

# **From Promise to Reality: Olin College Strategic Plan, 2004-2006**

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## **Executive Summary**

This document outlines the results of the strategic planning process at Olin College for 2004-2006. This time frame is a critical one for the college, as this is the period in which the initial invention of the college will be completed. The strategic planning process has resulted in a re-statement of the college's mission and aspiration, as well as direction for the college in the form of three strategic goals and a strategic imperative. The content of the plan is outlined in bullet form below; the pages that follow address in much greater detail the College's current situation, the thinking behind the strategies, and the types of tasks the College must undertake to achieve these goals.

**Mission:** *Olin College prepares future leaders through an innovative engineering education that bridges science and technology, enterprise, and society. Skilled in independent learning and the art of design, our graduates will seek opportunities and take initiative to make a positive difference in the world.*

**Long Term Aspiration:** *Olin College aspires to establish and maintain a position as a national leader in the development of new and effective approaches to undergraduate engineering education. It is our intent that, as we realize our mission, the educational and student life concepts and approaches we develop will inspire change at other respected engineering schools.*

## **Strategic Goals and Imperatives**

**Goal:** *By 2006, Olin College must invent and deliver a superb, mission-driven and sustainable educational experience, spanning the learning continuum.*

- Strategy: Build and deliver a top quality curriculum keyed to our mission and resources.
- Strategy: Understand and address the impact of our first enrollment plateau of 300 on all aspects of the learning continuum.
- Strategy: Build and implement a process to ensure inspirational teaching.
- Strategy: Strengthen our commitment to curricular innovation.
- Strategy: Develop options for studying modern bioengineering as the first extension of our curriculum into fast developing areas of technology.
- Strategy: Create opportunities for experiential learning, including faculty-student joint academic and professional projects, industry sponsored projects, and internships at other institutions.
- Strategy: Strengthen our relationships with Babson College, Brandeis University, and Wellesley College.
- Strategy: Expand student involvement in college operations and decision-making.
- Strategy: Connect all elements of the learning continuum and address tradeoffs.

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**Goal:** *Olin must continue and expand its efforts to attract and retain truly outstanding people whose knowledge, skills, and attitudes support and advance Olin's mission.*

Strategy: Focus on recruiting the highest quality students, faculty, and staff who are inspired by the Olin mission and culture.

- Strategy: Build an environment that encourages and supports intellectual life.
- Strategy: Understand and address the impact of our first enrollment plateau of 300 on recruitment and retention of students, staff, and faculty.
- Strategy: Take steps to ensure a healthy and sustainable working environment.
- Strategy: Focus on efforts to ensure that our graduates are successful in moving to the next stage of their careers after graduation, toward high-quality employment, continued education, or other aspirations.
- Strategy: Continue to invest in the national reputation of the College among all important stakeholders.

**Goal:** *By 2006, Olin must expand and institutionalize its culture of innovation and improvement.*

- Strategy: Establish clear and agile policies and procedures, without creating unnecessary formality or bureaucracy.
- Strategy: Further develop our commitment to assessment and improvement in all that we do.
- Strategy: Expand awareness of advances outside Olin, seek knowledgeable advice, and share Olin innovations openly with others.
- Strategy: Bring diverse perspectives to the Olin community.
- Strategy: Enhance entrepreneurial spirit and energy in the Olin community, including encouraging teamwork and collaboration.

**Imperative:** *By 2006, Olin must develop ways of thinking and acting that assure sustainable growth.*

- Strategy: Strengthen and diversify our approaches to financial stewardship.
- Strategy: Understand and address the impact of our first enrollment plateau of 300 on all aspects of the college, including the nature and level of services and facilities provided.
- Strategy: Improve stewardship of human resources.

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## **Introduction**

### **The College Today**

Growing from an unprecedented act of philanthropy, Olin College has made astonishing progress since its inception in 1997. Olin's early success, driven by a commitment to innovation in engineering education, has rapidly caught the attention of many observers, and has excited all members of the Olin community and friends of the college.

Nonetheless, Olin today is largely a promise. To date, the college has implemented only the first two years of the initial curriculum, and has only begun to fully develop Olin's policies, procedures, and culture. Just as importantly, we face significant challenges associated with sustainability. Outside observers are consistently impressed by what Olin has quickly accomplished, but they often question whether we can sustain the steep trajectory we have established. These visitors ask how our high level of dedication and workload can last as we transition out of startup, whether our first enrollment plateau (300 students and 38 faculty members) is simply too small for a healthy college, whether faculty will be able to maintain their intellectual vitality in such an environment, and whether the college is prepared for the risks and opportunities implied by an endowment-driven financial model in times of economic uncertainty.

The next three years are critical in ensuring that Olin can live up to the promise of its remarkable start. Over this period we will recruit our first full complement of students, faculty and staff; we will complete the first implementation of the Olin curriculum; and we will make policies that will have a lasting impact on Olin's culture. We will find creative ways to exploit the college's size, and we will find ways to achieve our goals while ensuring the long-term health and stability of the college. This plan outlines a thoughtful approach for these three years, so that we may turn our initial successes into long-term achievements.

### **The Planning Environment**

The planning process has taken place during a time of increased national attention to engineering education reform. Industry and professional groups continue to advocate for engineering graduates who can communicate well, work effectively in teams, learn new technologies independently, and understand the social, economic, and political context of engineering practice. Society needs engineers with these non-technical skills – engineers who will be viewed as indispensable leaders and sources of competitive advantage, rather than as “commodities” and “cost centers”.

Major scientific advances in the biological sciences and other emerging areas have recently spawned entirely new engineering disciplines at the intersection of different fields of inquiry. Nevertheless, interest in engineering among U.S. students remains low, and recruitment of women and minorities to the profession continues to be a particular challenge, causing concern for the future U.S. engineering workforce.

The number of engineering schools involved in serious efforts to improve undergraduate education has increased substantially in recent years. While the National Science Foundation (NSF) has funded coalitions of schools to work on enhancements to engineering education for many years, the National Academy of Engineering (NAE) recently changed its criteria for membership to include educational innovation for the first time and established a new center for scholarship in engineering education. The recent major reform of accreditation criteria (Criteria 2000) by the Accreditation Board for Engineering and Technology (ABET) has significantly enhanced the opportunity for

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schools to innovate and experiment with new educational approaches. As a result, potentially important new advances in engineering education are emerging on many university campuses.

The recent economic recession and market instability has had a major impact on higher education in the U.S. Nearly every college or university is currently experiencing serious financial pressures and budget uncertainties. State universities are experiencing major funding reductions, private universities are experiencing significant declines in endowment values, and tuition increases are among the highest in recent years.

Within this context, Olin has its own unique capabilities and challenges. The College key advantages include the extraordinary generosity of the Olin Foundation gift, the freedom to invent a college and curriculum from a blank slate, and a geographic location close to willing academic partners of the highest quality and to numerous engineering-based firms. Olin's early successes in recruiting talented and creative individuals, in attracting a gender-balanced student body, and in building an innovative curriculum that responds to calls for reform provide a solid foundation for future growth. On the other hand, the College's unusual endowment-driven financial model, its short-term enrollment goal of only 300 students, and the developmental problems faced by all startup organizations provide challenges in almost every area of its operations.

These factors have all played a role in shaping our thinking about the future of the College, as reflected in this plan. A more detailed exploration of these issues and their implications for Olin can be found in the full Situation Analysis, Appendix 1.

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## **Mission**

A major part of the strategic planning process has focused on developing community understanding of Olin's mission. Indeed, all aspects of the plan derive, at their core, from the mission of the college. Motivated by the college's founding precepts (Appendix 2), and reflecting the college's educational vision (Appendix 3), the restatement below grows from and reflects the community's strong sense of purpose:

*Olin College prepares future leaders through an innovative engineering education that bridges science and technology, enterprise, and society. Skilled in independent learning and the art of design, our graduates will seek opportunities and take initiative to make a positive difference in the world.*

## **Long Term Aspiration**

Olin's mission is student centered, emphasizing the development of students as leaders who understand the way the world works and how to effect change in it. However, the College hopes to accomplish more than this. Olin was founded in response to widespread calls for innovation in engineering education, leading to the long term aspiration:

*Olin College aspires to establish and maintain a position as a national leader in the development of new and effective approaches to undergraduate engineering education. It is our intent that, as we realize our mission, the educational and student life concepts and approaches we develop will inspire change at other respected engineering schools.*

## **Three Strategic Goals and a Strategic Imperative**

Both our mission and aspiration center on the type of engineering education that prepares students for much more than simply solving technical problems. Central to this type of education is the concept of the "learning continuum" – the idea that students learn in experiences ranging from coursework to co-curricular activities to involvement in college decision-making. Such an education relies on a caring, student-centered environment, as well as on a balanced approach. Although we have made significant steps in this regard, we have not yet completed the work of designing and implementing many aspects of the student experience. As we do this work, we must also check that our innovative approaches can eventually be implemented without overwhelming workloads or unrealistic resource requirements. ***We must invent and deliver a superb, mission-driven, and sustainable educational experience, spanning the learning continuum.***

Olin has thus far been exceptionally successful in attracting the right people – gifted and dedicated students, faculty, and staff, who can build the educational experience, who can make connections with other institutions, and who can gain attention and respect from peer institutions through nationally visible contributions. We have an enormous opportunity to extend this success, since good people tend to attract more good people. However, we may also face difficulties in attracting and retaining such people as we make a transition out of the startup phase. The promise of helping "invent the college," while still compelling, offers less opportunity today than it did two years ago; the potential for burnout and excessive workload seen in many startup environments is beginning to appear at Olin as well. Recognizing these issues, ***we must attract and retain***

*DRAFT****outstanding people whose knowledge, skills, and values support and advance Olin's mission.***

Third, long-term success requires that Olin, as an institution, respond more flexibly to future, unforeseen opportunities than is common at more traditional institutions. We must be willing to assess what we do, improve our approaches, and seek external advice. Thus, while an innovative education and the right people are necessary components of our mission and aspiration, Olin's culture plays a critical role in realizing and sustaining innovation. ***Strengthening the culture of innovation and improvement at Olin*** will enable our commitment to developing new approaches, to sharing those approaches with others, and to listening to others today and in the future.

Finally, the College faces critical challenges in the next three years in creating effective financial planning methods and a widespread culture of prudent stewardship of both human and capital resources. The very future of the College depends on making a successful transition from our current startup mode to one of long term stability and sustainability. The policies and culture we forge in the immediate future will largely determine Olin's long-term health. Therefore, it is a ***strategic imperative*** that ***Olin develops ways of thinking and acting that assure sustainable development and growth.***

The pages that follow outline a set of strategies that will enable us to meet these goals. Associated with each strategy is a discussion of possible concrete tasks that Olin can undertake to pursue the strategy. The strategies, their associated tasks, and responsible parties are also outlined in tabular form in appendix 4. While the strategies are listed with particular goals, it is important to note that many of these strategies support more than one goal.

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## ***The Educational Experience***

**By 2006, Olin College must invent and deliver a superb, mission-driven and sustainable educational experience, spanning the learning continuum.**

The concept of the learning continuum argues that much of the educational experience takes place outside the classroom. Since Olin intends to prepare graduates not just technically, but also as leaders and effective contributors to society in many diverse roles, we must build an educational experience that fosters all aspects of healthy personal development.

Although many schools allow students to participate in activities across the learning continuum, Olin has the opportunity to differentiate itself by excelling in the elements of the continuum while making sure that these elements are connected, sustainable, and mutually reinforcing. The strategies below outline ways to strengthen and make connections between individual components of the learning continuum while being mindful of the tradeoffs inherent in these approaches.

**Strategy: Build and deliver a top quality curriculum keyed to our mission and resources.**

Our curriculum is the keystone of the educational experience. Naturally, by 2006, we must complete *design and implementation of the first version of Olin's distinctive curriculum*, and *obtain accreditation*. Beyond these obvious steps, we must also further strengthen our curriculum and its connection to our mission by ensuring *rigor* while increasing students' *interdisciplinary options* (e.g., *engineering + entrepreneurship*), making *design* and *independent learning* more explicit, and providing additional *flexibility in students' academic programs*. Olin seeks to educate students who will become indispensable contributors to the organizations they join (or start). Our graduates will require skills that include opportunity recognition and assessment, initiative, teamwork and communication skills, as well as those skills traditionally emphasized in an engineering education. Although we have made progress in these areas, we must continue to *strengthen development of these competencies in the curriculum*. To evaluate our progress in strengthening these skills, we should *explore the implementation of a competency-based assessment that reviews student strength in collaboration, teamwork and communication*. We must also make available a greater range of *off-campus educational opportunities*, both within and outside the U.S. Finally, as we continue to develop the Olin curriculum, we must work to improve our approaches while taking better advantage of our resources – people, space, time, and money – and to recognize the impact that curricular decisions have on other aspects of the student experience.

**Strategy: Understand and address the impact of our first enrollment plateau of 300 on all aspects of the learning continuum.**

In 2002, the college decided to set an initial enrollment plateau of 300 students and approximately 38 faculty. Driven by a desire to ensure the highest quality educational experience for our students, this plateau is enabling us to explore intensive, project-based approaches, as well as a highly student-centered environment. However, such a low population implies that we must be creative in how we deliver our academic program while maintaining quality. Some have proposed that changing the number of degree offerings might be appropriate both in light of our mission and our population. We must immediately *investigate internal and external consequences of any proposed changes in the number and breadth of degree offerings*, and make a decision on this issue. Many



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aspects of the Olin curriculum and faculty hiring depend on it. What are the human, financial and other costs we can afford? Whatever the outcome of these investigations, we must also work to *ensure that all degrees offered meet high standards of quality*, and that the approach to offering these degrees is *sustainable*, both for Olin's people and Olin's finances. Finally, our small size makes it imperative that we build strong academic and intellectual relationships with Babson, Brandeis, and Wellesley. Approaches for doing so are outlined in another strategy below.

Just as our small initial size implies the need to examine curricular issues, it also influences other aspects of the learning continuum. A vibrant student culture which supports personal development can only grow if students have enough *time to participate in non-classroom activities* – while schools of 10,000 can afford to have most students uninvolved, a school of 300 cannot. Diversity is also important in such a small community. In order to expose our students to different ways of thinking, we must find ways to *attract and retain students of diverse backgrounds, while ensuring that those students are excited by Olin's mission*. Olin's gender balance, which is unique for an engineering school, gives us an advantage in attracting top female students and has a major positive influence on our culture. We must therefore *monitor the differential impact of curricular and other structures on male and female students* and work to *develop an environment equally responsive to the needs of both*. Building more opportunities for Olin students to participate in Babson and Wellesley student life, and vice-versa, will also help expose our students to other viewpoints. Finally, given our small size and our emphasis on providing a caring, student-centered environment to help students develop fully, it is critical that we continue to aggressively support *programs that address students' physical and emotional well-being*.

**Strategy: Build and implement a process to ensure inspirational teaching.**

Our emphasis on developing students' passion for learning and our desire to develop innovative approaches to engineering education require that we continually find ways to improve the quality of teaching. If we are to ensure inspirational teaching, we must *measure teaching effectiveness and reward faculty appropriately*. We have recruited a faculty who are diverse in their teaching experience. As Olin continues to recruit both junior and senior faculty, as well as faculty from industry with little or no teaching experience, it is critical that the transfer of knowledge of good educational practices is facilitated within the college by *establishing a faculty mentoring program*. *This might involve external resources, as well as internal approaches such as college-sponsored workshops and a faculty "big brother, big sister" program*.

**Strategy: Strengthen our commitment to curricular innovation.**

As we make the transition from startup to sustainability, our commitment to innovation must increase rather than diminish. Thus, by 2006, Olin should have established attitudes and approaches that *emphasize seeking and carefully considering external advice* about curricular change. A *curricular hatchery initiative* is one possible approach to ensuring that Olin always maintains some *high-risk, high-return experiments*. By implementing a *"sunset clause"* that calls for regular re-examination of all aspects of the curriculum, and an *agile system for curricular revision*, we will ensure that we never allow the status quo to become entrenched. Finally, in that we become what we celebrate, we must *align faculty rewards with creative risk-taking and curricular design*.

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**Strategy: Develop options for studying modern bioengineering as the first extension of our curriculum into fast developing areas of technology.**

As a small, flexible school, Olin has the opportunity to respond quickly to new fields and technologies. While we cannot develop full-fledged programs in every new field that emerges, we must respond to such change in a way that takes advantage of our strengths, and that prepares our graduates for success in these fields. To respond to the newly-emerging field of bioengineering, Olin must first *seek external advice* on how to proceed in this field, and *form partnerships* with appropriate institutions and individuals. Within the curriculum, we must *hire appropriate faculty* who can *build courses and experiences that prepare graduates for (work or) advanced study in bioengineering*. Finally, we must supplement these on-campus options with appropriate *off-campus opportunities at both academic institutions and companies*.

**Strategy: Create opportunities for experiential learning, including joint student-faculty academic and professional projects, industry sponsored projects, and internships at other institutions.**

By 2006, we should have developed and strengthened a number of options for students to learn outside the classroom. In order to succeed in this, we must increase the involvement of companies in the educational process both by pursuing *industry-sponsored projects*, and by aggressively seeking *internship opportunities* for our students. These can provide both educational opportunities, and possible funding to support faculty research and learning. Community service also can provide such experiences and strengthen students' sense of philanthropy. Thus, we must affirm and provide for student *participation in community service*. Within Olin, we have an untapped resource in the intellectual lives of our faculty. Indeed, many students came to Olin in part because of the opportunity to be actively involved in research or other forms of intellectual vitality. Recognizing that both faculty time and student time are necessary for such experiences, we must develop policies and practices that promote and make time for the *involvement of students in faculty members' intellectual vitality and vice-versa*.

**Strategy: Strengthen relationships with Babson College, Brandeis University, and Wellesley College.**

Olin was intentionally located in close proximity to a number of top schools whose strengths complement our strengths. Given our small size, and our students' diverse interests in entrepreneurship, business, and the liberal arts, our relationships with these schools are critical. Although good will has thus far allowed Olin students to take advantage of the many offerings at these schools, we must find ways to *provide value to neighboring schools*. A first step is to *understand what benefits each institution receives, or hopes to receive from the relationship*. Such understanding will lead to our *identifying and building educational opportunities for non-engineers* in the Olin program. These might include individual courses, non-traditional courses (e.g., intersession courses), dual degree programs, and minor/concentration programs in technology literacy, engineering design, entrepreneurship, etc. All such offerings are only meaningful if a significant number of students take advantage of them; we must therefore *actively promote Olin courses* at other institutions. We can further fortify our relationships with our academic neighbors by *developing joint program/degree options* open to students from Olin and from other institutions. Finally, *shared faculty lines*, while challenging to negotiate, also help build connections, as can *finding other ways to have Olin faculty teach and engage in research on other campuses and vice-versa*.

*DRAFT***Strategy: Expand student involvement in college operations and decision-making.**

Starting with the Partner Year, Olin has distinguished itself by establishing a culture in which students are consciously involved in the building of the college. As we move out of the startup phase, we must strengthen the positive aspects of this culture by continuing to *seek and celebrate active student involvement in the design and development of the educational experience*. By encouraging *student representation on college committees*, and in college decision making generally, we can provide an excellent learning opportunity as well as building a culture of service to the college. In addition, we must find ways that go beyond traditional approaches to involving students in the operation of the college. *Student participation and, where appropriate, leadership in activities ranging from teaching to admissions to IT* can provide significant educational opportunities while allowing the college to responsibly steward its resources.

**Strategy: Connect all elements of the learning continuum and address tradeoffs.**

The strategies outlined above will help Olin to strengthen different aspects of the learning continuum. The real opportunity for Olin, however, lies in making explicit connections between elements of the learning continuum. Because building connections requires a significant investment of student time, curricular and non-curricular decisions that affect demands on student time must be informed by all involved parties, including faculty, staff, and students. On an institutional level, this could be achieved either by *including a representative from the Office of Student Life on the Academic Recommendation Board*, or by *forming a Learning Continuum Committee* that would include faculty, student, and student life representatives. Such a group could work together to build a *daily and yearly schedule that allows participation in all aspects of the learning continuum*, and to evaluate how curricular and non-curricular decisions impact the entire student experience. On a daily basis, increased interaction between faculty and Office of Student Life staff would provide substantial and otherwise largely unachievable benefits through informal exchange of information. We should therefore explore relocating the Office of Student Life to the Olin Center. Finally, connections across the learning continuum can also be made explicit by exploring *implementation of a competency assessment system which values experiences outside the classroom*. At the individual level, *continued and increased faculty and staff involvement in all aspects of the learning continuum* will provide students with good role models. *Good advising* plays a major role in helping students get the most out of their experiences across the continuum, and so should be taught, recognized and rewarded.

If Olin students are to become effective leaders, the College must provide them with a balanced student experience that fosters healthy personal development. We must find creative ways to obtain multiple benefits from activities, integrating multiple objectives into the fabric of college life, but we also simply must recognize that time is a limited resource, and make intelligent tradeoffs.

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## ***Outstanding People***

**Olin must continue and expand its efforts to attract and retain truly outstanding people whose knowledge, skills, and attitudes support and advance Olin's mission.**

Attracting and retaining top people requires that we meet the goal of providing a superb educational experience, as outlined above. However, while this is necessary, it is not sufficient. We therefore suggest the following additional strategies.

**Strategy: Focus on recruiting the highest quality students, faculty, and staff who are inspired by the Olin mission and culture.**

Given Olin's size and mission, it is especially important that we attract the right people to the college. A student body that has diverse interests and experiences enriches classroom and student life experiences and the college culture. Olin needs staff who are highly qualified in their fields, and an intellectually vital faculty who are also dedicated and innovative teachers. Staff, students, and faculty must all be collegial, willing to work on teams, and comfortable working outside their realms of expertise. Most critically, we must all understand and embrace Olin's goals.

Although we have been very successful in recruiting exceptional students, faculty, and staff, we do face challenges in this area. The first recruitment year of the college involved a community-wide student admission activity. The input of the entire community is invaluable in determining the fit of prospective students, and in demonstrating the Olin culture and mission to candidates. *Olin should engage as much of the Olin community as possible in student recruitment activities.* Given that Olin is a new college, it is important that we find students who are mature and comfortable with uncertainty. During the partner year, Olin piloted the virtual Olin partner program, which encouraged students to defer admission for one year after pursuing an approved plan for enrichment. The initial success of this program dictates that we should *explore ways to expand the Virtual Olin Partners program.* Further diversification of the Olin student body, as well as a "safety valve" for those students who find that Olin is not for them, is achievable through the *development of policies that facilitate transfer of students to and from other universities.* As with students, *representation of the entire community in staff and faculty hiring will help us recruit desirable candidates* who understand the Olin mission. At the same time, we must make sure that we find the best people, even if as this requires that we work outside our comfort zones. This is a challenge – for example, we have thus far had little success in hiring faculty "from the practice."

**Strategy: Build an environment that encourages and supports intellectual life.**

Olin has thus far succeeded in attracting an outstanding faculty with both passion for teaching and substantial potential for nationally visible intellectual achievement, and for involving students in this work. We have also recruited professional staff members with similar potential and passion. However, during startup, most faculty have been at best marginally successful in maintaining their intellectual activities, as they have devoted their energies to the building of the college. This was perhaps inevitable, but it is not sustainable, for excellent teaching requires intellectually engaged teachers.

Furthermore, Olin can only involve students in research if Olin *does* research. Thus, we must find ways to support and reward intellectually vital activities of faculty and of appropriate professional staff. *Policies that create time and intellectual space for such activities* are a crucial component of this strategy. Possible approaches include *novel*

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*approaches to teaching loads, short term intellectual vitality leaves, and the development of innovative sabbatical approaches* that exploit Olin's unique situation as an endowment-driven small institution. Although some undergraduate institutions view course buy-out policies as antithetical to the educational mission, Olin might also benefit from *an innovative course buy-out policy that rewards faculty for involving students in research*. A *community of colleagues* is also important to enable collaborations. *Hiring with potential research synergies in mind* is one possible route, as is *developing and supporting a post-doctoral or graduate teaching fellows program*. Similarly, *finding ways to involve companies more intimately on campus* might provide needed collaborators as well as giving students real learning opportunities. Olin should work to *enable successful pursuit of external funding*, but given the college's mission, we must also recognize that some *internal financial support for intellectual vitality, particularly for work that involves students*, is necessary. Finally, intellectual vitality, and the involvement of students therein, must be recognized and rewarded in Olin's review and promotion process.

**Strategy: Understand and address the impact of our first enrollment plateau of 300 on recruitment and retention of students, staff, and faculty.**

As outlined in the previous goal, the decision to pursue excellence before we reach our final projected size has many implications for the student experience. More generally, our size may adversely impact the college's sustainability, particularly from a retention perspective. If we do not find ways of expanding the effective Olin community, both for students and for employees, we face serious retention risks as we become too inward looking. *First, it is critical that we understand these issues* – what does our size mean from a student life perspective, from a faculty research and renewal perspective, from a staff advancement perspective? As we work to better understand these issues, we can also begin to address them. *Expanding our relationships with other academic institutions and at all levels*, from student life to research collaborations, will help us to pop the "Olin bubble", as will strengthening our relationship with corporate partners. *Bringing new people into the Olin community on a regular basis* – possibly through programs ranging from visiting Olin partners at the senior level to master's level "instructors" to visiting students from other campuses – will help as well. Finally, we should explore ways to have *students, staff, and faculty spend time at other institutions*, both academic and corporate.

**Strategy: Take steps to ensure a healthy and sustainable working environment.**

As in most startups, Olin faces challenges surrounding workload, culture, advancement, and compensation. In the first years of Olin's existence, workloads have been unsustainably high. To prevent burnout, and the loss of qualified people that follows, every effort should be made to *normalize workloads by 2006*. To ensure that faculty and staff maintain their innate creativity and vitality, *Olin should explore rotating assignment relief for key faculty and staff*. Coupled to the question of workload is the question of advancement and compensation. As a startup organization, most early Olin employees have had the opportunity to work outside of their job description, whether at a more intellectually challenging level or well below the intellectual level expected of their job. As we transition into a sustainable phase, it is imperative that these vital employees continue to be stimulated and challenged. *Loyal and qualified Olin employees should be given the chance to grow and advance by working on new and stimulating projects with colleagues from across the organizational spectrum*. Furthermore, as much as the faculty and staff are highly invested in Olin and its success, we can only hope to retain

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them if we compensate them appropriately. We must *review the competitiveness and fairness of faculty and staff compensation and benefits*. Particularly appropriate to consider are benefits that enhance the abilities of our employees. Olin should consider *a tuition reimbursement program for employees to pursue studies that support the college's mission and provide support for faculty and staff to attend relevant conferences and workshops*.

Setting aside issues of compensation and workload, Olin's culture must be in accord with its mission and values. Satisfaction and loyalty depend on a sense of control over one's situation and feeling that one's efforts are recognized, respected, and appreciated. Key steps to create the environment that will attract and retain quality people are to *ensure faculty, staff and student involvement in important decisions and improve respect, civility, and appreciation for all staff and faculty*. As Olin seeks to attract high quality, innovative individuals, we should structure a system that recognizes these characteristics. As outlined elsewhere in the plan, we must *develop a reward system that celebrates innovation and creativity, nationally visible achievement, and inspirational teaching*.

**Strategy: Focus on efforts to ensure that our graduates are successful in moving to the next stage of their careers after graduation, toward high-quality employment, continued education, or other aspirations.**

Olin's success will be measured in large part by the success of our first graduating classes in securing desirable jobs and graduate school placements. Olin must *establish an office of internships and postgraduate planning*, which will coordinate with the Office of Corporate Relations and the Office of External Relations to ensure that students have excellent opportunities both during and after their years at Olin. Many of our students will be competing for job and graduate school placements prior to widespread national recognition of the Olin College name; therefore it is critical that students and faculty are equipped to present Olin graduates in the best possible light. Olin must *develop workshops for students and faculty that focus on resume, cover letter and recommendation writing*. The process of applying to graduate school can be costly, and we should *offer financial support for eligible students to take graduate school entrance exams and pay application fees*.

**Strategy: Continue to invest in the national reputation of the College among all important stakeholders.**

Olin College must be well-known and respected nationally if it is to attract the highest quality students and faculty. *Favorable media attention* can contribute to *increased name recognition*, which in turn, contributes to increased *credibility among prospective students, parents, and employers*. Olin's educational innovation successes and *visible intellectual vitality achievements* will increase national visibility among collegiate peers, which will attract prospective faculty and staff members to the College.

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## ***Innovation and Improvement***

### **By 2006, Olin must expand and institutionalize its culture of innovation and improvement.**

Clearly the strategies associated with ensuring curricular innovation will play a significant role in this goal, as will the strategies associated with involving students in decision making, and with attracting and retaining risk-takers. The strategies below further contribute to building this culture.

#### **Strategy: Establish clear and agile policies and procedures, without creating unnecessary formality or bureaucracy.**

Although an informal approach to decision-making worked well early in the College's development, frustration with this informality has grown with the size of the college. Part of this frustration grows from poor communication; we must develop approaches to *enhance transparency and cooperation across functional units and build trust*. In addition, Olin needs *simple, clear procedures to expedite routine matters, in order to free energy and attention to matters requiring innovation and creativity*. Basic documents such as the *faculty and staff manuals* and *effective budgetary processes* are needed in the near future. As we develop and document policies and procedures, every effort should be made to *enable decisions to be made at the lowest possible level, and to reduce levels of approvals needed for actions, while allowing appropriate review*. Finally, agility requires that decisions can be made out of phase with the budgeting process, so it is important that we *develop budget/financial processes to fund changes or new initiatives developed in the middle of budget cycles (contingency funds, eureka funds)*.

#### **Strategy: Further develop our commitment to assessment and improvement in all that we do.**

As we transition out of the startup phase, it is critical that Olin not lose the innovative energy that characterizes the invention of the college. If we are to continue such innovation, our commitment to improvement should extend beyond the curriculum. Using the same *sunset clause* approach as in the curriculum, we should *regularly schedule external reviews* of in both *educational and administrative areas*. We also must *develop outcomes measures for educational objectives*, as well as continuing to *monitor organizational health and extending assessment to all administrative and service areas*. Finally, if this plan is to be meaningful, we must *develop key indicators to monitor progress towards strategic goals*.

#### **Strategy: Expand awareness of advances outside Olin, seek knowledgeable advice, and share Olin innovations openly with others.**

If Olin is to be a relevant contributor in engineering education, we must work to develop positive relationships with other institutions. By seeking opportunities to serve on *NSF review panels*, as *reviewers for journals*, and as *program coordinators for national or international conferences*, and *hosting national meetings at Olin*, we can learn about work at other institutions, meet other leaders in the field, and help others learn of Olin.

#### **Strategy: Bring diverse perspectives to the Olin community.**

Creativity and innovation requires that we hear many voices. We must continue to *pursue a diverse student, staff, and faculty population*. We should also consider initiating a program of *visiting Olin partners* at the senior level—engineers, entrepreneurs, scholars, artists, philanthropists etc. At more junior levels, continued

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development of *opportunities for “instructors”* as well as formal, system-wide *opportunities for interns from graduate programs* (Higher Education, MBA etc.) in administrative/services areas (building on existing efforts in admissions, student life etc.) will provide Olin with much needed assistance, as well as fresh perspectives.

**Strategy: Enhance entrepreneurial spirit and energy in the Olin community, including encouraging teamwork and collaboration.**

If Olin truly wishes to teach its students to think entrepreneurially, we must develop ways to develop and reward entrepreneurial approaches within the institution. By providing *training and support for group processes and decision-making*, we can improve our effectiveness in working together. *Developing cross-functional teams where appropriate* will allow cross-fertilization of ideas, and a more flexible and responsive organization. By *funding and supporting innovative ideas/projects*, we can encourage collaboration of faculty, staff, and students.



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## ***Sustainability Imperative***

### **By 2006, Olin must develop ways of thinking and acting that assure sustainable growth.**

As we have discussed throughout this document, Olin faces significant challenges over the next three years as we make the transition out of the startup phase. While we enter this period with passionate commitment from all members of the Olin community, the dangers of accumulated burnout and awareness of resource limitations presents a threat of creating retention problems in the future. Our intimate size offers many advantages with small class sizes and personal attention, but the very small living community also presents special challenges which require attention. As we complete the design and development of the academic program and become increasingly aware of the resource implications of our decisions, we face new challenges in establishing a culture which values good stewardship.

We have outlined above a number of strategies that explicitly address many aspects of sustainability, including the size of the College's faculty, the number of students, issues of workload and burnout, and making sure that we ask how much things cost as we develop the education. Combined with the strategies below, these approaches will help us to build a culture of sustainability, and therefore enable us to solidify our early achievements.

### **Strategy: Strengthen and diversify our approaches to financial stewardship.**

Individuals must become both aware of and committed to the need for good stewardship of the College's resources. We must directly *link the planning and budgeting processes to each other*, and *strengthen and formalize our process for reviewing and prioritizing funding proposals and needs*. In addition, we must work to *increase transparency in the budgeting process*, so as to make more members of the community aware of and invested in good financial decisions. Similar benefits will accrue by *aligning the reward system at all levels with responsible financial stewardship*. Finally, by developing an *endowment investment strategy that maximizes growth for an acceptable level of risk*, we can make the best possible use of the Foundation's generous gift.

Of course, in addition ensuring wise use of existing funds, the college should aggressively pursue means of *increasing the college's resources*. With the recent addition of a Vice President for Development, the College is well-positioned to undertake *new programs and activities that will generate net income for the College and diversify the revenue stream*.

### **Strategy: Understand and address the impact of our first enrollment plateau of 300 on all aspects of the college, including the nature and level of services and facilities provided.**

As we have outlined above, the decision initially to hold the college's enrollment to 300 has broad-ranging implications for the nature of the student experience and for the strategies the college should pursue to maintain the quality of people at Olin. From a sustainability perspective, we must be willing to ask not only what impact the college's size has on every aspect of college operation. Are there services that a college of 300 simply should not provide? Are there innovative organizational structures that could take advantage of our small size?

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**Strategy: Improve stewardship of human resources.**

As noted above, the college currently faces potential difficulties with workload and burnout, as well as with respect and civility. These issues are relevant from a recruitment and retention perspective, but they are equally important from to the college's sustainability. The approaches outlined above will help us address these problems.

Related to burnout and workload are the time-related challenges Olin faces as a startup. The invention of all aspects of the college often leaves many members of the college wishing that the typical day contained twice as many hours and half as many meetings. Many members of the community (faculty, staff, and students) would benefit from *formal training in time management* and in *effective meeting skills*. In addition, adopting a *common calendaring system* across the community would also assist us use our time more efficiently.

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## **APPENDIX 1: Situation Analysis**

### **1.0 National Outlook for the Engineering Workforce**

Few professions are more important to the future of the U.S. or the continued advancement of the welfare of humanity than engineering. At the turn of the millennium the National Academy of Engineering identified a list of the most important technological inventions of the 20<sup>th</sup> century. The list of the top 10 inventions include electrification, automobile, airplane, water supply and distribution, electronics, radio and television, agricultural mechanization, computers, telephone, and air conditioning and refrigeration. As we enter the 21<sup>st</sup> century, the role of engineering and technology in the future of the nation is stronger than ever. National security, economic development, healthcare, sustainable energy, environmental issues, and other national needs will depend heavily on continued technological innovation made possible by a strong engineering workforce.

However, the number of new engineers produced by the nation's approximately 330 engineering schools during this period is expected to remain stagnant [2]. National leaders in the profession have expressed concern about the declining supply of new engineers in the U.S. [4]. In fact, the number of engineering degrees granted in the U.S. has been falling in recent years [3, 9], and the interest among high school graduates in engineering has also declined significantly [1]. Thirty years ago approximately 1/8 of all high school seniors were interested in pursuing a career in science or engineering. Ten years ago the fraction dropped to 1/12. Today it is about 1/20 [1].

Whether or not this supply will meet evolving demands is a matter of conjecture. There are some who predict that the demand for engineers in the U.S. will grow substantially in the next decade[1], while others remain skeptical [13]. According to the Bureau of Labor Statistics, employment opportunities for engineers is expected to increase from 10% to 36% in the period from 2000-2010, depending on sub-discipline[2, 3]. The increase in national security concerns resulting from the events of September 11, 2001, is expected to greatly increase the demand for American citizens who are engineers.

With or without an increased demand, it is clear that the U.S. will depend on a continuing supply of talented and broadly-educated engineers—with the nature of the skills required in this workforce changing (see section 2.0 for more detail)

### **1.1 U.S. Demographics**

The demographics of the U.S. population are changing rapidly. By 2025 African Americans, American Indians, and Hispanics will make up more than 1/3 of the total U.S. population [5]. Furthermore, they will comprise more than 60% of the population between the ages of 18—24 by 2010 [6]. Most leaders in the engineering community believe that the education of a more diverse engineering workforce [7, 8] will develop previously untapped human resources, educate engineers who understand the needs of this diverse population, offer equal opportunities to all elements of our diverse population, and enhance the educational experience for all students. This presents substantial educational challenges since the large majority of engineering graduates continue to be Caucasian males [9]. Both preparation levels in K-12 math and science and interest levels among under-represented high school students generally lag behind those of Caucasian students.

However, the number of female high school students with adequate preparation in math and science is large [1], and the potential exists to substantially increase the

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number of engineering graduates from this pool—but only if changes in the way engineering is presented and taught succeed in attracting and retaining larger numbers of women into engineering schools. It is notable that interest among females in engineering is not uniform across sub-disciplines. They have traditionally shown least interest in electrical or mechanical engineering (15%) (where the national need is largest) and largest interest in chemical or biomedical engineering (30-40%) [12]. While some progress has been made in increasing the participation of under-represented groups in engineering programs, their participation in engineering programs nationally remains very low [1, 9].

**1.2 Globalization of Engineering**

For many years the U.S. has been the recognized world leader in the development of advanced engineering and technology, and in the production of highly competent Ph.D. engineers. Highly qualified foreign students from all over the world have consistently sought an opportunity to come to the U.S. to attend prestigious engineering schools and obtain a Ph.D. Over half of the graduate students in engineering programs in the U.S. today are foreign born, as are a substantial fraction of the faculty in U.S. engineering schools. A large percentage of the foreign graduate students that come to the U.S. for an education ultimately seek U.S. employment and become either permanent residents or U.S. citizens. The resulting “brain drain” from other countries has provided the U.S. with significant economic advantages in the development advanced technology. However, in recent years many talented foreign students have chosen to stay at home to earn a Ph.D. rather than move to the U.S. In addition, many U.S. companies are establishing offices overseas and using an increasing number of foreign engineers for their labor needs. Recent developments in national security are likely to further reduce the number of foreign engineers that are employed within the U.S.

This trend is expected to continue and even accelerate in the years ahead. It has been estimated that Asian universities currently produce 6 times as many B.S. engineering graduates as the U.S., and China is expected to produce about one million engineers annually in the near future. As a result, it is likely that the number of foreign engineering students will decline in the U.S. and foreign engineers will play a reduced role in meeting the U.S. demand for engineers. It also means that future generations of U.S. engineers will need a much better understanding of international issues and strong skills in teamwork across national boundaries to maximize their career success.

**1.3 Implications for Olin College**

Olin College aspires to explore new approaches to teaching undergraduates that promise to increase the attractiveness of engineering to all students, including women and under-represented groups. It is a goal of Olin College to export new ideas and methods of teaching engineering that promise to help other larger schools succeed in implementing change, attracting more students, and improving retention. It appears that the need in this area is substantial, and Olin’s emphasis on gender balance and student life may provide a special opportunity to experiment with approaches that could lead to important improvements on a broader scale.

Among the first potentially significant hallmarks of the Olin educational experience is a serious commitment to gender balance. Currently 35% of Olin’s faculty members are women, as are 45% of our students. Few other engineering programs have developed a faculty or student body that is as gender balanced as ours. This presents an important opportunity to explore the role of gender balance in attracting and retaining both women students and faculty members. Lessons learned at Olin in this area could be useful to

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others in increasing the participation by women in engineering. Since approximately half of all well prepared high school graduates are women while fewer than 20% currently enroll in engineering programs, a successful model for doubling the number of women engineering students could make a substantial national impact.

The intense commitment to student development at Olin is also rare and potentially important in increasing the retention of engineering students. In addition, our emphasis on inspirational teaching has led to an educational environment in which learning is often infused with an unusual degree of humor, fun, and playfulness. This combination—personal attention and fun—may have the potential to significantly improve retention. It is noteworthy that 100% of the freshmen at Olin last year returned to enroll as sophomores; while we don't expect this to continue, we do expect to maintain a high retention rate. Since nearly half of all students in the nation who enroll as freshmen in engineering do not persist and graduate in engineering [1], a successful model for significantly reducing the attrition rate of engineering students could also have a substantial impact on engineering education.

While our early success in attracting under-represented groups doesn't yet stand out from other top engineering programs, the potential exists for further improvement as we gain more experience both in marketing and admission strategies and in academic and student life program development.

The rapidly growing globalization of engineering requires that new engineers be prepared to think beyond the borders of the U.S. and learn to partner successfully across national cultures. Olin College faces many opportunities to develop an innovative international dimension to the emerging curriculum.

## **2.0 Engineering Education and Curricular Change**

Of greater concern than the number of engineers is the need for changing skills among engineers [4, 11]. From the many different studies of the need for change to enable engineers to be more effective in their careers, there is a high degree of consensus on the most needed improvements. For example, in 1995 the American Society for Engineering Education published an influential report entitled "Engineering Education for a Changing World" (the Green Report) [11] in which they listed the following top three priorities for skills improvements among engineering graduates, in order: (1) team skills, including collaborative, active learning; (2) communication skills; (3) leadership. It is noteworthy that all of these top priorities involve developing appropriate behavior in addition to preparation in technical studies. The need for improvement in communication skills has remained at or near the top of this list for nearly half a century.

The National Science Foundation (NSF) and industry leaders have been calling for reform in engineering education for more than fifteen years. The Engineering Education Coalitions program of NSF has spent approximately \$100 million dollars since its inception more than 10 years ago in an effort to provoke systemic engineering education reform in the U.S. [10]. The changes sought in the skills of engineering graduates include an increase in communication and interpersonal skills, better teamwork skills, more authentic design, a basic understanding of business and entrepreneurship, and—to address the workforce concerns—an increase in participation by women and under-represented groups [11].

However, an independent analysis of the results of the NSF Engineering Education Coalitions program concluded that the program has made only modest progress in achieving systemic reform [10]. Today a significant and increasing fraction

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of the nation's engineering programs are engaged in serious efforts to address the needed changes in engineering education, and there are many examples of programs that have developed important innovations. Still, the overall pace of change within the established higher education community has been slow.

Currently there are approximately 330 engineering schools with ABET-accredited programs in the U.S. About 75% of them offer graduate degrees and about 25% of them are strictly undergraduate institutions [12]. With very few exceptions the most highly regarded engineering schools are doctoral-granting institutions. Since the doctoral institutions are generally much larger in total enrollment, they produce a much higher percentage of all U.S. undergraduate degrees in engineering.

Olin College's incoming freshmen have identified a set of institutions they considered as alternatives for admission to Olin. The ten schools which Olin applicants most frequently sent SAT scores to during their 2003 college search are, in order: (1) Massachusetts Institute of Technology, (2) California Institute of Technology, (3) Stanford University, (4) Carnegie Mellon University, (5) Worcester Polytechnic Institute, (6) Harvard University, (7) Cornell University, (8) Rensselaer Polytechnic Institute, (9) Princeton University, and (10) Harvey Mudd College. In the previous year the list was substantially the same. It is noteworthy that only Harvey Mudd College within this group is an undergraduate institution. Olin College also competes a similar group of institutions for faculty members.

## **2.1 Implications for Olin College**

The Franklin W. Olin College of Engineering was created in part to address the need for innovation and change in engineering education. This recognized need presents an opportunity for the College. By starting from a clean slate, Olin has a unique opportunity to experiment with new ideas and fresh approaches that promise to break stereotypes, attract diverse populations, and produce well prepared, articulate, and creative engineering graduates. Starting fresh enables a change in the culture of the institution—attitudes and behaviors of all members of the community—which is not easily attempted at traditional institutions. Some have argued that since teamwork, communication, and leadership (the most sought after skills improvements in engineering graduates) all involve attitudes and behaviors rather than technical preparation, a new campus culture may provide the best opportunity to make significant progress in these areas.

Many aspects of our emerging curriculum provide potentially important new models for substantially improving the teamwork, communication, creativity, and contextual learning of our graduates. These models may also produce important contributions that are useful at other colleges and universities.

However, expectations of nearly all stakeholders are very high, and not all of our sister institutions are confident that we will succeed in our mission to pioneer important new models. A few are somewhat uncomfortable with the favorable media attention Olin has already received. Many have pointed out that much of Olin's emerging curriculum uses elements that are well known and in widespread use elsewhere. The critics will be hard to convince, and some may even be relieved if we fail. Even if we succeed, the very small size of Olin College may be seen by other larger schools as a concern regarding transferability of our results. In addition, the high per-student costs which currently characterize our educational program are likely to be seen as a barrier to transferability.

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### **3.0 Olin College Financial and Enrollment Resource Issues**

The financial model of Olin College is very different from that at nearly every other independent college. The College derives no income from tuition or from state funding. Instead, the bulk of its operating expenses is funded from investment earnings from a large endowment.

One of the most widely accepted measures of financial health of colleges and universities is the size of the endowment used to support operations. Those colleges with very large endowments are better able to endure temporary financial hardships than those with small or no endowments. By this measure, Olin College is in exceptionally good financial health. The current endowment value of approximately \$220 million and the enrollment of 150 students provide a per-student endowment value of \$1.47 million. This value ranks Olin among the very highest in the nation.

However, Olin College's commitment to provide every student with a full 4-year tuition scholarship (see Founding Precepts in Appendix A) places a special financial burden on the College. In addition, engineering education is intrinsically much more expensive to deliver than liberal arts education. Therefore, the College still faces significant financial challenges due to its distinctive mission and in spite of its relative financial strength.

Furthermore, in recent years the investment market has performed poorly. In fact, the net value of the endowment of most colleges has reduced significantly, and therefore produced no investment earnings at all. This is true of Olin College as it is nearly all other colleges and universities. In addition, our mission to rethink engineering education and develop an innovative and high quality educational experience from a clean slate has resulted in a higher per-student expenditure rate than most other undergraduate engineering schools, particularly during our start-up years. As a result, our current financial model and academic plan aims at growing the enrollment more slowly than anticipated in 1997 when the College was first founded. Our current operational plan projects a plateau of enrollment at 300 in the 2005-06 academic year, and a total endowment in that year of about \$400 million.

#### **3.1 Implications for Olin College**

While the College is well funded by almost every measure, it will have to work hard to reduce expenditures by the 2005-06 academic year to sustain a total enrollment of 300 students. This will require significant increases in efficiency in every aspect of College operations, ranging from the academic program to maintenance and utilities. Much of this will likely happen naturally as we gain experience in teaching the new program and in making more accurate budget estimates. (In past years the College has always over estimated the amount of funding needed for the fiscal year by significant margins.) Nevertheless, widespread awareness of budgeting priorities and efficiencies will need to increase in the years ahead, and more effective budgeting policies and procedures must be established in order to achieve the balanced and sustainable financial plan we are projecting by FY06.

In exploring potential sources of efficiency it is important that the College consider all dimensions of the institution and its operation. Regarding the academic program, it was assumed in 1997 that the College would be able to support 65 faculty members, an enrollment of 650 students, and three B.S. degrees in engineering. With the revised plan to plateau the enrollment at 300 students with a student-faculty ratio of 8:1 (and therefore a total faculty size of about 38) it is now important for the College to review the academic plan to insure that the quality of the educational experience in each B.S.

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program will still meet our high standards of excellence in each major in spite of the limited faculty size. Highest priority must always be placed on the quality of the educational experience we provide for our students.

All other aspects of college operations must also be reviewed for efficiency and innovative approaches to reducing costs. Benchmarking with other institutions is necessary to insure that every aspect of our operations is run effectively and without waste. One of the College's institutional core values is stewardship, and we must develop policies and procedures in the years ahead that will insure good stewardship of resources. This may require a reduction in service levels in some areas, and patience and support from all members of our community during this process. To retain the support and commitment of the faculty, staff, and students it will be important to increase their involvement in the budgeting process and to increase the communication of budgetary decisions throughout the community.

The rapidly growing reputation for quality that the College enjoys in the academic community and in the press also presents some opportunities for raising additional financial support through fund raising. Since the College has no alumni and no natural constituency of donors, it is important to identify and involve external supporters quickly and devise ways to involve them in the invention and development of the College. The sense of ownership and commitment that is characteristic of the founders of an institution is likely to be important as a substitute for a historical relationship with the College. However, while the College is still very much a start-up institution, it is no longer brand new. The window of opportunity to engage potential donors as "founders" is beginning to close. The College recently hired an experienced Vice President for Institutional Advancement, and will begin an ambitious program of fund-raising. Every member of the Olin community should support this program in some way.

#### **4.0 Relationships with Other Colleges and Universities**

Olin College has an important and complex relationship with neighboring Babson College. The two colleges collaborate on the development of joint academic programs that are beneficial to both schools. In addition, Olin College purchases various services from Babson College in a business relationship and also sells some services in return. However, each school remains independent, with separate governance, financial resources, admission standards, curricular requirements, etc.

Currently Olin and Babson share several jointly appointed faculty members. Three freshmen courses in humanities and social sciences are taught by Babson faculty members on the Olin campus to a class jointly populated by Olin students and Babson Honors students. About 10% of the Olin student body is enrolled in elective courses on the Babson campus each semester. A few Babson students are now enrolled in elective courses on the Olin campus. Planning efforts have begun on the development of a new M.S. in Entrepreneurship at Babson College for engineering graduates, to enable a joint B.S.-M.S. degree program for graduates of Olin and similar engineering schools. In addition, planning is also underway to develop more elective courses at Olin that will be accessible to Babson students.

Olin also contracts for many services at Babson, including student access to Babson athletic and performing arts facilities, buildings and grounds maintenance, campus security, some human resources services, and certain financial services. The annual payment from Olin to Babson for these services is a significant fraction of our operating budget and is expected to rise as the enrollment grows to 300 in the next few years. Olin also provides environmental health and safety and grant/contract



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management services to Babson for a fee, but the payment to Babson is much larger than the fees received from them.

In the past year the relationship with neighboring Wellesley College has grown considerably. Last semester about 1/3 of all Olin students were enrolled in at least one elective course at Wellesley. No students from Wellesley have yet enrolled at Olin, although planning is underway to develop appropriate elective course opportunities for Wellesley students at Olin next semester. No payments have been made to Wellesley College for these exchanges.

In addition, a few Olin students are enrolled in elective courses at Brandeis University this fall. No Brandeis students have yet enrolled in courses at Olin College. No payments have been made to Brandeis University for these exchanges.

Olin students have been very pleased with the opportunity to enroll in elective courses at these other schools. They have been highly enthusiastic about the quality of the instruction and the diversity of educational experiences that are available in this way. Such off-campus academic opportunities play a very important role in the academic experience developing at Olin College, and help to compensate for the small size of our program.

Relationships with other engineering schools have generally been cordial but less direct. Many visitors from other engineering schools have visited the Olin College campus to learn more about our program. Most have been favorably impressed. Since the large majority of engineering schools are located at research universities, there is mutual interest in developing opportunities for Olin students to learn about research at these other engineering schools and explore the potential for pursuing graduate work there. A few nearby engineering schools seem to be uncomfortable with the media attention Olin has received, and they have expressed concerns that Olin is receiving an undue level of attention.

Olin College also participates in The Boston Consortium, an organization of several private institutions in the Boston area that collaborate for mutual benefit in various business areas, including risk management, insurance coverage, etc. In addition to saving a considerable amount money, this collaboration also provides important partnerships in networking and benchmarking.

#### **4.1 Implications for Olin College**

The value of the academic opportunities provided by neighboring colleges and universities to the Olin College educational experience is extremely high. Access to high quality courses in business, liberal arts, languages, sciences, etc. through these neighboring colleges provides much needed breadth of academic opportunities for Olin students, and allows Olin to concentrate its limited faculty resources on those areas that are essential to its own degree programs. Olin College would benefit greatly from an expansion and solidification of these academic exchange opportunities in the future. In fact, without them the College would struggle to provide a vibrant academic experience outside the technical core areas, and would be much less attractive to the multitalented students targeted for admission.

Since long term partnerships require reciprocal benefit, Olin College must concentrate on developing appropriate and attractive academic opportunities for significant numbers of students from neighboring colleges in the near future. It is essential that these institutions recognize a direct and lasting benefit from the relationship with Olin College.

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The long-term value of a strong business partnership between Olin and Babson is also very important. Without access to several basic facilities at Babson, Olin would be required to build its own facilities at great cost, or do without. However, relationships between partners—like those between family members—present special challenges. Continual attention to personal relationships and trust is important since a profit motive is not present. Neither college expects to gain financially from the other in this relationship, yet both expect to benefit from an enriched academic environment and reputation.

For several reasons Olin College needs to build and maintain strong positive relations with other highly respected engineering schools. First, the success of Olin graduates—and hence the success of the College itself—depends in part on their acceptance into top graduate schools. Graduate schools will be faced with uncertainty and risk in accepting Olin students until such time as the school has established a reputation. In addition, Olin's success in establishing a national impact on engineering education will depend largely on its ability to influence other larger schools to consider innovations pioneered at Olin. Such schools will also be faced with uncertainty and risk in trying ideas developed at Olin until the College is better known for success in this area. Finally, positive relations with all other engineering schools would help promote credibility for Olin College and might aid in achieving a favorable accreditation result since peer review is essential in that process.

**5.0 Recent Advances in Life Sciences—Can this be broadened to advances in engineering, science and technology, with an emphasis on bioengineering?**

Major scientific discoveries and related technological advances made fundamental and irreversible changes in the human experience during the twentieth century. Insert more on engineering, physical sciences here Most of these advances were based on the physical sciences, including nuclear physics, information technology, and electronics.

However, as we enter the twenty-first century it appears that we are entering another scientific revolution—but this time based on the life sciences. The human genome project was among the first such projects that promise to change in fundamental ways our understanding of life on earth, and ultimately to spawn a multitude of new industries.

Many engineering schools across the nation have initiated some form of biomedical engineering program in the last decade in order to better prepare their graduates for the major opportunities expected to develop in the next few decades. The role of technology in medicine and the life sciences is growing rapidly and promises major changes in many fields. The need for scientists and engineers who are well prepared to work on the interface between the life sciences and the physical and mathematical sciences appears to be very strong and likely to grow rapidly.

**5.1 Implications for Olin College**

Olin College would benefit from establishing a strong and modern program in some form of bioengineering to supplement its core curricular offerings. The high caliber of students attracted by Olin College are likely to quickly rise to leadership positions in new technology enterprises that will be deeply involved in the life sciences. Many of the best among the current Olin students are very interested in bioengineering and have expressed a strong desire for an opportunity to study this field at Olin College. Students of this caliber need preparation that will open doors for them at many levels and not limit their potential role to that of a technician in the emerging field. With the proper preparation Olin students are capable of making significant contributions to the

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fundamental understanding and cure of disease processes, in addition to the development of devices and systems to aid in the implementation of these new discoveries.

As a new institution Olin College faces a special opportunity to establish a modern bioengineering program from a clean slate. The location of the College in the Boston area provides special advantages in the local availability of world class academic and corporate resources in the life sciences field. Preliminary interactions with key advisors in this area indicate a willingness to help identify appropriate approaches for Olin College that would provide excellent preparation for Olin graduates to enter advanced study in this field.

The next two years at Olin College will be very important since the planned enrollment will double and a high level of faculty hiring will take place before the plateau is reached in 2006. The opportunity to select many new faculty members in the next two years provides a special opportunity that is likely to be unusual in the College's development. These new faculty members will play a key role in defining the emerging academic program. Thus, the College faces what may be a one-time opportunity to recruit a faculty base in bioengineering in the next two years. If the College moves quickly it may be able to develop an exceptional program in time for the first graduating class to have the core preparation in this important emerging field.

## **6.0 Start-up and Institutional Development Issues**

Olin College, one year after the matriculation of its first freshman class, is very much a work in progress. Compared to most other academic institutions in their start-up phase, Olin College has made extremely rapid progress. The speed with which the campus was designed and built, the founding faculty and staff were assembled, the initial curriculum was developed, the first few outstanding student classes were recruited, and the substantial endowment was established is unprecedented in engineering education. This rapid progress was largely made possible by the vision and strong support of the Directors of the F.W. Olin Foundation. It is also partly responsible for the high level of media attention that the College has received in its early years.

While speed has been an important factor in the College's early success, it has also predictably caused some significant institutional development challenges that must now be addressed. To understand these challenges and place them in context it is useful to review the brief history of the College's development.

### **6.1 Brief History of the Development of Olin College**

The College was founded in 1997 by the Directors of the F.W. Olin Foundation who also served as the founding Board of Trustees of the College. From 1997 through 1999 the College consisted of these four people who worked with academic, legal, architectural and other consultants to develop a vision for the institution, establish a partnership with Babson College, and design the campus. In 1999 the College hired its first employee and founding president, who proceeded to recruit the provost, three vice presidents, and a dean of admission by September of that year. By fall 2000 the College had recruited the first wave of founding faculty members, purchased the land for the campus, signed service agreements with neighboring Babson College, conducted the ground breaking and started construction of the campus, and developed the first strategic plan, Invention 2000.

Invention 2000 was an unusual plan in that it dealt with laying out a comprehensive and deliberate process by which the College could invent itself rather

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than identify a narrow set of objectives with supporting budgetary priorities. The era in College history from initiation through fall 2000 might be called the era of “opportunity overload.” The frequency of discovery of potentially important new ideas and possibilities was staggering, but the College had so few employees that relatively few ideas could be explored or developed. It felt as though the “in box” grew enormously yet there was no one to whom tasks could be delegated. Except for basic financial or legal interactions with the Board, a minimum of formal policies and procedures were established. A great deal of trust was required between the Board and the College staff in reaching important decisions. The College was “agile” in ways that large organizations can rarely match in that decisions affecting many millions of dollars and large organizational dimensions of the College were made with minimal layers of independent review and consent. The rate of decision making on major issues during this period was by far the highest in the College’s history. An indication of the rate of change in this period is the fact that college operating expenditures increased more than 400 percent in one fiscal year.

By fall 2001 the first Olin Partners, or student members of the design team, arrived to live in modular units on the soccer field, where a temporary campus and residence hall had been constructed. The period from fall 2000 through the arrival of our first true freshman class in fall 2002 might be called the “era of invention.” During this period most of the faculty, staff, and students concentrated on the discovery of best practices, invention, development and test of key aspects of our emerging engineering curriculum. Budgetary considerations were deliberately suppressed in order to insure that the best educational models would receive full consideration. Most of the College’s expenses and administrative energy was devoted to campus construction issues during this period, and many unexpected legal and practical construction challenges arose making it almost impossible to predict with useful accuracy the College’s financial needs 12 months in advance. Academic budgets for deploying the emerging curriculum were based on after-the-fact estimates of what it would take to deploy and scale up the program.

During the first year of classes (2002-03) a formal strategic planning exercise was initiated, involving faculty, staff, and students. The effects of the decline in financial markets on the College’s endowment caused an open campus discussion of the financial model and some campus concern about the projected cost-per-student expected when the College graduates its first class in 2006. The arrival of the first freshman class in 2001 and the need to teach the first courses revealed a pressing need to develop clear College policies and procedures in many areas. The informality associated with the period of invention did not serve the College’s needs well while carrying the responsibility of teaching classes and rapidly expanding the scope of College operations.

The strategic planning committee uncovered many examples of frustration with the lack of clarity in decision-making and with the lack of adequate communication and coordination between various functional groups that were required to work together closely for the first time. Concern and frustration has occasionally surfaced from the perception that certain important operational decisions are sometimes bottlenecked in administrative offices with no clear understanding of responsibility for who will make a decision or what criterion will be used. In addition, frustration has also surfaced among staff when urgent requests for services are received at the last minute, and gratitude for extra effort is rarely expressed. Campus culture issues relating to trust and respect for

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others and the College's core values are central to many continuing discussions at this time.

While the intensity of responsibility for campus construction has peaked and is now beginning to level off at a more sustainable level, the intensity of responsibility for developing and deploying the curriculum is still growing. This is made more challenging by the continuing influx of new faculty members each year who quickly need to learn a great deal about the campus culture as well as academic goals with very little help from written material or policies and procedures. The next milestone in College development is the graduation of the first class in 2006. The success of these first graduates is crucial to the success of the College.

## **6.2 Potential Faculty, Staff, and Administration “Burn Out”**

Like most start-up enterprises, essentially all employees at Olin College have been under excessive levels of job stress for an extended period. At least half of the members of the Olin community consistently work more than 40 hours per week, and many members routinely work nearly twice that number of hours. The uncertainty inherent in a start-up environment, the responsibility for frequently inventing important aspects of the program on the fly, and accountability for meeting very high expectations lead to an adrenaline-driven environment in which vacations are repeatedly postponed and time for thoughtful reflection is rare or non-existent. The most frequent image for life at Olin College is that of flying an airplane while it is being built.

A significant number of Olin College employees are now in their fifth year of work at this pace. Faculty members who are expected to maintain a significant level of intellectual vitality are at special risk of sacrificing their ability to stay abreast of recent developments in their field in order to devote the necessary time and energy to simultaneously invent and teach the undergraduate program during these start-up years.

Clearly, the risk of “burn out” and premature departure of key members of the College community is high. It is essential that the College address this situation soon by developing appropriate means for periodic relief and renewal of key members of the community.

## **6.3 Implications for Olin College**

The need for serious attention to the development of policies and procedures is apparent within the College community. Such basic policies as the faculty and staff manuals and well-understood and effective budgetary processes are needed in the near future. In particular, the need for policies to address and prevent premature burn out of key members of the College community is growing acute.

In addition, more effective internal communication across the campus and attention to the campus culture is essential to establish the sustainable community necessary to realize the potential of Olin College. In the context of the history of Olin College's development it appears that the period from the teaching of the first class in 2002 until the graduation of the first class in 2006 must become the “era of sustainability.” While the job of invention and innovation is no where near finished (indeed it should never be finished at Olin), serious attention must be focused for the first time on sustainability in all that is done in the next three years.

The theme of sustainability applies to a broad range of operations, including the academic program, budgetary requirements, campus culture initiatives, and student,

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faculty, and staff retention. Policies and procedures are essential to establishing sustainable processes and communicating them, but as important as they are, it is always people that form the essence of a College. Policies and procedures should reflect the priority of creating a student-centered institution in which each student receives personal attention and an exceptional undergraduate education. The primary resource needed to make this possible is people—faculty and staff—and the policies, procedures, communication process, and campus culture should insure their sustainability and retention within the limits of our financial ability.

**7.0 Boldness and Sustainability of Innovation**

An important reason for the founding of Olin College was the conclusion by the F.W. Olin Foundation that academic institutions are often highly resistant to change. They found it necessary to start an entirely new institution in order to create the necessary environment for the scope of change they felt was needed in engineering education at this time.

In an effort to avoid this need in the future the Founding Precepts of Olin College (see Appendix A) include a requirement that the College develop a firm and pervasive commitment to the process of continuous improvement. One of the College's core personal values is openness to change.

However, there are few bold models within higher education of successful implementation of this concept. Thus, Olin faces a significant opportunity to create a successful model in this area. The basic ingredients of such a program likely involve at least three basic principles: (1) an implicit recognition that we can always learn from others outside our community; (2) a willingness to expose ourselves to frequent assessment to determine in an honest manner our strengths and weaknesses; and (3) to adopt and maintain an attitude of openness to change for the sake of improvement. Our emerging policies and procedures at Olin College will need to incorporate these principles throughout.

It is important to note at this early stage that several important stakeholders and observers have already expressed a level of disappointment at the absence of more breath-taking aspects of innovation in our emerging program. For example, several have noted that our faculty have nearly all been selected from other traditional academic institutions, and very few have significant experience in the practice of engineering. Some have expressed concern that Olin appears to be placing too much emphasis on academic "pedigrees" and not enough on real success in the practice of engineering. Some have also noted that Olin has very limited contact or involvement with industry in curriculum development or enabling or requiring co-op experiences for students, in spite of widespread recognition in the profession that engineering education generally suffers from inadequate industry involvement in these areas. Still others have noted that Olin has not yet made a significant effort to deliberately and systematically develop the teaching skills of its faculty—an oversight in higher education that has long been criticized.

Another stakeholder has pointed out that the core curriculum Olin has chosen is remarkably traditional, in spite of the rare opportunity to revise the core in fundamental ways in view of the rapidly evolving career demands of engineers. These criticisms were offered by stakeholders and friends who are committed to the success of Olin College in the hope that they would be beneficial. Their motivation is to help the College avoid becoming "just another engineering school"—even a very good one.

*DRAFT***7.1 Implications for Olin College**

Olin College was founded with bold steps to provide lasting opportunity for innovation and change. These steps include the provision of full tuition scholarships for all students, the establishment of multidisciplinary clusters of faculty rather than traditional academic departments, and the avoidance of a traditional tenure system. Its Founding Precepts require an aggressive commitment to a process of bold innovation and continuous improvement. Starting from a clean slate, the College has a rare opportunity to develop policies and procedures that enable continuous improvement in all aspects of College operations, including the academic program.

Assuming the College succeeds in developing such processes, feedback from stakeholders on additional opportunities for innovation and change may be addressed frequently and improvements made periodically so that over time the curriculum and other aspects of the College continuously evolve in a direction of improvement. This presents both a major opportunity and challenge for the College community in the years ahead. Successful implementation of this principle will enable the College to continuously adapt to major shifts in future directions in engineering and in education, and avoid the need to found another new institution for this purpose.

**References**

1. Noeth, Richard J., Cruce, Ty, and Harmston, Matt T., (2003) *Maintaining a strong engineering workforce*. ACT, Iowa City, IA.
2. Bureau of Labor Statistics. (2002). *Occupational outlook handbook* (2002-2003 edition), Washington, DC.
3. National Science Board. (2000). *Science and engineering indicators – 2000*. Arlington, VA: National Science Foundation.
4. Wulf, William A. (1998). *The urgency of engineering education reform*. The Bridge, 28(1), 4-8.
5. U.S. Census Bureau. (2000). *Statistical abstract of the United States: 2000*. Washington, DC.
6. Barton, P.E. (2002). *Facing the hard facts in education reform*. Princeton, NJ: Educational Testing Service.
7. Congressional Commission on the Advancement of Women and Minorities in Science, Engineering and Technology Development. (2000). *Land of plenty: Diversity as America's competitive edge in science, engineering and technology*. Arlington, VA.
8. National Science and Technology Council. (2000). *Ensuring a strong U.S. scientific, technical, and engineering workforce in the 21<sup>st</sup> century*. Washington, DC.
9. American Society for Engineering Education. (2001). *Engineering education: By the numbers (2000 edition)*. Washington, DC.
10. Coward, H. Roberts, Ailies, Catherine P., and Bardou, Roland. (2000). *Progress of the engineering education coalitions*. Arlington, VA: SRI International (prepared for the Engineering Education and Centers Division, National Science Foundation).
11. American Society for Engineering Education (1994). *Engineering Education for a Changing World*. Washington, DC.
12. American Society for Engineering Education (2001). *Profiles of Engineering and Engineering Technology Colleges*. Washington, DC.
13. Teitelbaum, M.S. (2003). *Do we need more scientists?* The Public Interest, No 153, pp. 40-53.

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## **APPENDIX 2: STATEMENT OF FOUNDING PRECEPTS FOR FRANKLIN W. OLIN COLLEGE OF ENGINEERING**

The F. W. Olin Foundation, Inc., founded in 1938 in New York by Franklin W. Olin, established the Franklin W. Olin College of Engineering in Needham, Massachusetts in 1997. In connection with the execution of an agreement between the Foundation and the College of even date herewith, which, among other matters, provides for the Foundation to make endowment and other grants to the College, the Foundation hereby sets forth the following precepts, all of which the College accepts and agrees to adhere to and abide by in perpetuity. These precepts reflect the principles upon which the College was established as well as the Foundation's hopes for what the College will accomplish and the good that it will do.

With respect to the Foundation's reasons for establishing the College, let it be said that the Foundation does not seek to establish a generic undergraduate engineering college - one that will simply offer programs similar to many others around the country. Olin College is intended to be different - not for the mere sake of being different - but to be an important and constant contributor to the advancement of engineering education in America and throughout the world and, through its graduates, to do good for humankind.

### 1. Name of the College

The College shall, in perpetuity, be named FRANKLIN W. OLIN COLLEGE OF ENGINEERING, or in the event it shall be determined upon the written consent of two-thirds of the total number of the members of the College's Board of Trustees that such name is no longer adequately descriptive of the College's programs and courses of study, such name may be changed, provided, however, that: (1) the College's name always shall include the name "Franklin W. Olin"; and (2) no other person's name (or corporate or business name) shall appear in the name. It is also agreed that for marketing and related purposes, the name "Olin College" (or appropriate variations such as "Olin University" and "Olin School"), may be used in written material, provided that when practical there will always appear in such materials a reference to the College's full name.

### 2. Engineering the Primary Academic Program

The College's primary academic program always will be undergraduate engineering. As such, the number of its full time equivalent (herein "FTE") students working towards an undergraduate engineering degree shall always constitute no less than two-thirds of the total FTE undergraduate enrollment.

### 3. Commitment to Academic Quality and Diversity

Students shall be recruited on the basis of their academic merit, as determined by their scholastic records and appropriate test results, and other relevant achievements. However, from among the students who qualify on this basis, the College shall endeavor to develop as diverse a student community as is possible. Diversity of many kinds is desirable. Race, gender, creed, religion, ethnicity, economic background, home location, particular skills, talents and experiences, are but a few that are important for achieving a diverse and vital student community. Quality and diversity also shall be sought with respect to the College's faculty and administrative employees. Because current pedagogy makes a low student/faculty ratio an important contributing factor for achieving academic quality, the College will maintain a low student/faculty ratio



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of about ten to one unless changes in pedagogy through technological developments or other improvements in education are developed which justify departing from this standard.

#### 4. A Culture of Innovation and Constant Improvement

The National Science Foundation and other credible voices from engineering schools and industry have advocated changes in how engineers are educated. Some of the major themes of the changes advocated include interdisciplinary and integrated teaching, hands-on learning and research opportunities for students, improved communication skills, students working as members of teams (the way that engineers in industry work), exposure to other cultures or an international experience, and a better understanding of business and management practices. But for many reasons, including the very simple reason that many, but not all, faculty are resistant to change, progress has been slow and disappointing. The Foundation's decision to establish the College was based in large part on a determination that the need to reform engineering education could be accomplished more easily at a new institution that is not burdened with people and existing programs resistant to change. However, even a new institution can, with the passage of time, become resistant to change. If this were to happen at the College it would be a tragic loss of opportunity for engineering education, generally, and a terrible disappointment to the Foundation. The need for the College to be continually open to change and to encourage and support a culture of innovation is paramount. Risk taking with respect to new programs or the manner in which engineers are taught should be routine. The College acknowledges that a culture of innovation is a fundamental precept of the planning for Olin College. The College commits itself to the need to be open to change and to support a culture of innovation and constant improvement in every aspect of its operations and programs.

#### 5. A Student Centered and Philanthropic Institution

The Foundation believes that the College must care about its students - not only as scholars and engineers but also as people. Students must be encouraged and given the opportunity to grow both intellectually and socially. Student life policies must assure that no student is forgotten or ignored. A commitment to support the education of students with programs in the arts, humanities and social sciences is vital to the fulfillment and potential of their lives. The College also should nurture a student's appreciation of the role of philanthropy in America. Students should be encouraged to contribute their time and wealth to support philanthropic endeavors of their choice. The College, itself, the product of philanthropy, should find ways to contribute to its community, and beyond, with services natural for it as an educational institution. Policies must be maintained that support these outcomes.

#### 6. Full Tuition Scholarships

The College will always endeavor to operate by offering full tuition scholarships to all regular full time students enrolled in its undergraduate degree programs. The solicitation of additional endowment gifts and annual giving to support tuition and scholarship aid shall be an important goal. In order to provide full tuition scholarships to all students, the College shall adjust its undergraduate enrollment to a number that can be supported by the projected operating budget revenue. Beginning in the 2021 academic year, upon the written consent of ninety percent of the total number of the members of the College's Board of Trustees, the College may elect to reduce full tuition scholarships to an amount that will leave the portion of tuition payable by regular full time students enrolled in its undergraduate degree programs equal to an amount that

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is not in excess of the average cost of tuition for resident engineering students at the following institutions: the University of California – Berkeley, the Georgia Institute of Technology, the University of Illinois – Urbana, the University of Massachusetts – Amherst, , the University of Michigan – Ann Arbor, and the University of Texas – Austin. The decision to reduce full tuition scholarships shall be based on substantial business needs and a determination that the endowment take and other revenue cannot support the number of students needed to sustain the College's academic programs. During such period of time as the College shall only offer partial scholarships, the College may award financial aid to students based on need. After reducing full tuition scholarships, the College's Board of Trustees may thereafter, by a simple majority vote, at a meeting of the Board called for such purpose, restore full tuition scholarships. Tuition scholarships, whether they fully or only partially cover tuition, always shall be awarded to all students who are admitted to the College regardless of need. This Precept shall not prohibit the College from charging for or providing need-based aid for non-tuition charges such as room, board and student fees.

#### 7. Collaboration With Babson College

The conceptual planning for Franklin W. Olin College of Engineering made collaboration with Babson College an important element. Babson's recognized excellence in management and entrepreneurship education were considered to be potential resources for the College's own innovative programs. The College shall endeavor to always work closely with Babson College to develop programs and operating and administrative procedures for their mutual benefit. Similar collaboration with other neighboring colleges, particularly Brandeis University and Wellesley College shall be actively sought.

#### 8. Faculty Tenure

Knowledge of science and technology is not static but is continually evolving. The ability of the College to offer its students a faculty that is competent in the latest advances in knowledge and in newly emerging fields of science and technology is absolutely essential to the College's goal of offering academic programs with the highest possible quality. The College will, therefore, strive to strike an appropriate balance between the legitimate concerns of faculty for employment security and the College's need to achieve and maintain the quality it seeks. It will do this without offering traditional tenure.

#### 9. The College to Remain Independent

The College shall remain a privately supported institution committed to supporting itself from private, rather than government or public resources. However, government grants from programs subject to peer review and open to other institutions on a competitive basis may be sought. Grants from so-called earmarked funds will be rejected.

#### 10. Economic and Governmental Ideals

The College's policies and operations shall be consistent with and supportive of free enterprise and a capitalistic economy within a democratic nation.

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### ***APPENDIX 3: Vision for the Engineering Educational Experience at Olin College***

#### **Rigorous Fundamental Knowledge**

In order to achieve its mission the Franklin W. Olin College of Engineering will strive to provide all of its students with an extensive understanding of the science and technologies that form the foundation of modern life and the ability to understand, create, and manage the technologies that will shape the future. In addition, the College will strive to provide its students with a background in the humanities and social sciences to enable them to assume leadership in their fields with a clear understanding of the impact of their work on society. Furthermore, Olin College will strive to prepare all graduates with an ability to communicate with superior proficiency in English.

#### **Independent Learners**

Due to the accelerating rate of change in basic science and technology, it is no longer possible to obtain a comprehensive understanding of all the important technical issues needed to practice engineering within an undergraduate education. Even if such a comprehensive understanding could be achieved, much of it would become obsolete quickly as fundamentally new technologies are invented with regularity. Therefore, the successful practice of engineering requires a high proficiency with independent learning of new technologies throughout a lifetime. Olin College will strive to provide its students with the substantial ability to learn independently and adapt to unexpected change through a pedagogical emphasis on learning by discovery, project-based experiences, and independent research.

#### **Business and Entrepreneurship**

The effective practice of engineering requires a firm understanding of the economic factors involved in the solution of an engineering problem. These factors may include costs and accounting, capital generation, intellectual property and legal issues, marketing and client relations, personnel and management, manufacture, maintenance, and quality control. Entrepreneurial thinking and teamwork skills are frequently identified by corporate employers as fundamental to the success of new engineers. Olin College will strive to provide all of its students with a working knowledge of the processes associated with the commercialization of technology and the management of technology-based enterprise.

#### **Creativity and Design**

Engineering is a creative activity which requires a high degree of proficiency in problem solving and design. Effective design and problem solving depend on a well-developed imagination, creativity, and visual thinking. Olin College will strive to provide all of its students with educational experiences that nurture creativity and instill a deep sense of enjoyment in the process of discovery and invention.

#### **Project Management and Teaming**

Successful practice of engineering requires the ability to lead and work effectively as a member of a diverse team, an understanding of the non-technical forces that profoundly affect engineering decisions, the capacity to take a project through from beginning to end, and an ability to communicate effectively and persuasively with a diverse constituency. To address this aspiration, Olin College will strive to provide all of its students with experience in active, project-centered learning, interaction with industry, and meaningful exposure to international cultures.

*DRAFT***Personal Development, Maturity, and Depth**

Olin College intends to prepare graduates not only to practice their profession in the traditional technical capacities, but also to assert their leadership as managers of technology-based commercial ventures and government agencies, senior corporate leaders, political leaders, entrepreneurs, specialized professionals in fields such as medicine and law, and effective contributors to society in many diverse roles. In order to prepare its graduates for such broad career opportunities Olin College will strive to maximize the benefit of the residential life experience to foster all aspects of healthy personal development, including a sense of emotional and social well being, a deep sense of personal and professional ethics, an appreciation for the spiritual and reflective dimension of life, and a genuine commitment to service and giving back to society.

*DRAFT***APPENDIX 4: Strategies, Tasks, and Responsible Parties**

This plan has outlined a number of goals and strategies that Olin must pursue over the next three years if we are to make our initial successes sustainable. The next step in this process involves the creation of an **implementation committee**, who will “own” the strategic plan for the next three years. This team will ensure that appropriate steps are taken to pursue our goals, and will also revisit and revise the plan to respond to inevitable changes in the environment.

One major role for this committee will be fully defining and prioritizing the tasks associated with the strategies. As we have generated this plan, we have consistently tested strategies by asking, “What concrete steps could one take to achieve this strategy?” Below, we enumerate many concrete steps the strategic planning committee imagines *might* be associated with the various strategies. We also identify the responsible party who we believe might drive each strategy. In most instances, that party will determine who else should be involved, informed or consulted.

It is important to note that these details will change, as the implementation committee works to turn the compass directions provided by this plan into day-to-day decisions. Thus, we are providing these enumerated details not to suggest that this is the precise approach that is needed, but rather to provide the future implementation committee with a possible starting point and a proof of concept.

**The Educational Experience**

<b>Strategy and Associated Tasks</b>	<b>Responsible Party</b>
<b>Build and deliver a top quality curriculum keyed to our mission and resources.</b>	
Complete the curricular design.	Provost
Obtain accreditation.	President
Ensure rigor in the curriculum.	Provost
Strengthen interdisciplinary options (engineering + entrepreneurship, engineering + society).	Provost
Make design and independent learning explicit in graduation requirements.	Provost
Provide flexibility for personalization of academic program.	Provost
Strengthen opportunity recognition and assessment, initiative, teamwork, communication and traditional engineering skills in the curriculum.	Provost
Explore implementation of a competency-based assessment system.	Provost
Provide off-campus educational opportunities.	Provost

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<b>Strategy and Associated Tasks</b>	<b>Responsible Party</b>
<b>Understand, address impact of enrollment plateau on all aspects of learning continuum.</b>	
Investigate number and breadth of degree options.	President
Ensure degrees meet high quality standards.	Provost
Ensure sustainability of curricular approach.	Dean of Faculty
Ensure student time to participate in non-classroom activities.	Dean of Student Life
Attract and retain students with diverse backgrounds, who are excited by Olin's mission.	Dean of Admission
Monitor impact of curricular structures on male and female students.	Provost
Develop an environment responsive to needs of males and females.	Provost
Develop international experiences for students.	Provost
Support programs that address students' physical and emotional well-being.	Dean of Student Life

<b>Strategy and Associated Tasks</b>	<b>Responsible Party</b>
<b>Build and implement a process to ensure inspirational teaching.</b>	
Measure teaching effectiveness.	Dean of Faculty
Reward inspirational teaching.	Dean of Faculty
Develop "teach-to-teach" workshops.	Dean of Faculty
Develop faculty mentoring program.	Dean of Faculty
Strengthen faculty orientation program.	Dean of Faculty

<b>Strategy and Associated Tasks</b>	<b>Responsible Party</b>
<b>Strengthen our commitment to curricular innovation.</b>	
Develop ways to seek and consider external advice.	Provost
Explore curricular hatchery.	Provost
Develop "sunset clause" policies.	Dean of Faculty
Develop agile system for curriculum revision.	Provost
Align faculty rewards with risk taking and curriculum design.	Dean of Faculty

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<b><i>Strategy and Associated Tasks</i></b>	<b><i>Responsible Party</i></b>
<b>Develop options for studying modern bioengineering as the first extension of our curriculum into newly-developing areas of technology.</b>	
Obtain external advice on best approaches for addressing bioengineering at Olin.	Provost
Form key partnerships with institutions, companies, and individuals.	Provost
Hire appropriate faculty.	Dean of Faculty
Deliver courses that prepare students for graduate school or work in bioengineering.	Dean of Faculty
Develop off-campus opportunities to supplement opportunities at Olin.	Provost

<b><i>Strategy and Associated Tasks</i></b>	<b><i>Responsible Party</i></b>
<b>Create opportunities for experiential learning, including faculty-student joint academic and professional projects, industry sponsored projects, and internships at other institutions.</b>	
Pursue industry-sponsored projects in the curriculum.	Dean of Faculty
Seek internship opportunities for students.	VP External Relations
Develop policies that support and encourage community service.	Dean of Student Life
Involve students in faculty intellectual vitality.	Provost

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<b><i>Strategy and Associated Tasks</i></b>	<b><i>Responsible Party</i></b>
<b>Strengthen our relationships with Babson College, Brandeis University, and Wellesley College.</b>	
Provide value to Babson, Brandeis and Wellesley by building courses for non-engineers.	Dean of Faculty
Assess mutual benefits of Olin's relationships with Babson, Brandeis and Wellesley.	Provost
Build educational opportunities for non-engineers.	Dean of Faculty
Actively promote Olin courses at BBW schools.	Dean of Faculty
Develop joint program/degree options .	Provost
Build teaching and research collaborations between Olin faculty and BBW faculty.	Dean of Faculty

<b><i>Strategy and Associated Tasks</i></b>	<b><i>Responsible Party</i></b>
<b>Expand student involvement in college operations and decision-making.</b>	
Seek student input on all aspects of education design and development.	Dean of Faculty
Seek student involvement on college committees.	Dean of Student Life
Ensure that student voices are considered in all major college decisions.	President
Enhance student participation, and where appropriate, leadership in all aspects of college operation (teaching, admissions, IT, etc.).	President



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<b><i>Strategy and Associated Tasks</i></b>	<b><i>Responsible Party</i></b>
<b>Connect all elements of the learning continuum and address tradeoffs.</b>	
Pursue Office of Student Life involvement on the Academic Recommendation Board, or creation of a Learning Continuum Committee.	Provost
Create a schedule compatible with all aspects of the learning continuum.	Provost
Explore competency assessment that involves out of classroom activities.	Provost
Involve faculty and staff in learning continuum.	Provost
Strengthen and enhance advising families.	Dean of Student Life

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**Outstanding People**

<b><i>Strategy and Associated Tasks</i></b>	<b><i>Responsible Party</i></b>
<b>Focus on recruiting the highest quality students, faculty and staff who are inspired by the Olin mission and culture.</b>	
Enhance community engagement in student recruitment.	Dean of Admission
Engage community in faculty hiring.	Provost
Explore expansion of the virtual Olin partners program.	Dean of Admission
Develop student transfer policies.	Provost

<b><i>Strategy and Associated Tasks</i></b>	<b><i>Responsible Party</i></b>
<b>Build an environment that encourages and supports intellectual life.</b>	
Create intellectual vitality policies.	VP Innovation and Research
Explore novel approaches to teaching loads and leaves.	Dean of Faculty
Develop a course buy-out policy.	Provost
Hire faculty with research synergies.	Dean of Faculty
Develop postdoctoral/teaching fellows program.	Provost
Enhance company involvement on campus.	VP External Relations
Expand external funding opportunities.	President
Provide financial support for intellectual vitality.	VP Innovation and Research

<b><i>Strategy and Associated Tasks</i></b>	<b><i>Responsible Party</i></b>
<b>Understand and address the impact of enrollment plateau on recruitment and retention of students, staff and faculty.</b>	
Study size issues affecting students, faculty and staff.	President
Expand relationships with academic institutions.	President
Bring new people to Olin regularly.	Provost
Explore exchange opportunities for student, staff and faculty at other institutions.	Provost

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<b><i>Strategy and Associated Tasks</i></b>	<b><i>Responsible Party</i></b>
<b>Take steps to ensure a healthy and sustainable working environment.</b>	
Normalize workloads.	President
Explore faculty and staff rotation.	President
Provide opportunities for staff to collaborate on stimulating projects with colleagues.	President
Review faculty and staff benefits.	President
Consider tuition and conference reimbursement.	President
Involve faculty, staff and students in important decisions.	President
Improve respect and civility.	President
Reward innovation, creativity, achievement and teaching.	President

<b><i>Strategy and Associated Tasks</i></b>	<b><i>Responsible Party</i></b>
<b>Focus on efforts to ensure that our graduates are successful in moving to the next stage of their careers after graduation, be it high-quality employment, continued education or other aspirations.</b>	
Establish an office of internships and postgraduate planning.	VP External Relations
Develop workshops on application writing.	Dean of Faculty
Consider financial support for entrance exams and application fees.	Provost

<b><i>Strategy and Associated Tasks</i></b>	<b><i>Responsible Party</i></b>
<b>Continue to invest in the national reputation of the College among all important stakeholders.</b>	
Promote favorable media attention.	VP External Relations
Increase name recognition among prospective constituents.	VP External Relations
Enhance and support visible intellectual vitality efforts.	Provost

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**Innovation and Improvement**

<b><i>Strategy and Associated Tasks</i></b>	<b><i>Responsible Party</i></b>
<b>Establish clear and agile policies and procedures without creating unnecessary formality or bureaucracy.</b>	
Enhance cooperation across functional units.	President
Develop procedures to expedite routine matters.	President
Apply more energy to matters requiring creativity.	President
Create faculty and staff handbooks.	President
Develop effective budgetary processes.	VP Administration and Finance
Facilitate decision-making at lowest levels possible.	President
Reduce required levels of approval with appropriate review.	President
Develop flexible (cycle-independent) budgetary processes.	VP Administration and Finance

<b><i>Strategy and Associated Tasks</i></b>	<b><i>Responsible Party</i></b>
<b>Further develop our commitment to assessment and improvement in all that we do.</b>	
Conduct external reviews of educational and administrative areas.	President
Develop measures for educational outcomes.	VP Innovation and Research
Monitor organizational health, including all administrative and service areas.	VP Innovation and Research
Develop key indicators to monitor progress toward strategic goals.	President

<b><i>Strategy and Associated Tasks</i></b>	<b><i>Responsible Party</i></b>
<b>Bring diverse perspectives to the Olin community.</b>	
Pursue a diverse student, staff and faculty population.	President
Develop opportunities for instructors.	Dean of Faculty
Develop opportunities for graduate program interns.	Provost

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<b><i>Strategy and Associated Tasks</i></b>	<b><i>Responsible Party</i></b>
<b>Enhance entrepreneurial spirit and energy in the Olin community, including encouraging teamwork and collaboration.</b>	
Support group processes and decision-making.	President
Develop cross functional teams.	President
Support innovative ideas and projects.	VP Innovation and Research

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**Sustainability Imperative**

<b><i>Strategy and Associated Tasks</i></b>	<b><i>Responsible Party</i></b>
<b>Strengthen and diversity our approaches to financial stewardship.</b>	
Link planning and budgetary processes.	President
Formalize processes for funding proposals.	VP Administration and Finance / Provost
Increase transparency in the budgeting process.	VP Administration and Finance
Enhance alignment of reward system with responsible stewardship.	President
Review and enhance endowment investment strategy.	Board of Trustees
Increase the college's gift income.	VP Institutional Advancement

<b><i>Strategy and Associated Tasks</i></b>	<b><i>Responsible Party</i></b>
<b>Understand and address the impact of enrollment plateau on all aspects of the college, including the nature and level of services and facilities provided.</b>	
Review anticipated services.	President
Review Olin's organizational structure.	President

<b><i>Strategy and Associated Tasks</i></b>	<b><i>Responsible Party</i></b>
<b>Improve stewardship of human resources.</b>	
Provide community with time management training.	VP Innovation and Research
Provide training for effective meeting skills.	VP Innovation and Research