degree gives our students a strong competitive advantage in a job market increasingly characterized by applicants with technical skills, but little transdisciplinary and multimedia literacy. With rigorous training in both analysis and creation of written, oral, and visual texts, our students will be better professionals and more highly valued employees. To this end, it is essential that we maintain and improve the rigor of our liberal arts curriculum (Arum & Roksa 2011).

Through focus on the intrinsic value of our education products, I envision a time when Unity College students will be among the most highly sought after participants in the green economy. As we invest in and redeploy our human resources we must make sure that the foundation provided by the humanities and liberal arts remains strong. Although the number of students associated with the Center for Environmental Arts and Humanities is too small to be cost effective, the service function of the Center for the rest of our programs is indispensable. We should expand our faculty in this Center and evaluate the current distribution of faculty talent among the Center’s degree tracks. In addition to the traditional liberal arts mix of courses, I suggest that we build programming in progressive results-based management, thus distinguishing our students as having a skill set that is highly valued and exceedingly rare.

Recommendations: (1) We should renew our emphasis on the liberal arts as a requirement for career success, developing the potential of Unity College as a place where sustainability science and the humanities are synergistic. (2) Expand the ranks of the humanities and arts faculty as a high priority, including
new faculty with the ability to teach economics and management from the perspective of sustainability science.

**Special consideration of natural resources protection**

The program in conservation law at Unity College is a signature program for the College. Graduates of this program are widely dispersed among the ranks of uniformed conservation practitioners in the United States. The advantages of our graduates over those of other training programs are that ours must learn conservation science as well as acquire the fundamental skills provided by a liberal arts education.

Faculty, staff, and students within this program have expressed feelings of being marginalized by Unity’s promotion of sustainability. In fact, the conservation law program is central to our current discussion because sustainability science is profoundly different from the traditional concept of sustainability. Sustainability science is an operational academic framework that is wholly consistent and supportive of the role of natural resources protection and conservation law in managing the human interaction with our preserved natural landscapes. (Note that this has none of the moralistic overtones that often accompany the application of the term sustainability to individual behavior.) Natural resources protection will become increasingly important as our ongoing environmental crises progress; it will be a crucial part of the practice that puts the theory of sustainability science in place.

It is essential that the College invest in realistic training for our conservation law students. In this regard our newly expanded programming at Schoodic is a major advance, but we must also introduce curricular elements that provide an understanding of the evolving nature of anthropogenic threats to natural resources. Climate change acts as a threat amplifier of the myriad environmental challenges facing biological communities. Our graduates will be required to protect natural resources that are under increasing stress from within as the integrity of biological communities deteriorates, and under increasing siege from without as human populations have difficulty acquiring food, fiber and fuel.

Conservation law practitioners are on the front lines of what in many parts of the world is has become a broader counterinsurgency. Military leaders throughout the world are including these factors in their planning. Such threats include not merely poaching of game and fish, but increasingly destructive and illegal use of other natural resources including arable land, timber, water, minerals, and feedstock for fuel. Because preservation of biological communities will increasingly require ecological manipulation, it is likely that conservation law enforcement will work side-by-side with ecological managers (Parenti 2011).

Recommendation: Faculty in natural resources and conservation should evaluate and modify their curriculum in the context of the protection of natural resources that will be under increasing internal and external threats.
Options for Unity College in the new normal economy

Apparently the contracted economy created by the worldwide recession is the new normal. Although the stock market has rebounded from historic lows, and unemployment in the U.S. has improved somewhat to 8.3 percent, the ranks of the underemployed are probably near 18 percent of the potential workforce. Economists estimate that it will take at least a decade for employment to fully recover to pre-recession levels. Despite recent signs of improvement, most mainstream economists are not sanguine about the coming decade and beyond.

The number of students without the ability to finance their college education is increasing, and President Obama delivered a major address on 27 January 2012 in which he called on universities and colleges to hold the line on tuition. Over the last two decades tuition has risen faster than inflation. Student loan obligations now exceed the nation’s credit card debt (Schwartz 2012). Despite political rhetoric to the contrary, there are no apparent structural remedies that can stabilize or decrease the cost of traditional delivery of college curriculum.

The causes for increasing college costs are clear (Ehrenberg 2002). Colleges such as Unity have faced increasing pressure to raise tuition because the real costs of institutional operations have exploded while productivity gains have been limited by the need for individualized instruction. Personnel costs including benefits, especially health care, are a primary cause of increasing costs. Because of cutbacks in state funding, tuition increases at the publics are expected to proportionally outpace the already substantial growth of tuition at the privates. Only the elite privates have been able to sustain large increases in tuition while stabilizing or decreasing their discount rate for students with unmet need. Tuition increases, especially at small private institutions, have considerably outpaced inflation, and parents and students are appropriately asking for evidence of the return on their investment. As we build a strategic plan, we must ensure opportunities for our graduates to learn essential skills leading to that return on investment: successful placement as leaders in professions relevant to our mission.

Our students are increasingly unable to afford Unity College. 85% of our students need financial aid. The average indebtedness for a Unity College senior in 2011 was $34,412 compared to the national average of $25,250 and a Maine average of $29,983 (http://projectonstudentdebt.org/). Unity College student debt is the highest in Maine, while the average unmet need of our enrolled students has tripled over the last 10 years. The expected family debt (students and parents) at graduation for those families that took loans in addition to Federal loans is over $80,000 for classes entering during the last three years. The overall average family debt for the class graduating in 2011 is more than $50,000. Since the start of the recession, enrollment of students from families with incomes lower than $100,000 per year has fallen off significantly.

The College must make a fundamental choice about its target markets. Our admissions data show clearly that a significant factor in our struggle to maintain
enrollment is the increasing numbers of students with unmet need. Similarly, we frequently lose highly qualified students who have the ability to pay to institutions offering more competitive funding packages. While we must not close our doors to excellent students without means, it is now imperative that we offer distinctive premium products to students and parents who have the ability to pay. Concomitantly, we must do everything possible to find sources of funding for students of high academic standing with unmet financial need and for students who might otherwise go to higher profile institutions. In terms of real tuition discounting, the discount rate should not exceed 30 percent, and wherever possible we should maximize our funding of students through the awarding of scholarships from endowment or other renewable income streams.

Although Unity College must remain dedicated to individualized instruction, we should look for ways to achieve an economy of scale for delivery of instruction. Similarly, we must find ways to maximize the use of our facilities during periods when our regular degree students are not using them. Ideas that could diversify our financial portfolio and support our core mission include:

- **Distance or hybrid programming as adjunct to our core mission.** While this would never replace personalized face-to-face instruction, tactical use of the Internet for instruction could cut our costs. I have asked two outside firms to assess our potential within our unique niche in higher education. How this would integrate with our traditional programming is the provenance of the faculty.

- **Collaboration with affinity institutions.** Unity College could consider collaboration via online technology with institutions that share our mission to provide joint programming in areas that are adjunct but supportive of our respective missions. Similarly, we could look to share general education curriculum via online technology with other liberal arts institutions, even those that may not share our mission with respect to the environment. Now that we are part of Internet II, we have the ability to make this happen, thus achieving more of an economy of scale and allowing us to further reduce student to teacher ratio in our core programs.

- **Enhanced articulation with institutions that can provide students.** We should be more vigorous about developing our relationships with secondary school academies, regional high schools, and community colleges.

- **Development of summer programs.** We could develop certification and training programs that can provide financial support for our core mission. Overhead for this should be defrayed by subscriber charges. This could include development of collaborations with groups such as the nearby Agri project for disabled veterans. One hybrid distance program that we are exploring is training of business executives in the fundamentals of
sustainability.

- **Develop recruitment of international students.** There are substantial markets in China for our sustainability programming, while India is a likely source of students interested in conservation, conservation law, and natural resource management. It is likely that the most cost effective way to develop this capacity is to partner with other institutions for supporting infrastructure (e.g., Maine Central Academy for English language instruction), while contracting with firms that specialize in international recruitment. Eastern Canada should be explored as a possible source of students interested in environmental programs. Besides enhancing our enrollment, international students would bring much needed diversity to Unity College.

Recommendations: (1) Increasingly provide distinctive premium products while seeking funding for excellent students with unmet need. (2) Develop economy of scale through distance programming and collaborations with affinity institutions. (3) Develop additional educational services as a source of income. (4) Recruit students from articulated institutions locally and abroad.

**Marketing Unity College**

Our most important means of ensuring that tuition will not rise in the near term is to make full enrollment a reliable expectation from year to year. Predictability of income will allow us to manage our discount rate, plan for program improvements, hire new faculty, and acquire the credit-worthy status necessary to finance new infrastructure. Achieving this through the strategy detailed above requires an overhaul and expansion of marketing.

I am convinced that our niche in higher education as an environmental college is robust. In addition to rebuilding our educational programming, it is critically important that we do a better job of telling our story. Many public institutions are increasing their marketing of the sustainability aspect of their programming, rarely matching marketing with renewed investment in such programming. A recent study by Stamats confirmed that our market penetration is very shallow and that we leave large sectors of our potential market untouched. This study also indicated that many parents and students would like Unity College to be a gateway to jobs in the clean economy. However, the higher education marketplace is very noisy, with unclear and competing voices, especially with respect to environmental programming. Given the importance of our mission to society, we have an opportunity and responsibility to be heard above the din.

With respect to the viability of Unity College, it does not matter if the public comes to a wholesale awareness of the need for sustainability. It only matters that increasing numbers of potential students and their parents achieve this awareness, and that they identify Unity College as a leader in the field. There is little doubt that this trend in awareness of the need for sustainability is occurring. Our marketing process must integrate conventional perceptions of the
environment with sustainability, while recognizing that the term sustainability science is unlikely to be widely recognized by parents and students. This new frame should build on our existing identity rather than supplant it. We will need professional guidance as we craft this brand.

Vigorous and integrative marketing is necessary if we are to reap the benefits of renewed investment in educational programming. The ranks of our administration have professionalized and developed over the last few years, yet marketing has never been integrated across the College. It is especially important that we coordinate the efforts of our outwardly facing departments of Development and Enrollment. This requires a department explicitly devoted to marketing.

**Institutional culture and integrated marketing.** It is necessary to speak with a common voice before we can expect the outside world to know who we are. Concepts of sustainability as a scholarly and educational paradigm vary among constituencies at Unity College. For example, it is clear that faculty of the Center for Natural Resource Management and Protection see sustainability differently than faculty the Center for Sustainability and Global Change. While the latter would seem to be a more natural fit with the proposed scholarly emphasis, the programs of the former are foundational to sustainability science. Congruency of constituent views across the institution is one important goal of marketing. To achieve this we must develop a clear internal understanding of what we mean when we refer to the scholarship of sustainability.

A recent exercise to establish a common internal narrative resulted in the following statement:

> **Unity College is a science-based liberal arts college that inspires students to be leaders in sustainability science and to imagine and enact solutions to 21st Century environmental issues and to contribute to the renewal of civilization.**

Although the development of this narrative was an inclusive and consensus process, not all constituents are comfortable with this statement. It is essential that any marketing effort begin by exploring the depth of consensus around the vision expressed by this narrative and the willingness of the culture to change. Some constituents may see the emphasis on sustainability science as a shift away from traditional programming in conservation and natural resources. To the contrary, sustainability science is a frame that encompasses these fields. Branding the College as providing premium value in the context of sustainability science should enhance our signature programs and build on our existing reputation and strengths, especially among education and industry thought leaders. Over the next three to five years it should improve our capacity to train leaders and attract a clientele seeking premium value.

**Building a brand from the inside out.** The vision and mission of the institution must drive effective branding and marketing. Thus, the most important work in marketing is to understand how the institution perceives itself, and to then refine
the possibilities for growth through crafting powerful mission and vision statements that reflect the consensus of what is, and what is possible. Strong brands are built from the inside of the organization, although the institution is perceived by the outside world through its marketing message. The goal of integrated marketing is to be sure that there is consistency between the internal and external expression of the institution mission and vision.

Towards effective marketing. The first step in building a marketing infrastructure is to perform an analysis of how the current internal and external perceptions of the College differ. These perceptions must be interpreted in the broad context of the higher education market in environmental sciences. It is likely that we need professional services to produce a cogent situation analysis that can be used as the foundation for marketing. An outside consultant should provide us with a set of explicit action items for building and maintaining a brand, and immediate next steps in marketing this brand. After this process is complete a marketing department can be charged with implementation, including expansion of the Unity College brand to new sectors of the higher education marketplace.

Recommendations: (1) Conduct a thorough situational analysis of our self-perception and our brand in the context of the higher education market in the environmental sciences. (2) Refine our mission and vision to reflect our values and goals. (3) Develop a detailed and explicit marketing plan emphasizing our premium value. (4) Vigorously promote Unity College in new geographic and demographic sectors of the higher education marketplace.

Development

Funding the changes recommended here is a topic for consideration by the Board of Trustees and must be addressed in the strategic planning process. Development (formerly Advancement) could provide significant support for transforming the institution, but this department has struggled to be a focused and effective fund raising operation. Nevertheless, aside from Enrollment, Development is our most important source of financial support. Unity College recently received a $10 million anonymous unrestricted donation to our endowment. A recent change in leadership has resulted in a re-evaluation of this department and its function. The issues that have limited our ability to build an effective donor base include:

- Multiple competing duties that are not related to raising funds have diluted the efforts of Development staff.
- Coordinated planning among Development staff and with other departments has been inadequate.
- Fundraising expectations have been unrealistic in the context of a minimal base for an annual fund and the lack of effective alumni and parent outreach.
- There has not been an effective network of affinity organizations and friends.
• Unity College lacks a significant alumni donor base because it is a young institution that has produced few graduates with significant earning potential.

With new interim leadership, Development has made significant progress towards creating an effective organizational structure. Next steps over the near term will focus on building relationships with affinity organizations and expanding the base of our annual fund. We are in the process of an external audit of Development and anticipate receiving recommendations from an outside consultant by the end of March. A plan for achievable benchmarks will be forthcoming. One important role for Development is to connect our alumni base with Enrollment as a mechanism for recruitment of new students.

Recommendation: Complete a thorough and rigorous Development audit and based on forthcoming recommendations craft a plan for redeploying Development with appropriate fundraising goals.

**Strategic planning process February – September 2012**

This document is intended to inform the strategic planning process by the Board and that conducted by the College as a requirement of our accreditation process. It is important that the College strategic plan reflect the aspirations and mission of the institution, while the Board may use this as an opportunity to turn Unity College in a new direction.

It is equally important to realize what is not included here. While this document should be seen as framing the development of the faculty ranks in terms of sustainability science, proposals for hiring new faculty must originate with the faculty and be consistent with the forthcoming strategic plan. Such proposals should include hiring of new lines allied with the humanities as well as in the sciences. The College strategic plan must reflect development of the faculty that is consistent with defining and sharpening the mission of the College.

As we grow the capacity of the College to meet its mission, we will also need new infrastructure. This includes reconstruction of the Student Activities Building, the need for new offices, and laboratory and classroom expansion and renovation. As part of the strategic consideration of infrastructure, I recommend the creation of a master plan for restructuring the grounds of Unity College as a working landscape and outdoor teaching laboratory. Creating a showcase for sustainable agriculture, forestry, and other landscape-based teaching and research would be a cost-effective way of improving our curriculum and increasing the marketing value or our otherwise humble physical plant.

I propose that Unity College engage in a business restart, and develop prospective markets rather than solely continuing our emphasis on traditional markets that are increasingly less viable. The most essential element not directly addressed in this whitepaper is how to finance the proposed development. Capital investments and recurring resources will be needed for faculty, staff,
students aid, campus improvements, and enhancement of administrative processes including marketing and aspects of IT. Concomitant with development of the strategic plan, the College administration and Board will develop financial scenarios to support this new direction. These scenarios should include various levels of tuition and fees in the context of the opportunity for enhancing total revenues. Sources of funds for the proposed capital improvements, expansion of the faculty and administrative processes must be identified. The timeline for the return on investment must be realistic in terms of the College’s ability to move into new markets. I request that the Board be a major player in the development of these financial scenarios.

The process for creation of the College strategic plan is:

1. Create a writing team consisting of a limited number of participants from faculty and staff. Vice President for Academic Affairs Bill Trumble will lead this team with facilitation assistance from the College's strategic planning consultant.
2. Conduct town meetings with each Center and selected Departments in which elements of this whitepaper are presented by the president and discussed with faculty and staff. Feedback from these meetings will be relayed to the writing team.
3. The process should address the Sustainability Imperative through potential redrafting of the College's mission and vision statements for board consideration and approval.
4. Guidelines for writing include setting a limited number of goals that address three additional imperatives, with tactical items considered secondarily within the context of each goal:
   A. Academic Imperative – curriculum, research, faculty development.
   B. Positioning Imperative – branding and marketing.
   C. Finance and Operations Imperative – long-range operating budget projections, facilities and grounds capital needs, tuition and fees, fund development, operational infrastructure.
5. The strategic plan should be concise and focused; including reference to the previous plan used by the accreditation team and recently completed Academic Master Plan.
6. The College strategic plan should be delivered in completed draft for review and consideration by the Board at its May 11, 2012 meeting. An updated draft should then be made available to the College community for comment over the summer break.
7. A final draft should be delivered to the president no later than September 1, 2012.

The process for use of this whitepaper by the Board of Trustees is:

1. A draft of the whitepaper will be delivered to the Board prior to the March 2, 2012 Board retreat.
2. The Board will consider the platform this document sets out during a session facilitated on March 2, 2012 and will be asked to provide preliminary endorsement of the platform as the basis for creation of the College strategic plan.

3. The Chair of the Board and College President will work with the Board Executive Committee and the College’s strategic planning consultant to design the Board’s involvement in strategic planning including, but not limited to, approval of mission, vision, goals and a threshold financial feasibility study.

4. The Board will consider the draft College strategic plan at its May 11, 2012 meeting, including potentially redrafted mission and vision statements. The Board will have the opportunity to make amendments and the draft plan will then be available for comment by the College community over the summer break.

5. The Board will complete its strategic planning in synch with the College strategic plan, with final input delivered to the Chair of the board no later than September 1, 2012.

Recommendations: (1) The faculty should create a proposal for developing the sciences and humanities that is consistent and supporting of the overarching paradigm of sustainability science. (2) In coordination with the College strategic plan, Facilities should develop a plan for necessary expansion, renovation, and redevelopment of the grounds as a working, teaching landscape. (3) Financial scenarios will be created by the administration in consultation with the Board of Trustees to support the proposed developments. (4) The College administration and the Board of Trustees will identify sources of funding to support financial scenarios, while assessing risk and return on investment.

Expectations

The recommendations throughout this document, if enacted through the strategic plan, will bring Unity College into its maturity. It is my hope that we will develop the College as a destination for those seeking a sophisticated education and premium skill set in preparation for their roles in the environmental challenges and opportunities of this century. We will

- become unified around sustainability science as a defining paradigm that embraces all disciplines and environmental perspectives,
- train leaders,
- emphasize excellence in teaching and scholarship,
- expand the faculty and student portfolio of research,
- expand the ethnic and geographic diversity of our faculty and student body,
- expand our reputation nationally and internationally,
- expand the return on investment in Development and Marketing,
- establish a reliable enrollment, and
• *become a significant player in society’s response to the most critical challenge ever faced by our species.*

Most importantly, I believe that the proposed changes will position the College to establish a sustainable economic foundation that will serve our mission for the coming decade and beyond. Rather than retrench in hopes of a return to the halcyon days of higher education, we must develop and deploy a progressive, new version of Unity College. Continuing to operate paycheck-to-paycheck will assure mediocrity and ultimately a slow death.

Because of who we claim to be, we must rise to the challenge before us. As citizens and parents, we would expect nothing less of higher education, and as educators, we should expect no less of ourselves. In the face of such challenge and opportunity, the stoic attitude that we are good enough and will get by is unacceptable. As a requirement of our service to society, we can, and we must be more than we have been.
References cited


