

The University of Michigan – Ann Arbor
Cost Containment Efforts
June 2012

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Executive Summary

Over the last nine years, the University of Michigan has demonstrated remarkable resilience in the face of intense financial pressures. On the revenue side, we have seen an unprecedented decline in our state appropriation. State support to U-M per student has declined by more than 50% over the past decade, adjusting for inflation. After many years of reductions in our state appropriation, including the historic reduction in FY2012 of \$47.5 million, we are appreciative that this year's state appropriation reflects a modest increase of 1.6%, but the overall loss of state support remains very large. To deal with our constrained financial circumstances, we have been aggressive in implementing a range of cost-cutting measures which, over the past decade have resulted in \$235 million in recurring reductions and reallocation, through everything from becoming more energy-efficient, to sharing the costs of health benefits with our employees, to standardizing our procurement practices, and more. We are committed to continuing these efforts and are targeting an additional \$120 million in reductions, reallocations, and new revenue streams over the next 5 years.

The cost of doing business at a university follows a higher trajectory than it does in much of the economy, as our costs are subject to increases beyond the normal forces of inflation. This is largely because teaching and research are more labor-intensive than most activities in the economy, and it is generally the case that the costs of labor rise faster than other costs. In addition, universities make substantial investments in a broad range of new technologies and facilities to conduct leading-edge research and prepare students adequately for careers in a broad spectrum of fields. These are expensive investments that are central to our mission but typically do not increase revenues or create efficiencies. At the same time, the volume of activity continues to rise, further driving up costs.

Despite the continuing challenges of the economy, the University of Michigan – Ann Arbor remains on a stable financial path largely because of our disciplined approach to financial management, which emphasizes multi-year budget planning, on-going cost containment and continual reallocation of resources toward our highest priorities. During the recent period when many of our competitors were experiencing dire fiscal constraints, we were able to make strategic investments in faculty expansion, need-based financial aid and academic programs.

These investments highlight the key principles that have guided our strategic financial choices:

- Keeping a U-M education affordable by investing heavily in student financial aid
- Maintaining the excellence of the university by recruiting and retaining top faculty
- Enhancing the student learning experience with efforts including innovative new academic programming and experiential learning

Many of our cost containment and productivity improvement efforts to date have been paying off. As just two examples, our annual increase in health care premiums have averaged around 5% over the past eight years, while the national claim trend has been double digits. And, following the launch of the Space Utilization initiative in 2007, approvals for growth in General Fund square footage over the past five years have dropped from an average annual rate of nearly 2.0% to just 0.35% per year.

In implementing cost containment steps, we have been resolute and strategic about protecting and strengthening the academic mission, adopting the following principles:

- Protect and invest in our core educational and research missions
- Remain competitive for the best faculty/staff/students
- Leverage our size and scale
- Maintain high quality essential services
- Eliminate duplicate and lower priority activities
- Shift costs from the General Fund to other funding sources, where appropriate
- Avoid short-term reductions that will raise costs or undercut quality in the long-term
- Introduce centralization and greater sharing of resources in cases where this will result in higher quality services and/or more effective use of high quality facilities
- Consider insourcing and outsourcing, when that leads to improvements in service at the same or lower costs
- Take advantage of advanced technologies to achieve efficiency of operations

These principles have directed us to pursue a broad range of strategies to achieve cost reductions and long-term efficiencies in our operational areas. For instance we have chosen to self-insure in select areas, including health benefits and risk management, so as to achieve the full financial benefit of risk-reduction programs and investment opportunities with insurance reserves. Additionally a multi-pronged approach has been taken to control energy consumption and corresponding costs through the installation of new campus systems, retrofitting existing facilities to achieve efficiencies, advanced energy purchases, and encouraging behavior changes among faculty, staff, and students. In the area of health benefits, efforts include aligning benefit offerings with the market and ensuring appropriate levels of cost sharing with employees, who now pay on average 30 percent of the health care costs.

In FY2013, we begin the third new phase of our cost containment efforts, with a five-year target of \$120 million in reductions, reallocations, and new revenue sources. This includes reductions and reallocations of more than \$30 million in the current year (FY2013). To achieve this new goal we will be required to look deeper into the academic enterprise for efficiency opportunities, but we will continue to make every effort to protect the excellence of the educational experience as we make reductions.

Although we are buoyed by our progress, we recognize that the fiscal environment remains volatile. In particular, the State of Michigan continues to have significant financial challenges and is having to make difficult choices that will significantly impact our state appropriation,

and thus the funding environment for the future remains uncertain. As we carefully position the University to meet future challenges, we will need to continue to collaborate across the University to address our budget challenges and maintain our unwavering commitment to the quality of the institution both inside and outside of the classroom. While we continue to control costs, our fundamental missions of academic excellence and affordability remain our highest priorities; on this we cannot and will not compromise. This generation of students expects their Michigan education to be the same quality and deliver the same positive impact in their lives as all those who have come before them, and our job is to deliver on that promise.

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Introduction

Over the last nine years, the University of Michigan has demonstrated remarkable resilience in the face of intense financial pressures. On the revenue side, we have seen an unprecedented decline in our state appropriation. State support to U-M per student has declined by more than 50% over the past decade, adjusting for inflation. After many years of reductions in our state appropriation, including the historic reduction in FY2012 of \$47.5 million, we are appreciative that this year's state appropriation reflects a modest increase of 1.6%, but the overall loss of state support remains very large. To deal with our constrained financial circumstances, we have been aggressive in implementing a range of cost-cutting measures which, over the past decade have resulted in \$235 million in recurring reductions and reallocation, through everything from becoming more energy-efficient, to sharing the costs of health benefits with our employees, to standardizing our procurement practices, and more. We are committed to continuing these efforts and are targeting an additional \$120 million in reductions, reallocations, and new revenue streams over the next 5 years.

The cost of doing business at a university follows a higher trajectory than it does in much of the economy, as our costs are subject to increases beyond the normal forces of inflation. This is largely because teaching and research are more labor-intensive than most activities in the economy, and it is generally the case that the costs of labor rise faster than other costs. In addition, universities make substantial investments in a broad range of new technologies and facilities to conduct leading-edge research and prepare students adequately for careers in a broad spectrum of fields. These are expensive investments that are central to our mission but typically do not increase revenues or create efficiencies. At the same time, the volume of activity continues to rise, further driving up costs.

A key to our success during this difficult period has been our ability to contain costs, reduce expenditures and reallocate expenses within the General Fund budget. The University's ability to invest strategically in our future requires us to aggressively focus on cost containment as part of our annual budget/planning process. Thus, we incorporate an assumed level of reduction and reallocation (typically 1-2% of the budget) in each year's General Fund budget proposal.

During recent times, this aggressive approach to containing costs and optimizing the use of limited revenue has been essential in order to innovate, invest in and advance the excellence of the institution. More specifically, our cost containment efforts have enabled us to:

- Keep a U-M education affordable by investing in student financial aid

The ability of admitted students to attend the University without regard to family financial circumstances remains a top objective of the University of Michigan. The longstanding policy of the Ann Arbor campus to meet the full demonstrated financial need of all of its Michigan resident undergraduate students will continue.

The FY2013 budget includes an increase of \$10.5 million in centrally awarded financial aid for a new total allocation of \$144.8 million. The majority of this increased funding (\$9.2 million) is for need-based aid for undergraduate students, a 10.1% increase in that budget, with the rest going to graduate students. In fact, improvements in operating efficiency have enabled the University to achieve double-digit percentage increases in the central undergraduate financial aid budget in seven of the last eight years, even while support from the state has been deteriorating. This year's financial aid investment is sufficient to cover the full increase in the cost of attendance (tuition and fees, housing, textbooks and incidentals) with grant aid for the typical resident undergraduate students with financial need, resulting in no increase in packaged loan burden for those students.

We continue to look for non-General Fund sources of revenue to enhance our financial aid programs. The President's Donor Challenge and the accompanying matching program raised more than \$72 million in endowment donations for need-based undergraduate financial aid with another \$60 million directed towards graduate aid, adding significant resources to this priority starting several years ago. As a result of this and other programs, the University is able to provide a significant amount of funding beyond the centrally awarded financial aid: \$87 million in merit-based undergraduate scholarships, which, when awarded to students with need, reduce dollar-for-dollar their loan amount.

- Maintain the excellence of the university by recruiting and retaining top faculty

The quality of our faculty is one of the most important factors contributing to the success of our academic enterprise and the recruitment and retention environment remains highly competitive. The University of Michigan – Ann Arbor has one of the nation's most outstanding faculties, and over the past seven years a total of 510 faculty members received offers from other institutions and chose to remain at Michigan, a retention rate of nearly 60%. In addition, the University has successfully recruited nearly 650 faculty members from other leading universities during that same seven year timeframe. The institutions we compete with most often for faculty include Harvard, UC-Berkeley, Stanford, University of Chicago, and University of Texas, to name a few.

The FY2013 budget provides the necessary resources to support a modest salary program for faculty in order to maintain our competitive position within our peer group. In addition, several years ago we began an initiative to hire 100 new faculty members in a deliberate attempt to reduce our student-faculty ratio over the next several years and to ensure our competitiveness by fostering key interdisciplinary areas of education. That investment was expanded two years ago to include an additional 50 faculty positions; enhancement of undergraduate teaching has been a key criterion used in allocating these 50 positions. These investments continue to be protected and are expanded further (\$1.3 million) to enhance our students' academic experience.

- Enhance the student learning experience

Providing Michigan students with new venues, new perspectives and new opportunities to learn and engage is the essence of our work as a university. Innovation in teaching and research are critical elements of a top university, and no university can keep up with the rapidly evolving needs of our students and society without new and innovative academic initiatives. By reallocating funds from lower priority activities, we will be able to invest in academic initiatives such as these:

- The Ross School of Business is redesigning the BBA curriculum to incorporate a scalable introductory course, action-based learning opportunities, global and multicultural experiences, and a meaningful capstone course. It is building on its world-renowned MBA program, adapting the Multidisciplinary Action Projects (MAPS) that are at its core to the undergraduate setting.
- “Changing Gears” is a new program in The College of Literature, Science, and the Arts designed specifically for students transferring from community colleges. Its overarching goals include providing access to research opportunities that can facilitate academic decisions and provide direction for these students, thereby increasing the likelihood that they will successfully complete their degrees at U-M. It does this by providing students with one-on-one mentorship from a U-M faculty member with whom they conduct a research project.
- At the College of Engineering a new active learning opportunity, Design Immersion, was piloted last year. Almost 100 new CoE students moved into residence halls early to work on challenging design projects in small teams, under the supervision of a U-M faculty member. These activities gave students the chance to jump-start their undergraduate education by experiencing engineering as a creative process. The program will expand this year to more than 200 students.
- The U-M Medical School recently initiated the Global Health and Disparities Path of Excellence, to address health and healthcare inequities in the United States and across the globe. In this program, students participate in a variety of educational activities on topics including social determinants of health disparities, tools and strategies to promote sustainable change, health care systems and policy, and professional and leadership development. The program includes both small group training under the supervision of a medical school faculty member, and clinical clerkships in which students apply their knowledge and skills in caring for vulnerable patients.

Cost Pressures at Research Universities

The cost of doing business at a university follows a higher trajectory than it does in the rest of the economy, and research universities are especially subject to cost increases beyond the normal forces of inflation. We can identify four factors contributing to cost increases that have significant impact at a top research university like the University of Michigan.

- (1) Teaching and research are more labor-intensive than most activities in the economy, and it is generally the case that the costs of labor rise faster than other prices. In addition, U-M is engaged in a fierce national competition for faculty and high-level professional staff with elite private universities who have very substantial resources that they can bring to bear on recruitment and retention. Consequently, the University's costs for salary and benefits (which make up 66% of the most recent fiscal year's expenditures) tend to consistently grow at a rate that is higher than inflation.
- (2) Universities make substantial investments in a broad range of new technology and facilities in order to conduct leading-edge research and prepare students adequately for careers in a full spectrum of fields. These are costly investments that typically do not reduce costs, increase revenues or create efficiencies – although they are essential to providing a world-class education to our students and to enabling our faculty to conduct ground-breaking research. Companies, by contrast, make technology investments that support their business and create efficiencies or enhance revenue flow. One instructive example is the recently completed Lurie Nanofabrication Facility. This cutting edge cleanroom facility cost the University nearly \$50M to construct and another \$25M to equip. It delivers a superior technical capability to our faculty and students, as well as to regional businesses, allowing them to operate at the frontier in this area. Only one or two other research universities can boast a facility that rivals this one, so it not only advances the academic work on our campus but it also helps us attract excellent faculty and students to the University and high tech businesses to our region. For those academic reasons, it is well worth the significant investment; however, the facility will not substantially add to revenue or reduce costs for the University.
- (3) The volume of activity continues to rise, further driving up costs. Since 2004, the number of students at the University of Michigan – Ann Arbor has grown by nearly 7.7%, and U-M's volume of research expenditures had been expanding rapidly (although it has flattened out recently) and was \$1.24 billion in FY2011. This growth leads to commensurate expansion of work and infrastructure needs.
- (4) Beyond the growth in levels of activity, it is important to recognize that the sum of human knowledge and creative expression grows every year. The University, unlike most private enterprises, has an obligation to preserve the past as well as to invest in the future. We must provide museums, libraries, and laboratories as well as classrooms. The costs of museums and other repositories of knowledge grow in part because their collections grow, and the cost of staying on the cutting edge is always high. For example, the University Library contains one of the nation's finest collections, a collection that serves as a crucial resource for our faculty, students and public in the State of Michigan. To maintain the value of this collection, we must retain its current content and add new knowledge and materials each year. In FY2013, we are again investing in the Library's collections budget to ensure that the collection maintains its current value and distinction.

U-M Cost Containment Principles

The practice of reducing General Fund expenditures each year (typically 1-2%) to enable innovation and to moderate tuition increases is one that we intend to continue in our future budgetary planning. However, consistently cutting and reallocating at a level higher than our rate of new investment could jeopardize the quality of the institution and requires careful monitoring. In seeking efficiencies, we have adopted the following principles:

- Protect and invest in our core educational and research missions
- Remain competitive for faculty/staff/students
- Leverage our size and scale
- Maintain high quality essential services
- Eliminate duplicate and lower priority activities
- Shift costs from the general fund to other funding sources, where appropriate
- Avoid short-term reductions with long-term cost and/or quality implications
- Introduce centralization and greater sharing of resources in cases where this will result in higher quality services and/or more effective use of high quality facilities
- Consider insourcing and outsourcing, when that leads to improvements in service at the same or lower costs
- Take advantage of advanced technologies to achieve efficiency of operations

These principles direct us to pursue a broad range of strategies to achieve cost reductions and long-term efficiencies in our operational areas. Within the academic enterprise, these principles direct us to take actions, like the elimination of duplicate activities and the better alignment of high-end facilities with campus needs, which create efficiencies while avoiding negative impacts on teaching and learning.

Cost Containment Strategies and Approach

Below is a summary of our cost containment strategy and approach, organized into three phases of effort.

Phase I: Fiscal Year 2004 through Fiscal Year 2009

We successfully reduced recurring General Fund expenditures by over \$135 million, reallocating some savings to our highest priorities. This equates to an average of about \$22 million per year for each of the six years. Much of our cost containment efforts during this period of time were focused on seven areas. Additional detail on the efforts to date in each of these seven areas is available in the Appendix.

1. Purchasing: Examples
 - Using the University's scale as a purchaser to negotiate strategic supplier contracts with favorable pricing
 - Renegotiating existing contracts with better terms
 - Choosing to self-insure in select areas so as to achieve the full financial benefit of risk-reduction programs and investment opportunities with insurance reserves

The University of Michigan is a major purchaser of a wide variety of products, and due to our scale, vendors find the University to be an attractive customer, allowing us to negotiate with preferred vendors in a number of different areas. Since 2000, the Strategic Supplier Program has grown from 18 suppliers to over 170 suppliers. Some of the benefits of these contracts include improved pricing (ranging from 2-35 percent reductions in price), free shipping, streamlined administration, and cash rebates for quick payment.

We have also reviewed organizational structures and processes – and made adjustments where necessary – in order to streamline the procurement process. Back in 2005, the Procurement area embarked upon a reorganization initiative aimed at streamlining the purchase of goods and services, reducing overall costs to the university and improving services. Among other things, this led to the closure of MStores, saving \$1.1 million (all funds) to the university and the restructuring of the Print/Copy/Mail, which led to \$255K in salary savings. In 2009, we began restructuring Accounts Payable, in 2011 the unit implemented an automated travel and expense system which has enhanced internal controls and streamlined administration of employee reimbursements. Accounts Payable has also implemented eSettlements, an electronic system to accept and process supplier invoices streamlining the payment process.

We have also chosen to self-insure in select areas, including health benefits and risk management, so as to achieve the full financial benefit of risk-reduction programs and investment opportunities with insurance reserves.

2. Energy Efficiency: Examples

- Putting in place efficient campus systems using regional planning to produce steam, electricity and chilled water
- Constructing new buildings and retrofitting existing facilities so as to achieve a high level of energy efficiency
- Encouraging positive behavioral changes to reduce energy consumption through building by building energy audits

With an ongoing demand for energy across campus, a multi-pronged approach has been taken to control energy consumption and corresponding costs. A 1% reduction in utility usage translates to more than \$1 million (all funds) in annual savings for the University. Constant efforts are made to control utility costs through the installation of new campus systems, retrofitting existing facilities to achieve efficiencies, and encouraging behavior changes among faculty, staff and students.

The University adopted LEED Silver certification in FY2010 as its standard for all major new construction projects and has developed regional chilled water systems in strategic locations across campus. The district cooling systems conserve energy and water while reducing operating and maintenance costs versus traditional, stand-alone cooling systems.

From 1997 to 2007, the Energy Star program served as a strong foundation for the next phase of our energy conservation activities. One of the primary activities that was born from the Energy Star program is Planet Blue, where teams of energy engineers are actively engaging building occupants across campus by educating them on “best practices” for environmental and energy conservation and ways to reduce consumption. The University is seeing significant savings and cost avoidance in this area due to reductions in energy usage; details can be found in the Appendix.

3. Health Benefit Strategies: Examples

- Putting programs and incentives in place to improve the overall health of our community
- Aligning our benefit offerings with the market and ensuring the appropriate level of cost sharing with the employee
- Structuring our plans to result in optimal utilization of health care, including the use of incentives
- Ensuring competitive vendor contracts and aggressively negotiating administrative fees with vendors
- Participating in federal incentive programs for employers that offer high value health coverage for retirees

The University has implemented significant cost containment/avoidance strategies over the past several years in the health benefits area, including carving out the prescription drug plan, negotiating a new Pharmacy Benefit Manager Contract, adopting new strategies for health plan co-premium sharing aligned with market trends, and increasing the use of generic prescriptions. The University’s overall health rate increase has been significantly below national trends as a result of these efforts.

At the same time, multiple strategies are being operationalized to support the improvement of health for employees and dependents, specifically through the MHealthy program.

Additional information on our health benefits cost containment strategies can be found in the Appendix and on our Benefits Stewardship website at:

<http://www.benefitsstewardship.umich.edu/>

4. Leveraging Information Technology: Examples

- Using technology to create business process efficiencies
- Creating robust business intelligence tools to enhance data driven strategic decision-making

The University is leveraging technology to contain costs, improve performance, and support strategic decision-making. Technology-enabled business processes have helped us to reduce our administrative costs and simultaneously increase our research base and student enrollment. In a later section, we will discuss increased staff productivity.

Information technology is one of the important factors that contribute to this productivity growth.

There are many different efforts to use technology to better leverage the University's academic, research, financial, physical, and human resources, including reducing the need for paper copies and manual data entry, streamlining business processes to reduce staff time in routine information handling and eliminating duplication of effort, and enabling more effective advanced information processing, with increased efficiencies and decision-making. Examples of efforts in each of these areas can be found in the Appendix.

5. Other Revenue Sources: Examples

- Utilizing gift funds and investment proceeds to relieve the General Fund
- Increasing external research support through investments in strategic areas
- Developing more effective partnerships with business and industry

The University has multiple revenue sources that reside outside the general fund including research funding from external sponsors (mostly federal), gift funds and endowment payout, and funding that comes from auxiliary activities such as patient care. It is often the case that these other funding sources can be used to support current activities or important new initiatives that would otherwise be costs to the general fund. We have worked hard to identify strategic approaches to using non-General Fund sources for our academic enterprise and enable it to thrive at the same time that we contain costs on the General Fund.

6. Greater Productivity of Staff

- Constantly reprioritizing effort, reallocating resources and improving overall productivity levels – doing more with less

There are efforts at every level of the institution to make staff more productive through use of technology, streamlining of administrative processes, re-organization of staff efforts, and conversion of staff positions to seasonal appointments reflecting the academic calendar. As just one of many examples, within the student services area, we have implemented more effective waitlist processes to be sure classes are filled to their intended enrollments.

7. More Efficient Utilization of Space and Facilities

- Adding stricter criteria and discipline to the prioritization of major capital projects
- More fully utilizing and sharing classrooms and other instructional spaces
- Campus-wide sharing of high technology and other facilities

The University continues to focus on effective space utilization as another means of containing operational costs. In February 2007, the University implemented a formal Space Utilization Initiative to plan and manage General Fund facilities on the Ann Arbor campus more effectively. The purpose of the Initiative was to contain operating

costs and to better meet the University's academic and research mission and needs. The University ended the Space Utilization Initiative in July 2011, after a foundation of space policies, systems, and business practices were implemented. The tools and philosophy of effective space utilization continue today as part of everyday operations. Focusing on effective space utilization and implementing a more structured capital projects process have been significant contributing factors (though not the only factors) to a slowdown in building growth on the Ann Arbor campus over the past few years. Following a decade of nearly 2% average annual growth in General Fund square footage, a stated goal of the Space Utilization Initiative was to contain annual building growth rate to no more than 1% going forward. Over the past five years, General Fund building growth has slowed to an average of 0.35% per year. By slowing building growth, the University has avoided approximately \$616 million in one-time capital costs and over \$24 million in estimated recurring facilities operating costs through more effective and creative utilization of existing space and a more strategic approach to campus expansion.¹

Phase II: Fiscal Year 2010 through Fiscal Year 2012

A few years ago, we announced a goal of achieving an additional \$100 million in General Fund reductions, cost avoidance, and reallocations by the end of FY2012. This equates to an average of over \$33 million per year in each of the three years, significantly more than the prior six years, but we felt this level of reduction was essential to maintaining our commitments to excellence and access for students. Through disciplined management and effort across the campus by faculty, staff and administrators at all levels of the organization, we have met this challenge and achieved this three-year goal.

With a continued primary focus on lowering operational costs, changes have involved a deeper effort in the seven areas listed above and have included further health care cost containment, energy purchasing strategies, reduced energy usage across campus, consolidation of our central IT units, facilities maintenance restructuring, travel and hosting reform, and improved procurement processes and pricing. In FY2012, we needed to move deeper in the academic enterprise for cost savings. Efforts taken this year to reduce costs and improve efficiency in the academic units included reducing travel budgets, retirement buyouts and not replacing departing staff. Several academic units offered lower enrollment courses less frequently, and some units suspended planned investments in their programs. As much as we seek to protect the academic enterprise, tough decisions had to be made. At the same time, we were careful not to jeopardize the quality of the academic experience, and made these decisions only after very careful analysis.

Examples of specific actions taken during Phase 2, along with approximate General Fund savings, include:

- Health benefits and retirement savings restructuring: ~\$10 million
- Advanced energy purchase: ~\$6 million
- Consolidation of central IT units: ~\$7 million

¹ Excludes the purchase of the North Campus Research Complex in June 2009

- Procurement initiatives: ~\$17 million
- Facilities maintenance restructuring: ~\$3 million
- Building services OS1: ~\$2 million
- Travel and hosting reform: ~\$1.5 million
- Dependent eligibility audit: ~\$0.5 million
- Planet Blue / energy efficiency: ~\$5 million
- Targeted reductions: ~\$5 million
- Additional reductions to units: ~\$50 million

Phase III: Fiscal Year 2013 through Fiscal Year 2017

We are now entering a new phase of our cost containment efforts, with a five-year target of \$120 million, including reductions and reallocations of more than \$30 million in FY2013. To achieve this new goal we will be required to continue to look into the academic enterprise for efficiency opportunities, but we will continue to make every effort to protect the excellence of the educational experience as we make reductions. Some examples include delaying equipment purchases, reducing or sharing staff effort, and lease consolidation.

On a large scale, we are implementing a major IT rationalization project across the Ann Arbor campus. Once implementation is complete, savings are expected to total \$25 million - \$30 million per year, of which 60%-70% will benefit the General Fund. These savings will come from various initiatives over multiple years. One such initiative, currently underway, is the Collaboration Project which will provide a powerful, web-based environment that will support the U-M's leadership in teaching, learning, and discovery by improving collaboration among faculty, students, and staff (and colleagues around the world) while also reducing overall operational costs. Savings will also be achieved through the elimination of non-productive, redundant services, and decreases in infrastructure expenditures. Additional IT rationalization initiatives planned for FY2013 – FY2015 include the consolidation of desktop, network, server, storage, security, and helpdesk support into a single organization. The highly integrated new service will maintain/improve service quality, improve the consistency of user support, and reduce the overall cost to the University.

An administrative service benchmarking study that was completed in late 2009 also is helping us to identify additional areas in our human resources, procurement, and financial operations that have the potential for increased efficiency and cost savings, and we are actively investigating the potential for shared services in these areas through a formal design phase that will conclude with implementation recommendations.

We have implemented a strategic sourcing program that we anticipate will result in an additional \$4 million - \$5 million in General Fund savings annually. Savings are expected to come from purchases in areas that include furniture, janitorial supplies, peripherals, office supplies, and computers. Additionally changes to our retiree health benefits program will yield another \$2 million - \$3 million.

Conclusion

Working to achieve this level of cost containment has been both difficult and disruptive, but also necessary. Consistently cutting and reallocating at a level higher than our rate of new investment will ultimately have a negative impact on the quality of the institution, but we are committed to doing everything we can to operate as efficiently as possible, with the goals of providing high levels of financial aid to our students, attracting and retaining world-class faculty on the Ann Arbor campus, and developing and offering innovative educational programs that will enable our students' long-term success.

For additional information, see the **Appendix**.

Original: June 2008

Updated: November 2008, February 2009, June 2009, October 2009, June 2010, June 2011, June 2012

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APPENDIX

Accomplishments FY2004 - Present

In this section, we highlight some of the more effective cost reduction and containment measures, organized into seven themes. Some figures may be All Funds.

1. Purchasing Strategies

The University of Michigan is a major purchaser of a wide variety of products from scientific equipment, to software licenses, to telephone services, to credit card services. Due to our scale, vendors find the university to be a very attractive customer, which allows us to negotiate favorable rates with preferred vendors in a number of different areas. We also have reviewed our organizational structure and processes—and made adjustments where necessary—in order to streamline the procurement process.

Beginning in March of 2005, Procurement Services embarked upon a Reorganization Initiative aimed at streamlining the procurement of goods and services, reducing overall costs to the university and improving quality of service provided.

- The first and most significant in the series of initiatives was the closure of MStores, our large inventory and distribution operation. Annual sales through MStores were approximately \$70 million. Commodities that were stored here included food, paper and computer supplies. In addition to storage, MStores “redelivered” office supplies from OfficeMax, which were cross-docked at this facility. All of these products are now delivered directly to the end user by the vendor, at no additional cost to the university. In fact, this closure resulted in a \$1.1 million overall savings to the university, a little less than half is attributable to the General Fund. This savings is calculated through the elimination of inventory carrying costs, reduction in product costs, and salary savings of 72 employees – of whom 97 percent were placed in open positions throughout the university, primarily on non-general fund sources.
- The second significant initiative was the restructuring of the Print/Copy/Mail operation. This reorganization eliminated five management-level FTEs. This enabled the Print shop to reduce offset print prices by 20 percent, and allowed it to be more competitive with local companies that compete for university business. In addition, the Copy Centers were able to reduce their cost per copy prices to compete with outside suppliers. This unit has made numerous process improvements, which include a redesigned website, efficient and consistent order estimation, and detailed customer surveys. These customer survey results actually brought Print/Copy/Mail a National Award from the National Association of Print Leadership for its outstanding customer service scores. For the first time in three years, this unit covered its operating costs

without “dipping into its reserve funds,” a huge accomplishment in this competitive environment. This restructuring resulted in \$255K annual savings in salary costs.

- In FY 2009, Procurement Services offered a Retirement Opportunity Program to all non-union staff who met the university criteria for retirement. Nineteen of the eligible staff accepted offers, which allowed Procurement Services reorganize its staffing structure. With the technology enhancements in the Accounts Payable Department, these changes accounted for General Fund savings of more than \$130,000.
- In 2008, the university’s P-Card provider, GE Capital was purchased by American Express and the card was discontinued. Procurement Services did a rapid and thorough negotiation with another vendor, JP Morgan Chase. When JP Morgan Chase was selected as the new P-Card vendor, the university received a \$1 million signing bonus and an annual rebate using a higher percentage than with our old vendor.
- Procurement Services continues to process payments to individuals using the “People Pay” process. This process has enhanced regulatory compliance and strengthened controls.

A continuing initiative in Procurement Services is the growth of the Strategic Supplier Program and university-wide Contracts. Procurement seeks consistency of pricing and service for all university units when contracting with suppliers and implements streamlined ordering and payment methods to gain greater visibility into our spend. This visibility enhances our leverage on a go-forward basis for future contracts and provides improved predictability about future costs.

Since 2000, the Strategic Supplier Program has grown from 18 suppliers to over 170 suppliers. In the past three years alone we have added or "re-bid" almost 100 of these contracts. Total spend with these tightly controlled and electronically enabled contracts totaled \$186 million in FY 2009. Some of the benefits of these contracts include: improved pricing, ranging from 2 - 35 percent reductions in price; streamlined procurement administration; and cash rebates for quick payment (2 percent net 10) totaling more than \$3.5 million annually, which are used to fund the strategic procurement operation, centrally operated system costs, and an ever increasing portion of Procurement Services. All of these strategic contracts include streamlined ordering and invoicing processes and many orders are processed via an on-line procurement catalog.

Some highlights of this program include:

- A newly-negotiated contract with OfficeMax where we receive delivery of orders four days a week with lower delivery charges. This cost avoidance is estimated at \$150,000 annually.
- The Computer Peripherals contracts were awarded to two suppliers. The first, CDW-G, a large business, which in the previous year had nearly \$1M spend annually via our P-Card program. Procurement Services specifically targeted this commodity to move this large spend away from the P-Card into our online catalog environment in order to gain

greater procurement detail and reduce transaction costs. A significant impact of this targeting was the product cost savings of 24 percent, or \$480,000 annually. This process change not only moved the \$1 million annual spend from P-Cards and eliminated over 1,500 PO invoices, but CDW-G's volume is now \$3 million annually and the university only processes 12 invoices per year. Sixty percent of these orders occur via U-M's online catalog.

- The second vendor that was awarded a Computer Peripherals contract was JEM, a certified Woman-owned Business Enterprise. This contract resulted in product cost savings of over \$130,000 annually. In the first year, JEM's annual sales to the University grew from \$150,000 to over \$2 million. The competitive pricing on these contracts and the ease of use have attracted campus use away from "one off purchases" to unified contract use.
- The Food contracts were negotiated after the closure of MStores and helped move the university to a direct-to-customer delivery model. Procurement Services worked very closely with Housing to negotiate a contract that ultimately resulted in \$526K in annual savings; this movement to one prime contract from over 42 individual contracts also reduced the number of invoices to process by 3,723 invoices per year. FY 2007 spend was over \$6 million and provided \$300,000 in savings opportunities with the purchase of like product. The distributor also sparked product standardization initiatives to increase "manufacturer allowances", which resulted in an additional \$160,000 savings. The contract was also amended for additional product lines, which garnered another \$66,000 in savings by locking in pricing for 21 "top use" items for one year – which previously had weekly pricing changes.
- In the realm of Material, Repairs and Operating Supplies, Procurement negotiated free freight savings for delivery of items, resulting in \$30K in annual savings. The closure of MStores eliminated university inventory of 2000 lines from 27 suppliers and consolidated them into a single vendor, which maintains on-site consignment inventory (vendor owned until issued). This vendor provides inventory management software that university employees utilize to issue supplies for work orders.
- The university's options for Offset Print choices were greatly expanded in FY 2009. We now have 10 vendors under price-controlled contracts. Additionally, we have added service enhancements with mailing options for units as well.
- In mid FY 2009, Procurement Services and Facilities and Operations created a program called U Manage, which allowed departments to get competitive bids from approved suppliers from small maintenance and design projects. The departments get lower prices and a quicker turn around on their projects. So far, \$1.5 million has been spent through this program.

We also continue to improve our purchasing practices in the IT area, under the leadership of Information and Technology Services (ITS):

- Bulk Purchase of Telecom Cable: ITS negotiated a bulk purchase of cabling for a one-time reduced rate as part of an effort to increase the number of strategic procurement partners. The cables are used to connect computers, WiFi access point devices and desktop telephones to telecom closets. U-M realized an initial savings of \$75,000 and a 27 percent reduction in costs for ongoing purchases of cables by departments.

In FY2012, the same strategy was deployed, netting the University an additional ongoing savings of over \$33,000 or a 16% reduction of industry rates within the Midwest and throughout the US. With recent demand for this type of cabling and the rate of savings built into the price, the FY2013 price increase is expected to be about \$0.01 per selected items.

- IT Equipment Replacement: ITS changed its hardware procurement strategy to migrate away from purchasing high-end servers to commodity servers as a new standard in its equipment replacement cycles. As a result, equipment purchases in FY 2010 that would have cost \$3.9 million only cost \$2.4 million. This results in annual savings of approximately \$300,000 because the set-aside required for future equipment purchases is reduced.
- Retention of Existing U-M Voice Services: In order to validate that the university voice services area was providing high quality services at the lowest possible cost, the university engaged WTC Consulting, Inc. to conduct a voice services review of the operations and services provided by ITS. Its analysis concluded that the University should not pursue outsourcing at this time because it would not result in significant cost savings. Also, the report stated that ITS's existing processes and procedures were effective, and no significant new improvements or efficiencies were recommended.

Also of note is Procurement Services' collaboration with the Michigan Life Science Purchasing Consortium. Procurement Services partners with Michigan State University, Wayne State University, Western Michigan University and the Van Andel Institute to negotiate contracts largely with laboratory supply vendors. In FY 2009, U-M's spend resulted in a savings annually from list prices of more than \$1 million. U-M belongs to several other consortiums, which enable the university to take advantage of contract pricing. These consortiums include Mi DEAL, CICPC, E&I, Novation, and US Communities.

As preferred vendor contracts expire, we will continue to negotiate more favorable purchasing terms. Areas that are under consideration include electronics, equipment maintenance management, Materials, Repairs and Operating hardware, web design, general consulting and graphic design. To make the buying process easier and more efficient, Procurement Service continues to move contracts to M-marketsite, especially Materials, Repairs and Operating supplies and labor contracts. Procurement Services negotiated new contracts in 2010 and achieved university-wide savings. A new agreement with UPS, for example, offers new pricing that is at least 10 percent lower than the prior year. The new pricing went into effect in

spring 2010 and annual savings are estimated to be greater than \$200,000. In another key area, our primary food vendor, Sysco, joined a consortium in mid FY2011, resulting in additional rebates for units purchasing certain food commodities. This year alone, these rebates will be greater than \$70,000.

A contract with Konica Minolta, our document management company, offered significant savings to university departments. The re-negotiated terms of this agreement resulted in immediate cost reductions for all devices currently placed with the university and reduced costs for new devices. The Konica Minolta contract resulted in immediate annual cost reductions of nearly \$400,000 and further cost avoidance was created from more efficient equipment and better utilization of this equipment. The amended agreement establishes security standards for hard drives and security settings for the multi-function devices. Beyond that, it requires Konica Minolta to support the university's sustainability initiatives by recycling used toner bottles, printer cartridges, and other devices. Other new contracts also support the university's green commitment. In 2010, for example, the university standardized the purchase of remanufactured toner cartridges through strategic suppliers. This effort, in addition to contributing to U-M's ongoing sustainability efforts, supports Michigan-based companies and saves the university over \$1 million annually.

In 2009, Procurement Services began restructuring Accounts Payable, and in 2011 implemented two new technology solutions. The first of these was eSettlements, an electronic system to accept and process supplier invoices streamlining the payment process. The second solution implemented in 2011 was Concur, an automated travel and expense system that strengthens internal controls, legal compliance and also streamlines travel and expense reporting and reduces the length of time that employees wait for reimbursements. The data collected from using the tool will allow the university to negotiate travel discounts and Concur also allows units to have more current financial information, since expenses hit the Statement of Activity report immediately after final approval instead of at the end of the P-Card cycle.

Procurement Services is investigating the use of P-Cards as payment vehicles, which would result in additional rebates that offset departmental costs. This avenue would only be used for non-strategic vendors that are unable to process electronic invoices for prompt payment terms.

Managed Print Services (MPS) is a new free service being piloted by Procurement Services and a U-M strategic supplier. Recent studies indicate that university units can help the environment, increase efficiency, and enjoy cost savings of up to 30 percent of their printing and copying costs through simple improvements in their document management process. The MPS program has worked with several units across campus to analyze their print, copy, fax, and scanning equipment to ensure that the equipment is optimized for cost and service. At the conclusion of the pilot in mid-2011, the program will be available to all university units.

In 2010-2011, all of the academic units and many auxiliary units received a Spend Analysis presentation by Procurement Services. Under this program, Procurement Services partners with units to promote "smarter buying" by analyzing spend patterns and encouraging greater

use of strategic contracts. Units also learn where they can make staff more efficient by using streamlined procurement methods. Resulting savings from this program are estimated to near \$1 million annually.

Procurement Services launched the first stage of a strategic sourcing initiative in 2011. This methodology is a systematic and fact-based approach for optimizing the university's supply base and getting the best product or service at the best value. It incorporates customer needs, university goals, and market conditions to address categories of purchases. This initial stage include computers, IT hardware maintenance, janitorial supplies, furniture, computer peripherals, medical and surgical supplies, and servers. Estimated savings are greater than \$7 million annually.

The university has also chosen to self-insure in select areas to achieve the full financial benefit of risk-reduction programs and investment opportunities with insurance reserves.

- The university's decision to self-insure for risks and losses has provided significant financial stability and economic benefits over time. The discipline and strength of the Veritas Captive Insurance Corporation, the vehicle for our self-insurance program, has allowed the university to:
 - 1) Avoid costs normally associated with commercial insurance profit margin and overhead,
 - 2) Keep the premium savings from our better-than-average loss experience over time,
 - 3) Generate and keep the benefits of exceptional investment returns over time,
 - 4) Smooth out the impact of variable business investment and insurance market cycles, and
 - 5) Command lower prices for and greater opportunities to acquire catastrophic loss insurance coverage (coverage in excess of our self-insurance levels) in the commercial market.

Since 2003, the General Fund premium credits have totaled nearly \$13.2 million and the general fund dividends totaled nearly \$18.2 million.

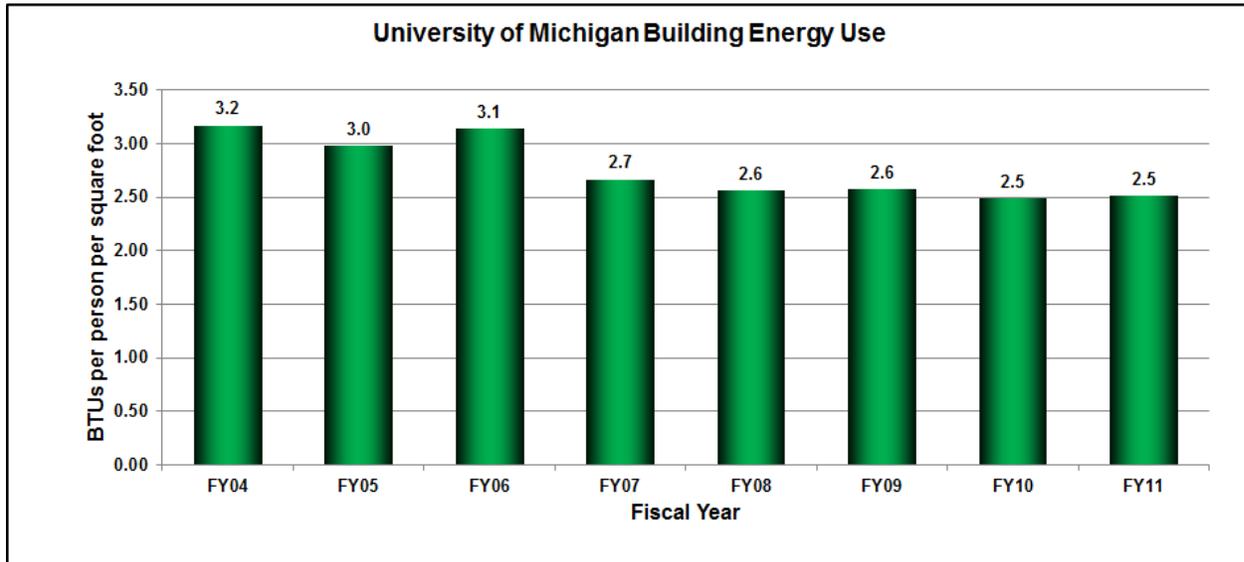
- Our decision to self-insure for medical benefits resulted in greater control over plan design, more transparency and access to claims and utilization data. This information can be used to impact claims and costs by providing information on our population and its risks in order to design the best plans and programs for our faculty and staff. Furthermore, moving away from a fully insured environment eliminates built in profit margins and premium taxes from our rates.

2. Energy Efficiency

With an ongoing demand for energy across campus, a multi-pronged approach has been taken to control energy consumption and corresponding costs. A 1% reduction in utility usage translates to more than \$1M in annual savings for the University.

Constant efforts are made to control utility costs through the installation of new campus systems, retrofitting existing facilities to achieve efficiencies, and encouraging behavior changes among faculty, staff and students. The figure below illustrates energy use when normalized against the building area and population on campus.

FIGURE 1: UM Building Energy Use (FY04-FY11)



When normalized for population and building area increases, building energy use remained stable at 2.5 BTU/person/ft² in FY 2011. When compared to FY 2004 BTU/person/ft² levels, energy use has decreased 21%.

Energy Efficient Buildings

The University adopted LEED Silver certification in FY2010 as its standard for all major new construction projects. LEED, which stands for Leadership in Energy and Environmental Design, is a standard created by the U.S. Green Building Council. LEED offers four Categories -- certified, silver, gold, and platinum – with each based on a specific point system.

The new policy builds upon an existing U-M commitment to the ASHRAE 90.1-2007+30 standard it adopted in 2009, which exceeds by 30 percent a widely recognized energy efficiency standard and is 10% more efficient than the current State of Michigan code. This new policy gives the university one of the most rigorous construction standards among higher education institutions in the nation.

Consciously employing design standards when constructing new buildings leads to energy efficient results, and measures include additional insulation in foundation and exterior walls and roof assemblies, energy efficient windows and glazing, use of occupancy sensors and controls for lighting and HVAC systems and heat recovery, as well as others. U-M buildings that are already LEED certified include the Dana Building and Law School academic building

(Gold LEED) and the Stephen M. Ross School of Business, Mott Children's Hospital, and Van Voigtlander Women's Hospital (Silver LEED.). The Institute of Social Research addition and the Phoenix Memorial Laboratory renovation are also planned for LEED certification.

Regional Chiller Plant Strategy

The University has developed regional chilled water systems in strategic locations across campus. The district cooling systems conserve energy and water while reducing operating and maintenance costs versus traditional, stand-alone cooling systems. Examples of savings include:

- **Hatcher Chiller Plant:** Completed in May 2006, the HCP serves the Alumni Memorial Art Museum, Clements Library, Hatcher North and South, President's Residence, Shapiro Library and Tappan Hall. Based on FY 2011 utility rates, a total utility cost avoidance of \$1.1M annually is being achieved with an aggregate reduction in water and sewer usage of nearly 4.6M gallons per year.
- **East University Chiller Plant:** A new electric-centrifugal chiller was installed in June 2009 to increase cooling capacity and improve operational reliability. Annual net cost avoidance is expected to range from \$1M to \$2M per year, depending on rates, run hours and weather.
- **Modern Language Building (MLB) Chiller Plant:** Recently expanded to serve Burton Tower, Hill Auditorium, the Modern Language Building, Thayer and the North Quad complex, these buildings are seeing an \$88,000 annual cost reduction for electricity based on FY 2011 rates and a reduction in water and sewer usage.
- **North Campus Chiller Plant:** Built in 2005, an expansion was begun in FY 2011 to increase the plant's cooling capacity and gross service area on North Campus. The expansion also allows for aging chillers and cooling towers in the Moore Building, Space Research Lab, Naval Architecture & Marine Engineering Building and Electrical Engineering Computer Science building to be retired. The larger plant will yield an estimated \$300,000 in electrical cost savings per year based on FY 2011 rates.

Information Technology Energy Conservation

- **Virtualization as a Service (VaaS):** Information and Technology Services (ITS) has offered server virtualization to campus units since 2009. Units can purchase a virtual server to replace existing physical servers that have been previously maintained on-site. As of September 1, 2009, 144 virtual servers were brought online, allowing 144 physical servers to be turned off or removed from service, saving energy on a number of fronts. Relocating servers from an inefficient server room to an efficient data center reduces power consumption even before the impact of virtualization is taken into consideration. The annualized cost for power required to run and cool a virtualized server is \$127 annually; the same cost for an average physical server is \$800. At the current adoption rate, U-M is achieving a cumulative savings of more than \$90,000/year in energy costs. Adoption of virtualized servers has continued to increase in FY10. In addition to these energy efficiencies and savings, virtual servers cost far less to purchase than physical servers and free up time and resources of unit IT staff.

- Enterprise E-mail Server Consolidation: By using virtual server technology, Information and Technology Services (ITS) was able to move the U-M webmail service (allows for secure web-based access to your U-M e-mail from any computer with Internet access) onto the same servers used by the regular campus e-mail service. This consolidation will result in an estimated cost avoidance of \$150,000/year in capital costs and data center power and cooling.
- Computer Power and Patch Management (CPPM): CPPM is a suite of tools that manage desktop and server computers. Power management provides a way to push power management (energy saving) settings to computers and to monitor their overall power usage. Patch management allows the push of prepackaged updates to computers, which reduces staff time previously required for this maintenance. As of early 2010, 40 departments have installed CPPM on approximately 15,000 computers. In addition to the increase in staff productivity, estimated energy savings are over \$180,000 annually.
- Campus Computing Sites: Campus Computing Sites (29 general use sites across campus) implemented its own comprehensive power management solutions, including: monitors sleep after 20 minutes of no activity; hard-drives spin-down after 30 minutes; systems sleep after one hour; and server infrastructure was improved with more efficient and faster machines. Annual savings are computed to be at least 519,015 kilowatt-hours/year, or about 48.7 average American homes completely powered down for a year, or annual savings of \$45,154.
- Modular Data Centers: Construction of U-M's first modular data center (MDC) began fall 2011 and is expected to be completed in the summer of 2012. The MDC uses ambient air for cooling approximately 75% of the year, thus significantly reducing the amount of power needed for cooling and contributing to U-M's sustainability efforts. It is manufactured and can be expanded and/or replaced with relative ease. The entire container can be removed, upgraded, and returned or replaced with new technology. U-M is the first higher education institution to acquire and install this technology. In comparison to a traditional brick and mortar data center like the Michigan Academic Computing Center (MACC), the MDC could potentially save \$50,000 per month in energy costs - \$600,000 over an entire year.

Energy Conservation

From 1997 to 2007, the Energy Star program served as a strong foundation for the next phase of our energy conservation activities. One of the primary activities that was born from the Energy Star program is Planet Blue, where teams of energy engineers are actively engaging building occupants across campus by educating them on “best practices” for environmental and energy conservation and ways to reduce consumption. In addition, we are implementing Energy Conservation Measures (ECMs) specific to individual buildings across campus. Some examples of ECMs include installation of occupancy sensors to reduce electricity usage, revised fan schedules which tie heating and cooling cycles with seasonal weather changes, and low-flow faucets to reduce water consumption.

Planet Blue Success

The Planet Blue building program began in 2007 with five pilot buildings -- Chemistry, Fleming, Institute for Social Research, Rackham and Space Research. After one year of ECM implementations and building occupant behavior changes, an aggregate reduction in energy usage of 6% and \$340,000 worth of annual cost avoidance was achieved. Both figures improved the following year, and the five pilot buildings now are using 20% less energy with a total annual cost avoidance of around \$1.2 million.

For FY10, the Planet Blue teams engaged with 33 buildings on campus and delivered a total energy reduction of 14% with an annual cost avoidance of nearly \$5.2M. Because of the unique complexities within each campus building, a variety of ECMs and educational actions are required to achieve the best results possible. Some examples of the Planet Blue projects include:

- School of Social Work: Installation of motion sensing power strips, lighting, HVAC and air handling unit upgrades, and replacement of steam traps combined to reduce building energy consumption by nearly 32% with an annual utility cost avoidance of \$207,000.
- Duderstadt Center: A rescheduling of when the escalators operated and pilot atrium lighting project resulted in an energy reduction of 16% and a total annual utility cost avoidance of \$165,000. Motion sensing power strips and task lamps also were installed, along with a restroom water conservation effort.
- Power Center for the Performing Arts: An upgrade to the air handling unit and replacement of steam traps were key projects that resulted in an overall energy savings of 21% and a total annual cost avoidance of \$63,000. Lighting upgrades and water conservation programs also were undertaken, and additional projects that are in progress are expected to improve the efficiency of the building even further.

For FY11, the Planet Blue teams engaged with 29 more buildings on campus and delivered a total energy reduction of 8.3% with an annual cost avoidance of nearly \$3.8M. Some examples of recent Planet Blue projects include:

- Lorch Hall: installation of exterior door seals, lighting improvements, steam trap replacements and the use of a temporary electric chiller combined to reduce energy consumption by 67% with an annual utility cost avoidance of \$243,000.
- Tappan Hall: A chiller interconnection coupled with steam trap replacements and room side re-commissioning resulted in a 58% reduction in building energy usage and an annual utility cost avoidance of \$119,000.
- Alumni Center: Replacement of radiator valves, revised fan scheduling and the installation of motion sensing power strips contributed to a 16% reduction in building energy usage and a \$12,000 annual utility cost avoidance.

Planet Blue teams implemented programs in more than 90 buildings across campus through FY11, and will complete assessments and projects in all remaining general fund buildings by the summer of 2012. The expectation based on results from building programs implemented through FY10 is that energy savings and annual cost avoidance will continue to be achieved.

In addition, the College of LS&A has taken significant steps to conserve energy. The College operates 23 buildings on the central campus with approximately 1.8 million square feet of space. As a result, utilities are the College’s largest expense after salaries and benefits. Key Performance Indicators (KPI) have been developed for energy and space usage that display trends in utility usage by building to guide LSA units in improving the management of these resources. The College created and filled an Energy Manager position with responsibility for developing, implementing, monitoring and evaluating programs to reduce utilities consumption throughout the College.

Due to the nature of its activities and the building’s age, the Chemistry Building makes up a significant portion of energy costs for the College of LS&A (25% in FY08). In order to reduce costs, the unit installed sash-stops to limit sash travel to 14” and reduce hood consumption of conditioned air and converted three water cooled chillers to run on building chilled water loop instead of city water. The results can be seen in the charts below:

FIGURE 2: Chemistry Building Steam Consumption

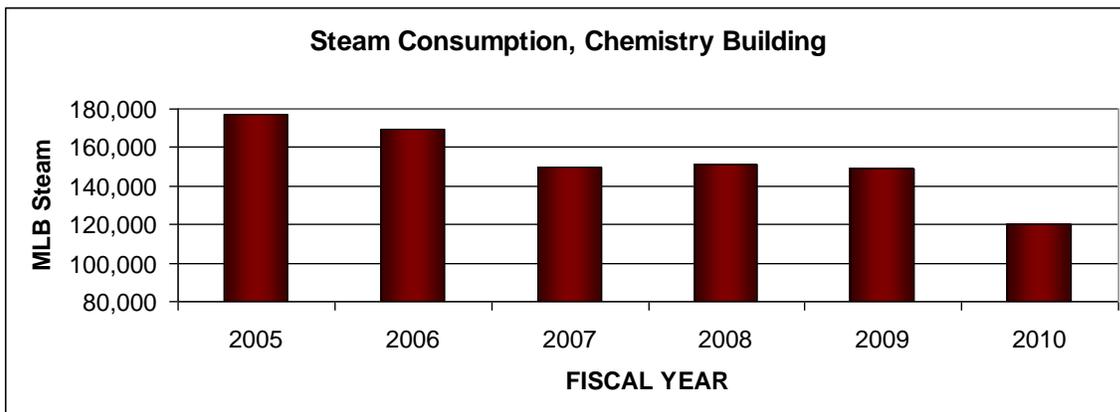
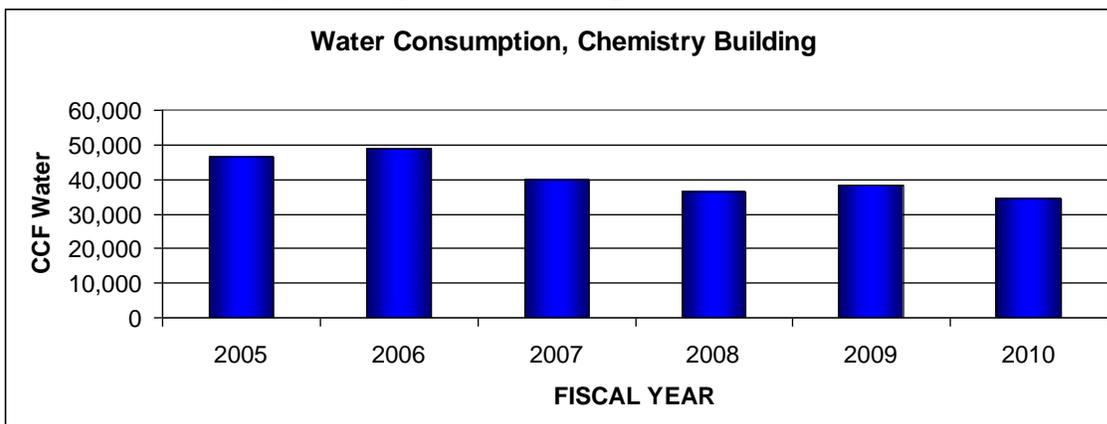


FIGURE 3: Chemistry Building Water Consumption



3. Health Benefits Strategies

The University remains committed to its benefit strategies and principles of:

- Providing quality programs at affordable cost
- Offering market-competitive programs to recruit and retain faculty and staff
- Being a responsible fiscal agent and resource steward
- Providing plan choice
- Enabling informed decision-making
- Leveraging internal and external expertise in the development of innovative benefit design and programs to promote a culture of health

In support of these strategies and principles, the University has implemented significant cost-containment strategies over the past several years. From 2003 through the end of 2012, the University's cumulative savings from benefit initiatives totaled more than \$400 million (all Funds). The University accomplished this by:

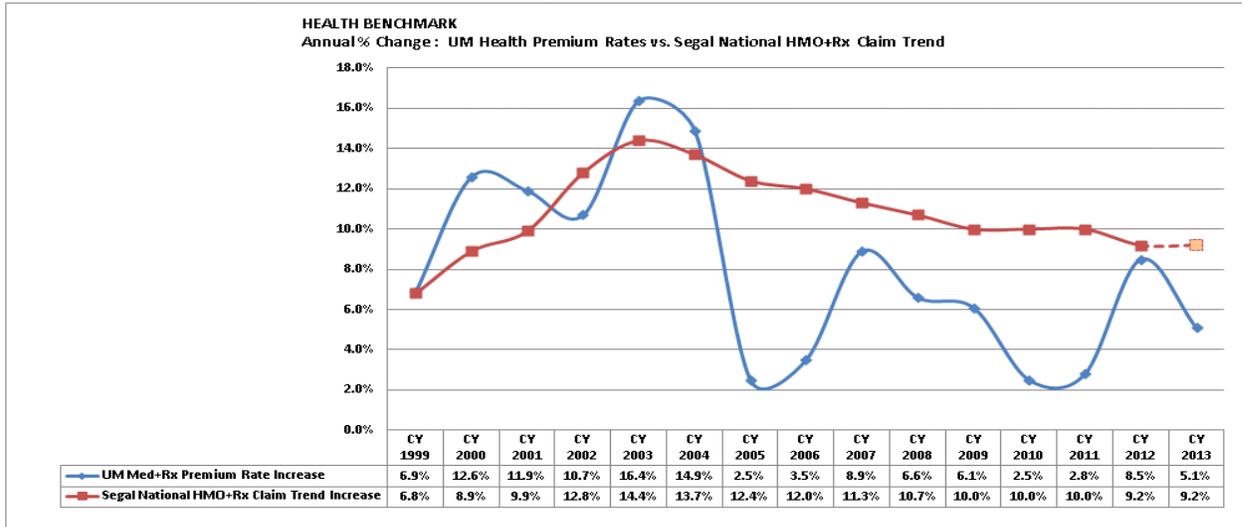
- Changes to health care cost sharing, which account for more than \$277 million in savings (U-M covers more than 92,000 people on its health plans, including employees, retirees and their families). The University's aggregate cost sharing target is 70% University paid/ 30% paid by faculty, staff, and retirees. To achieve these savings, employees and retirees will pay a greater share of health cost through increased premiums and co-pays;
- Carving out the prescription drug plan from medical plan vendors, with internal expert oversight and monitoring of the dynamic pharmacology market and trends. This has enhanced our ability to rapidly develop and deploy programs to effectively manage costs and ensure medication safety and efficacy;
- Increasing the use of generic prescriptions from 46% in 2003 to 81% by the end of 2011. In calendar year 2011, the University saved approximately \$2.0 million by increasing the use of generic medications. The University and employees will have saved approximately \$23 million cumulatively, from 2001 through 2012 as a result of increased use of generic prescriptions.
- Developing and implementing the Medicare Part D employer subsidy, currently returns to the University \$3.9 million in prescription drug expense annually. From inception in CY 2006, the University will have received more than \$25 million in reimbursements from the Retiree Drug Subsidy program for the seven year period through CY 2012;
- Negotiating a new Pharmacy Benefit Manager Contract with SXC Health Solutions for prescription drug claims, resulting in a \$4.3 million pricing reduction based on a change in the overall drug discount from the average wholesale price rate;

- Savings of \$1.8 million to the Prescription Drug Plan for 2010 and additional revenue of \$1.8 million to the UMHHC Department of Pharmacy (DOP), from the mutual cost/benefit sharing arrangement capitalizing on the University hospital's qualification for lower pricing under the federal guidelines for public health service (also known as 340B). The arrangement centered on high-cost and low volume specialty medications under the drug plan.
- An expansion of available 340B and own use pricing discounts within the prescription drug plan was implemented in 2011 and is expected to result in additional drug plan savings of approximately \$4 million annually when fully phased in for 2012; it is also expected to generate \$4 million annually in revenue for the UMHHS Department of Pharmacy.
- The addition of a one-year waiting period before new employees receive a university contribution toward retirement savings accounts, reduces our costs by \$13 million annually;
- Development of the infrastructure to effectively manage the self-insured medical plans that are administered by BCN, resulting from the sale of M-Care. Hewitt actuaries estimated annual savings of \$15 million as a result of self-insuring these plans;
- Conducting a dependent benefit eligibility audit has resulted in the documented removal of more than 900 ineligible dependents from September 2009 through July 2010. The University's net health plan savings were approximately \$ 1 million for the first year.
- Implementing a contract with a new life insurance vendor, which produced annual premium savings of \$100,000 and released the University's substantial life insurance reserve for other high-priority needs;
- Ongoing efforts by the Benefits Administration Office and Procurement to assure favorable benefit vendor contracting terms for competitive pricing and quality service delivery resulted in significant savings beginning in 2011 for the life insurance and vision plans. For life insurance, an 18% overall premium rate reduction with current vendor, reduced the University's annual life insurance contribution by \$400,000 (23%) and employee life insurance contributions by \$1.5 million (17%) annually. For vision insurance, a 19% premium rate reduction with the current vendor reduced employee contributions by approximately \$600,000 annually;

Segal's health plan cost trend surveys indicate that health benefit trend rates nationally stabilized in 2010 and 2011, after six years of consecutively lower trend rate increases. Projected health trends are expected to continue in the 6-10% range for the next few years.

The University's overall health rate increase for calendar year 2013 is estimated to be 5.1%. Our lower than national trend rates are indicative of the success of the University's strategies. See Figure 4 below.

FIGURE 4: UM Health Rate Increases vs. National Trend



Wellness & Health Improvement:

Multiple strategies are being operationalized to support the improvement of health for employees and dependents through the MHealthy program. Since U-M is self-insured, better employee health will lead directly to reductions in health benefits expenditures as well as indirect savings in absenteeism, productivity and replacement costs. During the past year, additional evidence has been reported in the scientific and corporate benefits literature that workplace wellness programs can contribute to health outcomes, productivity and cost savings.² Despite the challenging economic times, employers across the country are recognizing that an investment in disease prevention and wellness programs may contribute to containing health related costs and can offer other benefits to an organization as well (increased vitality, employee satisfaction, retention, etc.).

Examples of strategies that are underway at the UM that we believe will assist in health improvement and cost containment include:

- Informing leadership of the importance of their role in promoting the health and well-being of our UM community.** This year, we distributed the inaugural issue of the MHealthy Leadership Briefing to all university deans, directors and department heads from President. These leadership briefings will be distributed several times each year to convey evidence on the potential impact health and well-being programs can have on health care costs, absenteeism and productivity as well as share key data on progress.

² Baicker K, Cutler D, Song Z. Workplace wellness programs can generate savings. *Health Affairs*. 2010; 29(2):304-311

- **Wellness and Risk Reduction Programs** in the areas of physical activity, nutrition, weight management, tobacco, and alcohol management have all realized significantly higher participation than ever before. The 12-week Active U fitness challenge reached over 12,000 participants.
- The **MHealthy Rewards Program** reached over 20,500 employees with their participation in the 2011 health risk assessment (over 75% of the benefits eligible population participated at least once between 2009 and 2011). The health risk assessment gives employees the opportunity to learn more about their potential health risks and receive information about helpful programs and resources.
- **Occupational Health Services (OHS)** implemented a new “mandatory” **flu shot policy** in the Health System and provided more than 19,000 flu vaccinations to Health System employees. In partnership with UMHS’ Michigan Visiting Care service, MHealthy expanded its flu shot clinic program for campus employees, offering more than 42 clinics between October and December and administering vaccinations to more than 2,600 campus employees. These efforts can prevent the flu in employees and patients and positively impact the absenteeism and productivity of employees.
- **A Smoke Free Campus** proposal was developed for the entire University under the leadership of Bob Winfield, Chief Health Officer, and Ken Warner, Dean of the School of Public Health. The proposal was approved and the Smoke Free Campus plan will be implemented as of July 1, 2011. This plan aims to create an environment that is healthy for all members of our community.
- The **MHealthy Tobacco Independence Program (MTIP)** was launched for faculty, staff, students and benefits-eligible spouses and OQAs, providing free tobacco treatment counseling, \$5 co-pay per month for generic over-the-counter (OTC) tobacco treatment products, and a \$100 before-tax incentive for program completion. This program aims to reduce the university burden of health care costs attributed to tobacco use.
- The **Faculty and Staff Assistance Program (FASAP)** and **UMHS Employee Assistance Program (EAP)** together provided service to 14,336 faculty and staff via one-on-one consultations, numerous group and educational interventions, and critical incident debriefings. **Understanding U**, our mental and emotional health resources website had more than 42,000 hits and more than 1,600 online screenings completed. The **Stress Management Task Force** completed its work on one of the most prevalent risk factors among our employees and presented recommendations to the MHAC in January, 2011. An implementation plan is in process to begin in fall 2011. Each of these tactics to positively impact the mental and emotional health of our employees can lead to increased productivity and reduced absenteeism.

- The **Back Care Task Force** presented its recommendations to the MHealthy Advisory Committee and is developing an implementation plan focusing on an educational campaign about back pain and a Lean Thinking project to improve back pain management. As back pain is one of the largest contributors to the University's medical claims cost and lost productivity, improving the management of back pain could favorably impact these costs.
- **Additional targeted programming** is planned based on analyses that have been completed to determine which UM populations (job families, etc.) are highest risk for poor health and high health related costs.
- **The Michigan Institute for Clinical and Health Research and the Health Management Research Center will lead the evaluation** of our MHealthy efforts. The team is led by Marita Titler, Associate Dean, School of Nursing and Associate Director of MICHR. The lead evaluators will be Dee Edington, Professor, School of Kinesiology, and Director, U-M Health Management Research Center, and Karen Rosentraub, Research Associate Professor, Schools of Social Work and Nursing. Baseline analyses of health risk factors and claims costs have been completed for 2009 and 2010. These analyses indicated that health risk factor levels for our employee population are trending in the right direction. Other metrics to be monitored over time include participation levels, satisfaction, medical care and pharmaceutical costs, absenteeism, and culture of health improvements.

We are pleased to report that in 2010, MHealthy received a Well Workplace Gold designation for U-M from the Wellness Council of America (WELCOA), distinguishing U-M nationally as an organization that is developing comprehensive programs that produce results and are a strategic and integral part of the business.

Benefit Strategies, Future Focus:

Future benefits emphasis will continue to focus on strategies which explore innovative benefit design to improve quality, reduce cost and leverage the unique opportunities at the University as a large employer, health system and premier research institution.

A Committee on Retiree Health Benefits (CORHB) was formed and recommended a combination of retiree health benefit eligibility and contribution level changes for current and future employees and their dependents, which will position the University's plan at or above market and return savings to the University. Recommended changes will be phased in over several years beginning in 2013, and are estimated to save the University over \$9.0 million annually by 2020 and \$165 million annually by 2040. (figures are all funds, all campuses)

In 2010, a Member Engagement Health Plan committee was charged to recommend future health plan options designed to provide incentives for members to engage in health and well-being activities. After careful consideration, in May 2012 the University announced a

decision not go forward with a new Member Engagement Health Plan design. Multiple factors led to the decision, including upcoming facets of U.S. health care reform legislation that may affect the reliability of the projections for the new design.

The University has received its first reimbursement of approximately \$1.8 million from the Early Retiree Reimbursement Program [ERRP], and will use the reimbursements attributable to 2010 to reduce 2012 health plan contributions for employees, retirees and the University. A second request for \$765,000 was submitted in December 2011 and is pending with CMS. Under this provision of the Affordable Care Act (health reform), the federal government has \$5 billion in funding to reimburse eligible employers with early retiree medical plans for 80 percent of the cost of an individual's medical and drug claim costs (between \$15,000 and \$90,000 annually) for retirees age 55 to 64 and their dependents of any age. This program ends on the earlier of December 31, 2013 or when the available \$5 billion of funding is exhausted. CMS has advised that the \$5 billion in funding is exhausted and they will not accept requests for reimbursement of claims for service dates after 2012.

The University eliminated the highest cost medical plan from the health plan portfolio at the end of 2011.

A new mail-order pharmacy contract for the prescription drug plan is expected to produce annual plan savings of \$1 million beginning in 2011.

The University has negotiated reductions in management fees and expenses on 44 mutual funds with TIAA-CREF and Fidelity Investments, and on 14 Vanguard funds, with projected reductions in retirement savings account fees paid by faculty and staff of \$4.1 million annually.

In 2011, the University negotiated a revised five year administrative contract with BCN and Blue Cross Blue Shield of Michigan, effective January 2012. Under the terms of the new agreement, the University will pay significantly lower administrative service fees, saving approximately \$2.7 million annually and \$13.4 million over 5 years, and also achieved improved performance guarantees and transparency.

MedImpact has been selected as the new administrative service vendor for the U-M drug plan. The new agreement, effective October 2012, is expected to produce savings of \$13 million over the duration of the 39 month contract period.

We will also continue our work on promoting the health and well-being of our faculty, staff and their dependents, through the provision of cost-effective programs and services and a continued focus on developing a healthy workplace culture and environment at the UM.

Benefit cost containment strategies for the future will include leveraging health insurance design strategies to optimize use of healthcare; leveraging health delivery system strategies, in collaboration with UMHS, to contain costs and optimize care of the chronically ill; continued stewardship and strategies to assure competitive supplier contracts and monitor vendor performance; and to ensure regulatory compliance with federal and state reform, mandates and legislation.

4. Leveraging Information Technology

The University is leveraging technology to contain costs, improve performance, and support strategic decision-making. Technology-enabled business processes have helped us to reduce our administrative costs and simultaneously increase our research base and student enrollment. In a later section, we will discuss increased staff productivity. Information technology is one of the important factors that contribute to this productivity growth.

There are many different efforts to use technology to better leverage the University's academic, research, financial, physical, and human resources. Below is a broad sampling of efforts that have led to cost containment and improved information management through leveraging technology:

Reduce need for paper copies and manual data entry

- Paperless Review of Undergraduate Application for Admission
The Office of Undergraduate Admissions now uses a totally paperless process for application review, improving service to applicants, eliminating the reliance on paper, and increasing our ability to compete for the most academically capable students. The paperless process eliminates data entry, creation of paper files, inter-filing of supplemental materials, and distribution of paper files to evaluators, a process that occurred for more than 23,000 applications with an estimated 10 pages per application.
- Web Grade Submission
Web Grades eliminated the paper-based grade reporting system improving the quality of grade data and eliminating redundant manual effort in academic departments and the Registrar's Office. Grades are posted almost six times faster than when they were processed manually. Approximately 925 hours of effort each term was eliminated in the Office of the Registrar.
- Electronic Transcripts for Student Academic Records
In FY 2012, Information and Technology Services (ITS) implemented a vendor tool to deliver transcripts to third parties in a secure electronic format. Over 40% of transcripts are now being ordered electronically, saving about 4,000 hours of staff time and about \$100,000 in staff salary.
- Paperless Pay Stub Reporting
More than 80% of direct deposit users have opted to discontinue receiving a paper copy of their pay stub, creating an annual savings of approximately \$340,000 in postage and nearly \$70,000 on preprinted forms.
- New Self-Service Transactions
 - Several self-service transactions were implemented for Human Resource processes that have resulted in time and resource savings, reduced need for paper copies, and improved service to University employees:

- Enhancements to e-Benefits were implemented, including e-mail confirmations and self-service Dental One-Year-of-Service enrollments.
 - Employees can now print their W-2s from Wolverine Access. Over 100,000 staff or student employees printed their 2008 or 2009 W-2 through the self-service option. This feature results in significant savings in staff effort, form printing, and mailing costs for the Payroll Office. For the 2011 tax year, 64% of the 73,472 W2 forms were accessed through self-service, allowing for a University savings of postage and handling of \$23,000.
 - Almost all regular staff electronically enter time directly into M-Pathways, which allows the University to stop printing and distributing timesheets. Each month, the University printed and distributed approximately 27,000 timesheets and imaged almost 20,000 completed timesheets. As of June 30, 2009, the University stopped the central printing, data entry, and imaging of timesheets. This change saves thousands of hours of staff time in completing and handling paper timesheets.
- Processing Staff Hires and Automation of I9's
Information and Technology Services (ITS) and central HR automated processes for on-boarding new staff and transfers between units. The changes eliminated hiring paperwork and data entry for units and central HR offices. Over 7,500 transactions have been processed saving the University over 8,000 hours of effort at a value of \$300,000.
 - Student Temporary Hires
A new process implemented in M-Pathways automates the old manual and paper-based process for hiring student temporaries. Each year, units process over 25,000 temporary appointments with the automated processes saving 13,000 hours of effort at a value of almost \$500,000.
 - Eliminate Central Printing for Gross Pay Registers and Statement of Activity Reports
Gross Pay Register printing was eliminated on October 1, 2009 and the Statement of Activity printing was stopped as of February 1, 2010. The University previously incurred substantial costs to print, collate, mail, distribute and store the statements and gross pay registers. For an average biweekly payroll, the Gross Pay Register report is 15,000 pages long. For an average monthly payroll, it is over 22,000 pages long. There has been widespread adoption of the new account management tools. Estimated cost savings to ITS are approximately \$75,000 annually, along with increased staff productivity at the unit level.
 - Automated Project Billing
ITS Communication Systems and Data Centers implemented automatic billing which converted a paper-based process to electronic format. Based on past yearly averages, savings translate to over 700 labor hours and 12,000 sheets of paper.

- Online Graduation Admissions Evaluation Process Improvements
 More than a dozen graduate departments are using the online admissions evaluation process in M-Pathways to review admissions applications online rather than use paper. Several enhancements were delivered to support faculty requests for improvements in order to streamline the process and provide efficiencies to faculty and staff reviewers.
- Electronic Vendor Payments –ITS provided an automated electronic method to replace a paper driven, manual process where a majority of the time the paperwork was hand carried between departments. In addition to being time-consuming, the manual process was identified by University Audits for posing an information security risk. The new automated process saves time, eliminates paper and reduces the risk of exposing sensitive information.
- Online Salary Redistribution
 This new online functionality was available for pilot departments in January 2011 with a full campus roll-out to be complete by June 30th. Units are able to complete on-line salary redistribution transactions with workflow approvals. Currently, this process requires the unit to complete and print the transaction, obtain signature approvals, and route the document to Human Resources for data entry into M-Pathways. This paper is then scanned and stored in ImageNow. With the workflow solution, the value of labor savings is estimated to be \$470,000 annually.
- Online Additional Payments
 Additional Payments will be available for pilot departments on June 27th. Units are able to complete on-line additional payment transactions with workflow approvals. Currently, this process requires the unit to complete and print the transaction, obtain signature approvals, and route the document to Human Resources for data entry into M-Pathways. This paper is then scanned and stored in ImageNow. With the workflow solution, the value of labor savings is estimated to be \$307,000 annually.
- Online Non-Student Temporary Hiring Process
 Non-student temporary employee job posting, applications, and hiring will be available on June 27th. Units are able to post their jobs, applicants will be able to apply on-line, and hired/on-boarded via the eRecruit system. Currently this process requires the applicant and unit to complete five pages of documentation for hiring. This paperwork is then routed and data entered by Human Resources into M-Pathways. The paper is then scanned and stored in ImageNow. With over 3,000 non-student temporaries hired each year, the estimated value of labor savings amounts to \$98,500 annually.
- Online Retirement Savings Plan Enrollment
 The ability to use on-line transactions for New Hires to enroll in retirement savings plans was implemented in March, 2011. This new Wolverine Access self-service transaction eliminates approximately 1,300 paper forms that were processed manually in the past. Enabling this service also helps improve overall data integrity.

Streamline business processes, reducing staff time in routine information handling and eliminating duplication of effort

- Automated Degree Progress Checking
The degree progress checking system allows students and advisors to track progress toward a degree on-line with real time data, eliminating a manual, intensive process of comparing requirements for a degree to the student's completed courses. The system supports a new process for evaluating cross-campus transfers for students moving from one school to another within the University. The new system and process saves Undergraduate Admissions and the Registrar's Office an estimated 45 days of effort per year.
- On-Line Effort Certification
All individuals who certify effort now do so on-line, resulting in an estimated annual savings of \$300,000. This process improvement also reduces the University's compliance risk (some of our peer institutions have experienced large fines in recent years).
- Purchasing and Supply Chain Improvements
The University has moved to on-line purchasing of goods, furniture and lab supplies. Staff now select the items on line and the vendor delivers the goods to the lab or office of the purchaser. As a result, M-Stores and the warehouse of central supplies have been completely eliminated, resulting in significant savings. Trend analysis of purchasing behaviors on campus enables Procurement Services to identify new potential vendors for strategic sourcing of goods, continuously seeking to reduce the University's overall spend.
- Expanding Online Training on Administrative Systems
Information and Technology Services (ITS) continues to convert more training from instructor-led to on-line courses in My LINC. On-line courses allow staff to take training when needed, from anywhere, and at their own pace. Half the time is required to complete the on-line course, than an instructor-led course. That comparison shows an average reduction of 3,300 training hours per year to complete key M-Pathways courses.
- HR Toolkit
The HR Toolkit includes Excel templates to load additional payments, pay rate changes, work address changes, and other HR transactions directly into M-Pathways. Units do not have to complete paper forms and central HR does not have to data enter individual transactions. From January 2008 through May 2009, over 90,000 transactions were completed. The estimated annual time savings is 22,000 hours at a value of \$836,000.

- Central Punch Time Server

ITS implemented a central time clock server for units with hourly punch time needs. Nine departments were the original adopters of the new system instead of purchasing their own systems. If purchased separately, the cost would have exceeded \$450,000 for these departments. None additional units with existing time clock systems have moved to the centralized ITS system.

In fiscal year 2011, the University Housing and Michigan Union departments were converted to the University supported time clock solution from a time clock solution provided by a third party. This conversion provides a more secure, integrated time clock solution with an estimated first year savings of over \$185,000. By the end of the 2011 Fiscal year we will have over 6,000 employees using the University provided time clock solution.

- Expansion of Online Training with MyLINC

Human Resources Development and the Office of the Treasurer use the MyLINC system to deliver on-line training and allow registration for instructor-led courses. The one-time costs for software, hardware, and implementation support would have been close to \$500,000 if these departments implemented their own systems. ITS is also working with several other campus units to leverage MyLINC for additional training needs and certifications.

- Online Textbook System

The Provost's Textbook Task Force recommended that the University implement an online textbook system that allows faculty to enter and share textbook lists with students and booksellers. The Taskforce also asked for support for students to buy and sell textbooks from each other. In Fall 2008, a new textbook system was implemented and adopted by faculty and students. In Winter 2009, 62% of classes with enrollment greater than 100 had textbooks or course pack information entered, faculty listed over 3,000 textbooks, and students posted 4,400 textbooks for sale.

- Distribution Layer Switch Upgrade

A distribution layer switch (DLS) is used to connect each campus building to the University network backbone. During the 2002 network backbone upgrade, most campus buildings had two DLSs installed for network robustness and decreased network downtime for maintenance. During planning for the current backbone upgrade, it was determined that only one DLS is required in most buildings. As a single DLS replaces dual DLSs, potential cost avoidance is approximately \$2.5 million in capital expenditures and \$400,000 in annual operating expenditures.

- UMHS Streamlined Product Ordering System

With this state-of-the-art process implemented in 2009, University of Michigan Health System (UMHS) units place orders directly to the partner vendor using templates created for the purpose. Additionally, to aid in demand planning, units use fixed quantity orders to stock up over the weekend or for anticipated system outages. Received at the dock, shipments are taken directly to each unit. In implementing this, a

longstanding problem of how to deliver product to hospital buildings that do not have a loading dock was satisfactorily resolved. Vouchers are created automatically from electronic receipts, eliminating a manual process. This product ordering system is a highly automated, time-dependent process expected to save UMHS \$1 million in the first year that it is fully operational.

- Residence Hall Phone Line Reductions
ITS and University Housing collaborated to identify ways to reduce Housing's telephone costs. Call statistics indicated that students were making fewer local and long distance calls from their room phones. Due to safety concerns, Housing chose to keep the room phones but with limited feature functionality at a reduced rate. ITS was able to pass on this savings to Housing due to the reduced line usage, the reduced feature functionality and also because of the limited need for staff to service the lines. Housing realized an annual savings of \$450,000, reducing its expenses for telephone service by 50%.
- Voice Over Internet (VoIP)
Medical School researchers interested in collaborating with colleagues in other countries were concerned with the cost to communicate via traditional international voice service providers. ITS developed a VoIP solution that allows calls to traverse across IP research networks, allowing departments to use VoIP outside the enterprise network by using the Internet connection. The Medical School did a cost analysis after the completion of a pilot program and found that by using the service it was able to eliminate a clinician position resulting in almost \$100,000 savings.
- Consolidated Area-Specific Windows Network into Campus Network.
ITS is working with units (Business & Finance; University Housing; Ross School of Business; Engineering) to consolidate the infrastructure that supports the campus Microsoft Windows environment. This project reduces cost and complexity in managing core University IT assets and helps U-M move to a unified platform for messaging, calendaring, and collaboration between as many campus units as possible. Campus costs for server infrastructure will decrease as more units join the campus network. As of the end of May 2010, all 2,740+ Business & Finance users' Outlook e-mail and calendar services were migrated into the campus Exchange Service.
- Inactive Telephone Lines
ITS conducts automatic audits of telephone lines for call activity or usage. As a result, department managers are notified of services that may no longer be needed and are instructed on how to submit a request to cancel the service. For FY2011, audits identified 1,792 telephone lines without recent call activity and 31 without a plugged-in phone set.

In FY2012, 274 lines were disconnected as a result of the audit. Based on the monthly charges removed from these subscribers, unit savings per month is \$4,287 or an annual savings of \$51,440.

- Streamlined Equipment Orders
ITS streamlined their equipment order process by leveraging automation. Orders are now processed and typically delivered within the same business day, providing a quicker turnaround time for customers and reducing processing time for staff by 30 minutes per request. Service fulfillment turnaround time has decreased by over 600 hours annually.
- Law School Forgiveness Loans Process Improvements
Each year, the Law School issues about 150 University Loans that contain forgiveness clauses if the student pursues a lower paying, public service position. Special promissory notes are required with supplemental enclosures. After graduation and throughout the student's repayment period, the borrower's income and career status is assessed and institutional grant funds are provided for loan repayment if the borrower meets the forgiveness criteria. ITS worked with Law School staff to streamline, simplify and utilize automation to significantly improve the overall process and reduce staff effort. Overall, the estimated value of effort savings realized by these process improvements comes to \$25,000 annually.
- Business School Enrollment Deposit Process Improvements
The Ross School of Business had a very manual and labor-intensive process for collecting and processing admissions enrollment deposits (EDR). Their process necessitated daily submission to Student Financial Service's Teller Services, which in turn posted each EDR to the student's account. Working with ITS staff, Ross EDRs are now batch-posted to the students' accounts, reducing work for both Ross and Teller Services.
- On-call Policy and Process Improvements
ITS now has a consistent, equitable after-hours (on-call) support policy and procedure across all 15 Infrastructure Services (IS) teams. Previously, on-call support was provided for, and compensated for, based on inconsistent legacy organizational policies. The net impact was individuals on the same team had different expectation and compensation for providing the same nature of after-hours support. The changes put into effect rationalized and consolidated on-call support rotations. In addition to creating a more effective overall after-hours support model, the changes also reduced on-call related expenses by roughly \$60,000 per year.
- Call Pilot Decommission
In FY 2012, ITS completed a migration of U-M Voicemail users to Exchange, as well as a move of all Menu and Announcement services to Cisco CUCX, which resulted in a cost savings of ~\$25k per year in system support costs.

- Closure of ITS Education Services
Education Services, a for-fee (cost recovery) instructor-led, campus software training service, will close at the end of FY 2012. As many lower cost alternatives were available to campus, the service was facing declining enrollment, and has been unable to generate enough revenue to cover its costs. Accordingly, the service had to be subsidized by ITS for approximately \$44,000 annually.
- New Anti-Virus Software
ITS selected a new, lower cost anti-virus product. It developed a technical strategy along with an extensive communications campaign that resulted in the migration of almost 30,000 IT-managed systems and approximately 8,500 personally managed systems from McAfee VirusScan to Microsoft antivirus software over a 12-month period. This allowed for the closing of the VirusBusters support service and avoiding the yearly McAfee license fee. The expected aggregate savings for the University is approximately \$275,000 annually.
- NextGen IT Network Project
ITS successfully took on the responsibility for maintenance, administration and support of the College of Engineering's backbone and WiFi networks and is in the process of taking over support of University Housing's building LANs in residence halls. The consolidation of these support services will reduce the number of FTEs required by these units to support their networks. Both units are expected to save \$87,600 annually beginning in FY13.
- Revised Service Agreement Business Model
ITS made changes in its business model for network service agreements to take advantage of decreases in a hardware maintenance contract (Cisco Smartnet), implement improved efficiencies in operational activities, and better align our charges with cost drivers. As a result, the total annual charge for network service agreements was reduced from \$1,900,000 to \$1,100,000, and 46 out of 60 departments realized cost savings. The total savings for campus comes to \$800,000 annually, with the average savings per unit coming to \$24,444 per year.
- Termination Workflow
An automated Termination Workflow will be available for all departments on June 30, 2012. Units are able to complete online terminations with workflow approvals. With the workflow solution, the process will be automated and HR approvers can image documents via ImageNow at their units and not have to send documents to the central scanning services. This will automate 20,000 transactions annually and work to improve efficiency of the current 51% of all terminations processed retroactively. The cost avoidance is estimated at \$17,300 annually for central office processing time.

- Automated Application Loads
The School of Nursing and the Ross School of Business both accept applications through third party websites. In FY 2012, ITS developed a file-mapping and load process that automatically loads their data into the central admissions system. Ross no longer has to manually enter 400+ applications and Nursing no longer has to enter 350+ applications.
- Electronic Routing of Agreements
In January 2012, the ITS eResearch team piloted new functionality to assist with execution of clinical trial agreements by automating the processing of Non-Disclosure Agreements and a new Clinical Trial Routing form. Previously, the processing of clinical trial agreements involved a lot of upfront administration and researchers expressed concerns that they may lose the opportunity to participate due to the administrative burden.

More effective advanced information processing, with increased efficiencies and decision-making

- Student Scholarship Matching
Thousands of restricted student scholarships have been established over the years and are administered by departments across campus. Many scholarships are restricted to students who meet specific criteria (geographical location of home town, high school GPA, interest in a specific discipline, etc.). Matching students to scholarships was a manual, paper intensive process. Scholarships often went unawarded because of the difficulty of finding qualified students. A tool developed to expedite the matching of student qualifications to award criteria allows the schools and colleges to better leverage all their available resources for student support. The system allows the schools and colleges to better leverage all their available resources for student support. The system also improves the stewardship of donor funds by properly matching student characteristics with the donor criteria, thus ensuring that the donor funds are being used as intended. The College of Engineering reports that the system has resulted in increased donor satisfaction with the Michigan Experience and, in some cases, has led to additional gifts. As of the end of June 2010, the Office of Financial Aid plus 11 schools/colleges, including LSA and Engineering for their undergraduate programs, use this tool.
- Management Controls and Reporting
A new system called M-Reports is built on the concept of guided analytics for helping users traverse through data to draw conclusions. M-Reports also will include dashboards and metrics for performance monitoring. Through M-Reports, Deans, directors and financial managers now receive on-line reports and guided analytics on employment and pay management controls. The reports improve payroll controls and reduce risk of fraud and abuse. P-Card, purchasing, and travel expense reports have been added since M-Reports initially went on-line.

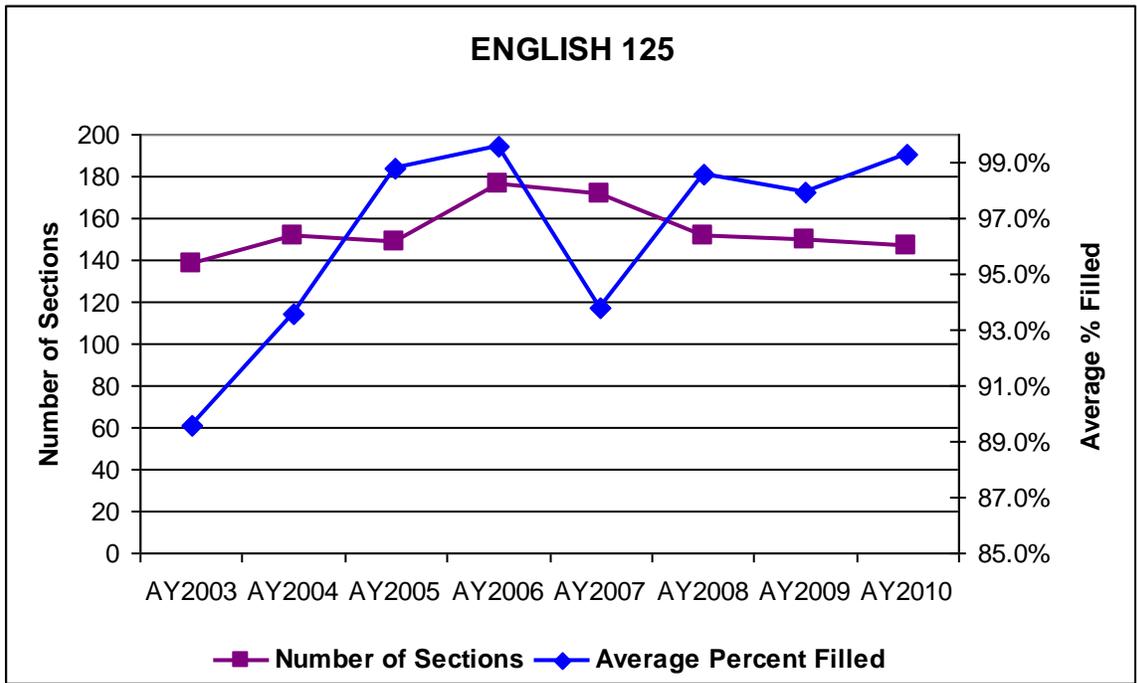
- Electronic Waitlists
Improved automated waitlist processes have enabled units to better manage the supply of seats in over-subscribed classes. The improved process includes better information for departments to manage demand through waitlists, a self-service transaction for students to view their class permissions and waitlist priority, and permission information automatically emailed to waitlisted students when assigned.
- Emergency Notification System
The University implemented an emergency notification system with an external service provider. A large cross-unit team worked together to review and select a vendor, modify M-Pathways systems, and communicate instructions on using the new system to faculty, staff and students. By leveraging our M-Pathways system, University community members can add their emergency notification information via the Wolverine Access employee and student self-service web pages. Over 21% of employees and 19% of students have added emergency notification information (as of 4-2-2008).
- HR Metrics
HR Metrics is a system that allows units to analyze human resource data. An external vendor hosted the system when it was originally implemented. ITS implemented and supports a replacement system. Insourcing the system resulted in savings of over \$80,000 a year. More importantly, ITS added improved functionality to allow “drill down” capabilities to individual employee data. In the future, the ITS will expand and improve the tool, add new data elements, and integrate with other University BI tools (M-Reports and Business Objects).
- eResearch Proposal Management (eRPM)
eRPM, introduced in March 2009, includes the electronic routing and approval of research proposals, including electronic submission to federal agencies. The system reduces the administrative burden on researchers and increase U-M’s competitive advantage for grant funding. As of May 2010, 10,541 proposals have been electronically routed and reviewed via the eRPM system. This greatly reduced the staff’s time, as previously much of the process was manual and paper-based. The proposed sponsor total of these proposals is \$6,882,762,164. Additionally, over 1200 applications for federal funding have been submitted electronically from eRPM to Grants.gov (the federal government electronic system for receiving grant proposals). As of May 2012, the eRPM has supported the submission of 5,537 new proposals for externally funded research, worth a total of \$3,801,231,400.
- eResearch Regulatory Management
eResearch Regulatory Management (eRRM) is the web-based system that centralizes the review and approval process for human subjects research applications and Institutional Biosafety Committee registrations. The system coordinates review activities for the Institutional Review Boards, core committees, and ancillary committees. This system supports 500+ users on a daily basis and has processed 2,400

new applications and nearly 10,000 submission follow-ups during FY10. In addition to significantly reducing staff time to manage the review process, eRRM reduces U-M's risk of non-compliance with regulations that involve human subjects.

- Electronic Signatures for Sponsored Research Invoices
Financial Operations and ITS collaborated to implement electronic signatures on invoices sent to federal and non-federal research sponsors. Formerly a manual process that required Financial Operations managers to sign hundreds of paper invoices before mailing, the automated signature process identifies which research sponsors require signatures and prints an electronic signature on their invoices. Eliminating the time-consuming task of identifying and signing invoices has resulted in invoices being sent sooner, which potentially leads to earlier receipt of research sponsor payments to the University. Each month an average of 450 invoices totaling \$12.1M utilize electronic signatures.
- Invoice Detail Reports for Cost Reimbursable Sponsored Projects
When billing external sponsors for cost-reimbursable research projects (projects in which the sponsor reimburses U-M for approved expenditures), many sponsors require that supporting documentation be sent along with the invoice. Previously, Financial Operations staff manually collated the printed financial month end statements with the invoice. The new Invoice Detail Report automates this process by creating and printing the required supporting documentation at the same time the invoice is created and printed. The new report allows existing staff to handle a growing volume of research expenditures as well as achieve an 80% reduction in printing.
- M-Reports Project Grant Content Enhancement
The long-term objective is to provide sponsor and project information by department to aid department financial managers in seeing a more complete picture of the project funding and spending in their department. Reaching this objective will be done in phases. The first phase, accomplished this fiscal year, allows non-faculty project directors and administrators to view projects for their entire department with the option to drill-to-detail to get to existing Project reports.
- Trend Reporting for Course Demand Planning
The LS&A Course Demand Planning Initiative recommended a set of reports to aid in analyzing course enrollment data and identifying trends. These reports will aid all schools and colleges in reviewing course elections and support better forecasting and planning for future course offerings and instructor needs.

Enrollment and waitlist management efforts at the College of LS&A, with assistance from ITS, have led to a steady improvement in the filling of sections. The 3-4% increase in filling discussion sections of English 125 is equivalent to accommodating about 100 students overall with 4 fewer sections. See the figure below:

FIGURE 5: English 125, College of LS&A



One of the most promising directions for future benefits from information technology is in the Business Intelligence area, i.e., designing software products that assist unit leaders in identifying trends, optimizing resources, evaluating future business directions and automating routine decision-making.

Donor and Alumni Relationship Tool (DART):

DART went live campus wide on March 26, 2012. Stabilization of the new system and wrap up of Phase 1 of the project are in progress. Since the legacy system (DAC) was the last application using the mainframe computer, this will allow retiring of that hardware and the elimination of mainframe maintenance costs.

This new enterprise system supports the needs of the University Development Community in serving our donors and alumni. New online features and capabilities will help improve engagement with a new generation of donors and alumni that communicate and connect with U-M in completely different ways. DART also gives new and improved tools for collaboration across the campus fundraising community.

IT Rationalization Project: IT rationalization is a university-wide initiative to determine the best sources of IT services and to reduce non-productive redundancy in information technology solutions across campus. The effort involves the systematic and coordinated consolidation, integration, and standardization of IT systems, networks, hardware, applications, facilities, and other infrastructure. The university conducted in FY10 the first-ever comprehensive assessment of information technology as it is currently distributed and provided at the unit and

campus levels. In conjunction with newly developed campus IT governance and the promulgation of a new funding model, the assessments will be used to help shape the transformation of IT at U-M. Successful rationalization at Michigan will result in enhanced economies of scale; interoperability of applications, products, and services across campus; and faster deployment of new shared products and services. Some of the cost savings garnered will be reinvested to underwrite the cost of new investments in technologies more strategically critical to innovation in research, learning, and teaching.

ITS is exploring models of ‘shared services’ and/or best practices in the areas of IT Security, Data Storage and Virtual Desktop in order to leverage its size, scale and expertise. Some of these efforts are currently being piloted with several units and have the potential to produce savings for the University as a whole.

The IT rationalization recommendations provided by Accenture Consulting have been adopted by the university. A program office has been created and it is currently administering 7 projects focused on university wide cost reductions. The cost reductions from the IT Rationalization projects are expected to begin to be realized in fiscal year 2013.

FLUX: Flux is the first University-wide, shared computational discovery or high-performance computing (HPC) service. It is designed to support both compute- and data-intensive research. An HPC cluster can allow consolidation of UM's current highly-distributed HPC clusters. Cost savings is expected in the following areas:

- 1) Equipment: Rather than each unit purchasing/building their own HPC cluster, Flux will allow units to purchase processing time on a central cluster. This centralization can reduce the equipment/facilities costs (setup, procurement, installation, maintenance, etc) associated with HPC clusters.
- 2) Staff: A central group of specialized staff will run/maintain the HPC cluster. This will reduce the need for replicating these skills across campus.
- 3) Software Licensing: Since the Flux includes a research software library, it can allow for the rationalization/consolidation of software licensing for research computing titles across campus.
- 4) Minimization of unused HPC capacity: Smaller individual HPC clusters tend to be under-utilized to allow for peaks in demand. A large central cluster can better absorb these demand peaks. In fact, since its inception Flux has been consistently over-subscribed but has still provided excellent system performance during high demand periods.

5. Other Revenue Sources

The University has multiple revenue sources that reside outside the general fund including research funding from external sponsors (mostly federal), gift funds and endowment payout, and funding that comes from auxiliary activities such as patient care. It is often the case that these other funding sources can be used to support current activities or important new initiatives that would otherwise be costs to the general fund. This kind of reallocation of costs is a key mechanism that allows our academic enterprise to thrive at the same time that we contain costs on the general fund.

Fundraising

To increase fundraising effectiveness, we have made significant investments in our Development operation over the past few years, including support for the alumni database, international fundraising, and a parents and families program. We are also continuing our support for the establishment of a comprehensive young alumni solicitation and donor education program and the reestablishment of alumni reunions.

Funding from gifts allows academic units to undertake initiatives or increase the quality of existing activities without adding costs to the general fund. As an example, President Coleman launched a series of matching programs where the University used non-general fund resources to match new endowment gifts from donors to support endowed professorships, undergraduate need-based financial aid, and graduate fellowships. These programs have already raised funds for twenty new endowed professorships and over \$72 million in endowment for need-based undergraduate financial aid. Together these two matching programs provide over \$7.3 million in new base funds, a figure that will grow with the market value of the endowment.

In addition to providing resources for new and innovative things, many gifts provide funding for existing activities, allowing us to reallocate general fund resources to other needs. Through proactive and focused fund-raising activities, this source is becoming increasingly available for professorships, financial aid, and facilities. A few examples of prudently replacing general fund costs with other funding sources are noted below:

- In the academic units, we are maximizing the use of endowed professorships to supplement the general fund in providing faculty salaries.
- The School of Education has reduced the number of graduate student research assistants who are supported by the general fund through use of other sources of revenue.
- The College of Literature, Sciences and the Arts shifted costs of a significant facilities project from the general fund to endowment funds.
- The University shifted a portion of the Office of Development's budget from the general fund to the endowment to better align the unit's activities with its funding source.

External Research Revenue

The University of Michigan remains in the top three amongst federal funding of research. This indicates the great success that the University has had over time in finding federal sources to support the costs of our research enterprise. It is often the case that we seed new initiatives with general fund dollars in areas where we anticipate opportunities and growth in federal funding. Current examples include our \$9 million investment in the Energy Initiative and our \$7.5 million investment in the Graham Environmental Sustainability Institute. In both cases, these one-time general fund investments will create activities of significant academic value that we expect to be funded on an ongoing basis from external sources.

The Big Ten Network

A portion of the University's proceeds from the Big Ten Network contract are put in the hands of the President for her highest priorities. She has designated that approximately \$1.5 million of this annual flow be directed towards need-based financial aid for undergraduates, allowing the University to increase this aid without additional cost to the General Fund.

Investment Proceeds

The University has achieved great returns on its long-term investments over the past several years. This success allowed the President to direct \$40 million to support the initiative to expand the faculty by 100 lines.

An area of particular opportunity, both for our research mission and our public mission, is greater engagement with the business community. Our plans include expanding our partnerships with existing businesses to enhance the research support that they provide to UM investigators as well as more effective support for start-up companies that are spun off of UM research activities. Successful start-up ventures not only bring a much-needed boost to the State economy but will eventually return licensing revenue to the University.

In Michigan and across the globe last year, more U-M technologies were licensed to companies than ever before. U-M Tech Transfer created 101 licensing agreements with industry, including 11 new start-up ventures. The Venture Center, a one-stop hub for start-up venture opportunities, opened an Accelerator co-located on the North Campus Research Center (NCRC) campus to provide world-class lab and office space where our faculty can start their own companies while accessing expert help in being successful. The Accelerator is close to capacity in just 18 months of operation, with seventeen companies from five U-M schools.

6. Greater Productivity of Staff

In our earlier discussion of cost increases at the University of Michigan, we noted that levels of activity at research universities continue to grow and that our costs are predominately for personnel. To sustain growth in our teaching and research activities, without a resulting growth in personnel costs, we have had to find ways to make our faculty and staff more productive so that we can do more with relatively fewer faculty and staff.

Total headcount enrollment has grown by nearly 7.7% since 2004. And, U-M's volume of research expenditures has expanded rapidly (although it has flattened out recently) and was \$1.24 billion in FY2011.

There are efforts at every level of the institution to make staff more productive through use of technology, streamlining of administrative processes, re-organization of staff efforts, and conversion of staff positions to seasonal appointments reflecting the academic calendar. A few examples follow:

- The Medical School accomplished a virtual consolidation of the basic science departments' administrative functions, leading to the sharing of personnel and streamlining and standardizing business practices across the basic science units.
- The College of LS&A initiated some centralized staffing models for finance and HR transactional work in order to reduce training time and costs, decrease the range of expertise required for any one employee, and allow for consolidation.
- The Rackham School of Graduate Studies downsized selected offices within the school, enabling the reallocation of resources. They also reallocated funds from lower priority activities in order to provide more support to student research and professional travel.
- Students will be able to request, print and mail their own enrollment certifications via the National Student Clearinghouse (NSC), as well as complete the Registrar's Certification Form for manual processing. Enrollment Certifications are needed for financial aid, health insurance, and employment purposes. Students are able to print their enrollment certification directly from NSC, saving them significant time and effort. The Registrar received approximately 6,000 Enrollment Certification requests annually. At an average of 10 minutes each to process, approximately 1,000 hours is saved annually plus paper, postage, printer cartridge, and other associated costs are reduced.
- Milestones are non-course-related degree requirements, used to track things like dissertations, medical licensing, honors theses, teaching certificates, and international experiences. Students typically have more than one milestone that requires maintenance throughout their academic careers. The previous functionality, while robust, required the assigning of milestones by student. Manual data entry took approximately five minutes per individual student. The new upload process simplifies and automates the milestone entry process and enabled Rackham to initially load 10,000 rows of historical milestone data, saving its staff approximately 800 hours of work each year.
- The use of eReconciliation—online functionality for reviewing and reconciling financial transactions for a department or project/grant—increased significantly from FY09 to FY10. This addition to U-M financial systems integrates the central accounting system with departmental financial processes. Research administrator use of online-financial reconciliation is steadily increasing. As of May 31, 2009, in the sponsored

project grant area, 91 reconcilers on 907 project grants were using eReconciliation. Through May 31, 2010, those numbers have increased to 195 reconcilers and 2,690 project grants, increases of 114% and 197% respectively. The number of principal investigators whose project grants have been reconciled using eReconciliation has gone from 359 to 970, an increase of 70%. The dollar amount of transactions reconciled has gone from \$81 million in May 2009 to \$367 million in May 2010, an increase of 353%. Staff who use eReconciliation report saving between 24 and 40 hours/month by avoiding duplicate data entry into shadow systems. 16 departments completely shut down their supplemental systems over the past two years, resulting in significant savings and staff productivity gains for those departments.

Planning efforts for FY2013 identified potential savings in areas such as these of approximately \$5 million. However, it is difficult to precisely capture the savings that have resulted from increases in staff productivity across the campus. One estimate comes from assuming that our number of general fund FTE had expanded at the same rate as enrollment over the past eight years (well below the rate of growth of research activity). If we had seen that rate of growth in our FTEs, then our costs for faculty and staff salaries and benefits would be significantly more than they are today.

We are actively exploring other opportunities to consolidate staffing within smaller units. The “shared staffing” concept for administrative functions is being piloted with the small Executive Officer units that are housed in the Fleming Administrative Building. The Business Intelligence initiatives described above are aimed at further increasing staff productivity. And, a benchmarking study was completed in late 2009 to begin identifying areas in our human resources, procurement, information technology and finance operations that have the potential for increased efficiency and cost savings. As a result, an Administrative Services Transformation effort has been launched in order to better understand the way forward in this area.

Facilities & Operations has begun a new approach for delivering facilities maintenance and custodial services to campus. The Facilities Maintenance plan shifts from a reactive maintenance model (fix things that break) to a more proactive, preventative maintenance that increases reliability and productivity. The new system, which emphasizes planning and scheduling of work, was implemented as a pilot program on North Campus in August 2010. Through May 2011, labor hours have decreased in the North Campus region by nearly 10% compared to the previous year. This new system was implemented in Spring 2011 in several of the central shops and will be put into practice in September 2011 in the Health Sciences region.. Within the custodial area, Building Services continues to use a comprehensive high performance cleaning system based on lean management principles which incorporates standardized tools and procedures. Workers are 'kitted' with specific tools and chemicals for each job function, contributing to overall workload efficiency. Both Facilities Maintenance and Building Services are targeting 10% general fund budget reductions as a result of these efforts.

In constraining growth of General Fund FTE's, we always must be mindful of possible negative impacts on our core research and teaching missions. Indeed, the growth in instructional activity and research over the last several years with little growth in faculty has put the quality of our academic enterprise at risk. So, the one area where we will look to expand staffing is in the faculty ranks. Several years ago we began our initiative to hire 100 new faculty members in a deliberate attempt to reduce our student/faculty ratio over the next several years and to ensure our competitiveness by fostering key interdisciplinary areas of education. That investment was expanded to include an additional 50 faculty positions; enhancement of undergraduate teaching has been a key criterion used in allocating these 50 positions. These investments continue to be protected and will also enable us to further enhance the students' academic experience

7. More Efficient Utilization of Space and Facilities

The University of Michigan continues to focus on the importance of effective space utilization as a means to containing operational costs. In February 2007, the University implemented a formal Space Utilization Initiative to plan and manage General Fund facilities on the Ann Arbor campus more effectively. The purpose of the Initiative was to contain operating costs and to better meet the University's academic and research mission and needs. The Initiative was in place for five years and explored all types of space, including instructional, research, and administrative. The University ended the formal Space Utilization Initiative in July 2011, however a foundation of policies, systems, and business practices that were put in place continue as part of everyday operations for the Ann Arbor campus. The foundation includes:

- Information and systems – central data and systems exist to effectively inform management decisions related to space utilization, allocations, assignments, and productivity.
- Capital projects planning – a structured, consistent, and transparent process exists for proposing, reviewing and approving capital projects based on institutional guiding principles and priorities.
- Budgetary incentives – schools, colleges and departments have greater awareness of the cost of space and the need to support effective and efficient use of space, space sharing, and energy conservation.
- Shared space & technology – schools, colleges and departments identify and encourage opportunities to share space and technology to meet academic or research needs, where appropriate.
- Facilities maintenance and upkeep – as a campus, we continue to examine our investment in sustaining existing facilities and implementing potential changes in incentives, processes, or investment levels, resulting in more cost-effective up-keep of our facilities over the life of our buildings.
- Energy conservation – campus-wide efforts continue to reduce energy usage through energy conservation education, facility infrastructure education and adjustments, and behavioral changes.

Campus Changes/Improvements to Date

Since 2007, the University has continued to implement campus-wide business practices, policies and guidelines, and systems and reporting tools to not only manage space more effectively and strategically, but also to continue to change the campus culture and views of space as an institutional versus local resource. The results of this work are just now beginning to show results and may continue to take time before the long-term effects of these changes can be measured.

Examples of results to date include:

Capital projects process – Initiated in Fall 2008, the capital projects process provides units with a structured process to follow and decision-making criteria for assessing capital project needs. The new process enables the Provost to evaluate requests for major capital projects at the same time and based on the same information. It also enables the Provost and University leaders to clearly identify and direct resources to the highest priority space needs and to defer or deny projects that are not considered a high priority.

The combined campus emphasis on improving campus space utilization and new capital projects process are significant contributing factors (though not the only factors) to a slowdown in building growth on the Ann Arbor campus over the past few years. Following a decade of nearly 2% average annual growth in General Fund square footage, a stated goal of the original Space Utilization Initiative was to contain annual building growth rate to no more than 1% going forward. In the five years since the Initiative began, General Fund building growth has slowed to an average of 0.35% per year. By slowing building growth, the University has avoided approximately \$616 million in one-time capital costs and over \$24 million in estimated recurring facilities operating costs through more effective and creative utilization of existing space and a more strategic approach to campus expansion.³

- Shared facilities – The University continues to seek opportunities for units to share facilities.
 - *High-tech facilities:*
 - Lurie Nanofabrication Facility – a state-of-the-art cleanroom
 - Michigan Academic Computing Center – an advanced facility to house high-end research computing
 - Undergraduate Science Building – a facility with advanced classrooms, instructional science labs and computer simulation facilities to support undergraduate science and engineering courses
 - North Campus Research Complex – a state-of-the-art research complex designed to inspire collaboration and leverage interdisciplinary expertise and technologies
 - Life Sciences Institute – an open laboratory building that supports interdisciplinary research in the life sciences

³ Excludes the purchase of the North Campus Research Complex in June 2009

- *Studio facilities:*
 - A University-owned building located off campus and previously used for administrative operations is being converted into studio space for an academic unit
- *Storage facilities:*
 - A University-owned warehouse was converted into a multipurpose facility for a variety of large collections of specimens and materials that previously occupied critical space in academic and administrative unit facilities on Central Campus.
 - An off-campus facility that was specifically outfitted for Museum of Art collections during the Museum of Art renovation is being repurposed to store consolidated collections of rare books from the University Library and Clements Library.

By using these off-campus storage locations for other uses, units are able to free up space previously reserved for these collections and materials and repurpose campus space for higher priority needs.

- Classroom utilization and shared classrooms– A number of projects have been implemented to improve classroom utilization and sharing on the Ann Arbor campus. They include:

- *Classroom utilization data warehouse and management reports* – Although the University’s central M-Pathways systems contained a great deal of space-related data, they were not designed to specifically provide classroom utilization information. As a result, it was difficult for schools, colleges, and the Office of the Provost to make informed decisions about how to optimize the use of this space or to understand if the classroom utilization aligned with campus goals.

To address this need for information, a new data warehouse was built for the Ann Arbor campus to connect physical space information with course and enrollment information. Several management reports were also developed to help units and the administration understand classroom utilization, seating utilization, matches between enrollment count and room seating capacity, and more. These reports provide detailed information about the use of every general purpose classroom on the Ann Arbor campus broken down by school, college, department, or building and enable campus leaders to make more strategic decisions about the use of classroom space.

- *Classroom utilization target goals*– Campus-wide measures for recommended classroom utilization have been in place since Spring 2008, along with the classroom utilization management reports mentioned previously. Unit performance against the target goals, listed below, is now reviewed and discussed during annual budget meetings with units and when units submit capital project requests.
 - *Time utilization goal (70%)* – # of hours a classroom is used for courses/# of hours a classroom is available in a 45-hour week
 - *Seat utilization (65%)* – # of enrolled students/# of seats available in the classroom

- *Classroom scheduling and utilization system* – The University’s central M-Pathways system was enhanced to support the needs for shared scheduling of classrooms and more complete classroom utilization information. The enhancements enable departments to record or upload all activities that are scheduled in classrooms into the central M-Pathways system to provide the total picture of classroom utilization (that is, classes + all other non-class activities that are scheduled in each classroom). The enhancements also enable departments to search for, view availability, and request the use of classrooms campus-wide, leading to more shared classrooms and more effective classroom utilization.

- *Policy for class and classroom scheduling* – The Office of the Provost recently implemented a campus policy for class and classroom scheduling that takes effect with the Winter 2013 curriculum planning period. The policy requires all schools and colleges to share scheduling of their general purpose classrooms with the Office of the Registrar between the hours of 8 a.m. and 5 p.m., Monday through Friday. This shifts the campus culture from one where many classrooms were available only to the departments, schools or colleges that managed them to one where all classrooms could be used by any department that needed a classroom during the hours of 8 a.m. and 5 p.m. and enabled all departments to have access to classrooms that best meet instructional needs.

- *Scheduling distribution target goals* – Campus measures for scheduling classes and events were recently implemented and take effect for the Winter 2013 curriculum planning period. The target goals seek to more evenly distribute classes and events throughout the day and week. The goals enable departments to schedule:
 - *Up to 35% of classes and events at 10 a.m., 11 a.m., and 1 p.m.*
 - *Up to 35% of classes and events at 12 p.m., 2 p.m. and 3 p.m.*
 - *At least 30% of classes and events before 10 a.m. and after 4 p.m.*
 - *At least 15% of classes and events on Fridays*

- Office space guidelines – The University of Michigan did not have campus-wide guidelines for allocating office space, which resulted in inconsistencies in how offices were assigned to individuals or how large offices were constructed. New office space guidelines were developed to help General Fund administrative and academic units decide more effectively how to assign and use office space when planning renovations and new construction, optimize use of existing office space, and align new office space with campus norms. Office space represents approximately 24% of our overall space.
- Research space guidelines – Research space needs and considerations are unique to each discipline and, as a result, are managed most effectively at the unit level. To support unit needs for assigning, monitoring and managing research space, new campus-wide research space guidelines and research space productivity reports were implemented. The guidelines provide a common philosophy, guiding principles, and requirements that encourage the efficient, consistent and productive use of all research space needed to support the University’s core research mission. Management reports that combine space and financial information were also implemented to assist units in assessing research space assignments and productivity.
- Food service planning – Food operations have always been a fundamental part of the campus experience. In recent years, however, the interest in providing food operations for social gathering and convenience, particularly in non-traditional locations, has increased, prompting the need to approach campus food service planning and placement more thoughtfully and strategically. A new food service proposal process, guidelines, and tools were implemented in 2009 to provide units and central administration the information necessary to identify and assess the need for food operations, determine financial viability, and better understand the potential impact on nearby operations.

The Food Service Review Committee was also established to share expertise in campus planning, food safety compliance, procurement, facility design and construction, and student and academic affairs. Having a coordinated approach to planning food service operations will result in operations that support the overall needs of the University and promote community building and cross-unit interaction. The process also ensures the best use of space and overall institutional financial responsibility. Since the process and committee have been in place, the University has avoided constructing new food operations in General Fund space on the Ann Arbor campus that were not forecasted to be financially viable.

- Library space conversions – With the availability of online journals and scanned books, various University units have eliminated their internal libraries and the University Library has eliminated print journal subscriptions and reduced books. This has freed up space previously used for shelving and enabled these units to convert the areas to collaborative study space, administrative space, and other academic uses.

- Data Center/Server Room Consolidation

With the advent of server technology over the past decade, server rooms have proliferated across campus creating increasing demand for space and electrical power needed for operation and cooling. In many cases, these machine rooms have been constructed in spaces that are not optimum to meet the cooling and power needs. A new data center at Arbor Lakes was completed to provide capacity to multiple units on campus. We anticipate further consolidation of machine room needs in a few centralized facilities.

The University continues to explore opportunities to improve space utilization and reduce overall operating costs and environmental impact in the following areas.

- Facilities maintenance and upkeep – We have been gathering information on challenges in facilities maintenance and upkeep that affect units and the central facilities organization and will be working to identify changes in business practices, incentives or investment levels to address these challenges.
- Identifying and repurposing low-quality or underutilized classrooms – By enhancing our central M-Pathways system to collect classroom scheduling data, we are now beginning to have more comprehensive information to make strategic decisions about classroom space. We continue to analyze current and future needs for classrooms to determine if we can redirect these needs to our highest quality instructional spaces and enable us to possibly repurpose low-quality or underutilized classroom space for higher-priority needs.
- Space and technology sharing – We will continue to identify opportunities for units to share space and technology, where appropriate.