JOHNS HOPKINS
UNIVERSITY

Climate Change Implementation Plan

for Achieving GHG Reduction Goals

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Climate Change Leadership for the Future:
Implementation Plan for Achieving GHG Reduction Goals

Executive Summary

As the Task Force on Climate Change completed its work in the Spring, 2009, Chair Benjamin F. Hobbs observed: “Implementation of the report’s recommendations will contribute to making Johns Hopkins a leader in sustainability research and education, while drastically lessening our emissions of greenhouse gases over the next decade and a half.” This plan attempts to translate that vision into a series of tangible steps for moving forward.

This Plan was developed with a number of guiding principles. The strategies for implementing the recommendations of the Task Force should:

- Be clear, transparent, and relevant over time;
- Create a systemic approach to long-term achievement;
- Implement a reporting system that details progress over time;
- Coordinate the efforts of academic, research, and operational sustainability efforts; and
- Maximize the university's involvement as a leader in sustainable solutions for the Baltimore community.

Organization

Part I of the Plan describes the goal of generating a culture of sustainability for the university through which the climate change efforts can reside. The first action item is to form the Johns Hopkins Environment, Sustainability, and Health Institute, a multi-disciplinary research collaborative that will leverage the knowledge and strengths of university faculty and experts. The second is to establish a Sustainability House, a building that serves as both a functional home for sustainability efforts on campus as well as a symbolic demonstration of how emerging technologies, ideas, and services can come together to solve sustainability challenges in the built environment.

Part II of the Plan details a systematic approach to accomplishing the university's long-term carbon reduction goals. Strategies include the development of a transparent system of identifying and evaluating energy efficiency opportunities on an annual basis, including a large “first pass” review of existing opportunities. Complementing the engineering and technical approach to energy conservation measures, behavior change strategies encourage and empower Hopkins employees and students to reduce resource consumption at the building level. Finally, this Part provides strategies for reducing the carbon footprint of computing and information technologies (IT).

Part III of the Plan details ways in which the university can provide leadership on sustainability for the Baltimore community. Leveraging the culture of sustainability (Part I) and the systems approach to carbon reductions (Part II), this Part focuses on how to take the successes of various programs and how to expand them to the broader community.

Part IV of the Plan details how the strategic sustainability efforts at Johns Hopkins can be reorganized so that academic, research, operational, and community outreach priorities can be integrated into unified approach.

The reorganization of sustainability efforts at Johns Hopkins will result in a comprehensive, connected, and coordinated framework that provides senior administration leadership for both academic and operationally-focused sustainability efforts.

Part I: Creating a Culture of Sustainability

In the final report of the President's Task Force on Climate Change, the group "recognized that a 'vision' of carbon neutrality paralleled a vision of a truly sustainable university where all resources consumed are continuously recycled or regenerated."[1] This vision was instructive in building the conceptual framework by which the Task Force evaluated climate change implications. The discussions were further supported by key core principles:

- *Sustainability is a way of thinking* about how to deal with constraints and uncover opportunities; not necessarily a collection of issues or projects.
- *Sustainability focuses on the future:* What we can do today will put us in a better position to achieve the university's mission and goals tomorrow.
- *Sustainability is rooted in strong business management*, and goes hand-in-hand with lowering resource costs, empowering the JHU community, reducing future risks, and developing creative solutions to difficult problems.
- *Sustainability can be well integrated in academics at JHU*. Professors have already incorporated concepts of sustainability in many disciplines, including economics, public health, engineering, public policy, and the humanities.

These principles are firmly rooted in the following initiatives in Part I and provide solid support for efforts to address climate change at Johns Hopkins.

Formation of Johns Hopkins Environment, Sustainability and Health Institute

Mission, Objective, and Approach

The Johns Hopkins Environment, Sustainability, and Health Institute (ESHI) brings together scientists from across Johns Hopkins' schools, campuses, and research facilities to address critical issues related to climate change and its sequelae including health impacts, energy challenges, policy, and sustainability. The genesis of the Institute is the set of recommendations of the President's Task Force on Climate Change - Innovation and Research Working Group, which was formed to examine ways that Johns Hopkins University (JHU) could leverage its academic and research strengths to make significant, unique contributions to addressing these challenges. This document presents a formative three year strategy for developing the Institute.

The Institute will co-ordinate and encourage innovative research and teaching that address problems we face as the result of a warming globe and to establish integrated approaches that cut across disciplines

[1] Executive Summary, Page 9.

and divisions. The Institute will provide a single point of contact for JHU, and develop collaborative partnerships with the business sector, federal, state and local agencies, environmental groups, and the Baltimore community organizations. The Institute will dramatically increase the visibility of JHU in climate change and sustainability, and it will contribute to attracting top students, recruiting and retaining faculty, obtaining funding, and improving the translation of research to support improved environmental policies.

Initially, the Institute will emphasize the University's efforts in (i) Climate Observations and Modeling, (ii) Human Health Impacts, (iii) Sustainable Energy Supply, and (iv) Policy and Decision-Making. JHU has strengths and unique capabilities in each of these areas, and this combination of focus areas will differentiate the Institute from those at other universities. However, the long run research emphases are expected to evolve as a result of initiatives by groups of investigators facilitated by the Institute. To support the evolution and growth of these initiatives, the Institute will identify key additional research and educational areas to strengthen the University's scientific capacity, and will ensure that the efforts address the most critical environmental needs as well as take advantage of the strengths of the University.

Organizational Governance

The Institute will have:

- Three co-chairs, one each from KSAS, WSE, and BSPH[2]
- An Internal Steering Committee, appointed by the Provost and including the three Research Deans from KSAS, WSE, and BSPH. The Steering Committee will include representatives from other schools (e.g., SoM, CBS), APL, and development offices.
- An Associate Director, supervised by the co-chairs.
- An External Advisory Committee, consisting of academic, government and industry leaders (to be established in year 2).

The Institute will initially be a virtual center and not have a physical home (although office space will be required for the Associate Director). There would be a presence in the proposed Sustainability house, which could be its meeting facility.

Timeline

Year 1:

- Develop web page and brochures to tell the story of the multidisciplinary environmental research and academic programs throughout the University. Visibility and coherence of the University's profile are crucial.

[2] Alternatively there could be an Executive Committee consisting faculty representing KSAS, WSE and BSPH (same as current co-chairs) and Research Deans. Members of the Executive Committee will belong to the Internal Steering Committee

- Organize strategic planning meetings; their purpose is to refine the vision of the Institute, including identifying areas of research that could attract outside funding, take advantage of University strengths, and for which there are leaders. Also, the meeting participants will identify key issues, evaluate opportunities and the market for Institute efforts, and review progress.
- Examine linkages and possible coordination of existing degree and other teaching programs, and possibly develop new curricula.
- Advertise and commit to fund graduate fellowships in year 2 (evaluate applicants, name fellows). Strong preference will be given to fellowships that support interdepartmental/school efforts and new initiatives.
- Organize spring symposium with a "name" scientific or policy leader.
- Plan regular internal seminar series (joint with departments). This will focus on seminars that bring together JHU faculty and students from different disciplines, schools, and divisions.
- Work with Development Office to identify possible funding sources.
- Identify and communicate external federal or state funding opportunities.
- Identify opportunities to work with State of Maryland, City of Baltimore and local Community Groups to advance sustainability policies and practices.

Years 2 and 3:

- Liaison with both the Development and Communication Offices.
- Hold regular seminar series and spring symposium.
- Fund graduate fellows.
- Set up external advisory committee.
- Establish (year 2) and fund (year 3) a "seed grant" program for joint research projects/initiatives between departments/schools. These funds could be used for faculty, visiting and post-doctoral scholars, and students to work on interdisciplinary and inter-department (inter-school) projects.
- New curriculum development.
- Establish program for experimental learning opportunities and internships.

- Plan visiting scholar program (program providing partial support for visiting faculty / scientists), with first visitor in year 3.
- Planning / submission of proposal(s) for federally funded centers that focus on key areas identified in year 1.

The long-term goal is for the Institute to reach a steady, sustainable level of activity with annual budget around $1 million per year. Growth to this level is planned over years 4 and 5, and the Deans of participating schools will be engaged on how this can be sustained through grant administration and development.

Possible elements of a long-range vision include:

- Recruitment of a full time high-level international leader as Director.
- Sustainable trans-disciplinary research funding.
- Coordinated trans-disciplinary curricula including opportunities for certificates, undergraduate and graduate tracks, internships, distance learning, and short courses at University Institutes.
- Active partnerships with thought leaders from government, business and industry, including consultation to improve the *translation* of science to improved practices and policies.

Establish a Sustainability House

Mission and Objective

The Sustainability House, currently proposed to be located at 3105 N. Charles Street, will be an environmental showcase that will host the activities of the Johns Hopkins Office of Sustainability, environmental student groups, and a comprehensive sustainability resource center. The house itself will be a learning lab for visitors, with key features of the house highlighted, guided tours available, and various interactive touch screen displays that connect the users with real time campus information. The house will be a sustainability resource for students even as it is being designed; it is anticipated that students will be involved in the design and evaluation of features for the house.

In addition to hosting environmental student groups and student interns, it is anticipated that many other interested students will attend sustainability functions and activities, conduct research in the Resource Center, and utilize the space for group study/projects. With this in mind, it is imperative that the House be a comfortable retreat for environmental students, where they can relax, have quiet study, or join in spirited debates on contemporary issues.

The house itself will be a focal point for sustainability at Johns Hopkins. The house will be designed and renovated in the most sustainable way practically available, striving for a high level LEED designation.

The House will include a Sustainability Resource Center for students, researchers, construction project managers, or curious members of the community, and will include a library with reference materials to include: LEED manuals, reference guides, case studies, sustainable materials binders, books, journals, and other resources as appropriate.

The house will serve as a learning lab for visitors, with a variety of technologies and materials on display accompanied with signage and information on the relevance to larger sustainability goals. Visitors to the building will be able to take a guided tour by following the signs and reading about the various materials used. The tour will be interactive, with “touch and feel” stations (i.e., cut-outs in the walls to see the different types of sustainable insulation materials) and will include touch screen computer terminals to see real time data on energy, water, and fuels consumption.

Campuses are dynamic and constantly changing. Over time, JHU's campuses will adopt more sustainability features as new buildings come on-line and as existing buildings are renovated. As our University's campuses grow greener, this information will be incorporated into the informational materials in Sustainability House. Visitors to the House will be able to see changes as they happen on the campuses, keeping the experience dynamic.

To implement specific recommendations from the Task Force on Climate Change, it is anticipated that the House will be closely connected to the Center for Social Concern (CSC), an immediately adjacent building at 3103 N. Charles St., so that community based sustainability activities can be coordinated and implemented efficiently. Specifically, the CSC and the sustainability staff will coordinate to populate the resource center in the House so that it contains the "clearing house" of potential community-based sustainability projects – such as green building audits – and serves as the launching point for those activities.

Part II: A Systematic Approach for Continuous Carbon Reductions

Every year new opportunities arise for energy conservation within buildings and on campuses. This is not just wishful thinking; we can show from historical experience and research on emerging technologies that this will be the case. There are four main reasons for this. (1) Many new technologies are significantly better than those offered just a few years ago. From condensing boilers to LED lighting, new advances are making efficiency more attractive. (2) Utility costs are rising, meaning that upgrades that were not financially attractive a few years ago are now feasible. (3) Equipment has a limited useful life, and each year certain pieces of equipment need to be replaced. (4) New thinking on how we use our buildings – labs in particular – leads to new ideas on how to manage energy consumption.

Part II of the Implementation Plan focuses on how we will identify energy and greenhouse gas reduction opportunities, fund them, and set up a system so that these actions can continue throughout the remainder of the target timeline (through 2025) and beyond.

The implementation of the following efforts will be undertaken by members of the Office of Sustainability, located in the Sustainability House.

Energy and Carbon Evaluation and Reduction Program

Mission, Objectives, and Approach

This effort is designed to address challenges in implementing a long-term strategy for making continuous progress on energy efficiency and greenhouse gas reductions.

1. ***Difficulty in coordinating efforts across divisions*.** Because different divisions and campuses have independent facilities offices, projects are typically developed separately and without coordination or information sharing.
2. ***There is presently no system in place for continuously seeking new opportunities*.** There is a lack of shared engineering resources, which makes a systematic evaluation of energy efficiency opportunities more difficult.
3. ***Support comes from multiple sources, with multiple sets of criteria and decision-making*.** Currently there is no centralized system for evaluating projects, meaning that projects are often evaluated on an ad-hoc basis with inconsistent parameters.
4. ***Projects are often evaluated with narrow criteria***. Projects are often considered viable based on their simple payback criteria, which does not account for carbon, life cycle costs, or other benefits to the university.
5. **No certainty in mid- or long-term budgeting.** Currently there is no system in place that provides a consistent and transparent funding vehicle for pursuing energy conservation measures (ECMs).

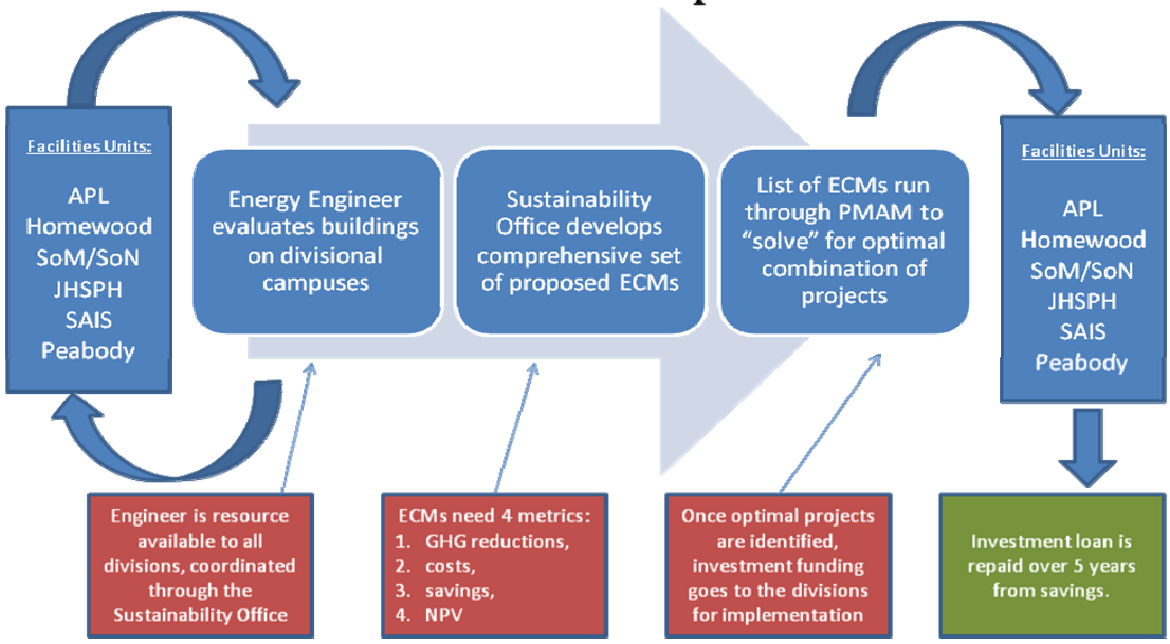
The Energy and Carbon Evaluation and Reduction Program addresses these challenges by creating a system that rewards the divisions, shares engineering assets, and provides a degree of certainty for budgeting.

The program requires four elements: (1) program coordination through the Sustainability Office; (2) an experienced energy engineer who will be available to all campuses and divisions; (3) a Project Matrix Analysis Model (PMAM); and (4) a commitment from the central administration to make funds available for projects that demonstrate that they meet an established set of criteria.

Throughout each year the Sustainability Office will work with the divisions to schedule building assessments and evaluations in order to identify energy saving opportunities. As opportunities are uncovered, the Office will work with vendors, equipment manufacturers, and contractors to develop proposals and estimates of costs, savings, and carbon reductions. These ECMs will be compiled at the divisional level and incorporated into a comprehensive university-wide list. Finally, the Office will run a computer optimization model called the Project Matrix Analysis Model (PMAM) to determine the optimal portfolio of projects.

How the Program Works

Annual Process for Implementation



The PMAM model is designed to "solve" two questions:

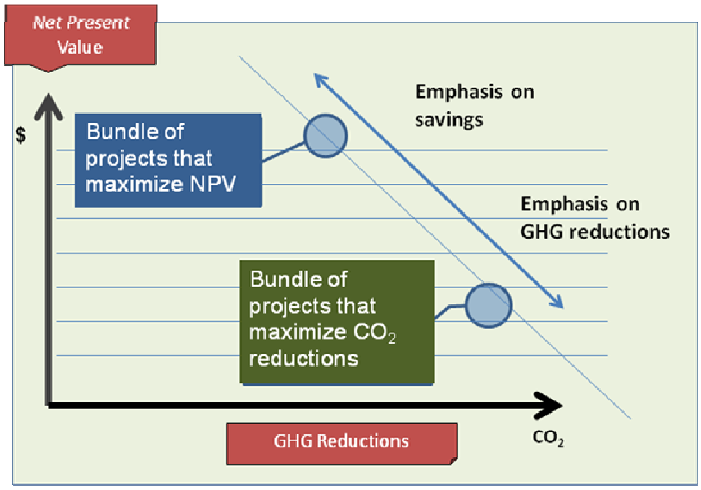
1. What combination of projects (bundle) will produce the maximum NPV value at various budget levels?

2. What combination of projects (bundle) will produce the maximum GHG reductions within various budget levels?

The results are then analyzed to determine the portfolio of projects that exceed the minimum threshold of annual GHG reductions while producing the greatest value for the university.

It is important to note that the model is division-blind; the best projects, regardless of location, will be selected.

Once the optimal "bundle" of projects is selected by the computer model, divisions will encouraged to advance projects and the University Administration will makes loans available to divisions to undertake the ECMs with the understanding that capital costs will be repaid over five years.



The program produces the following results:

- It ensures that energy and GHG management will continue as a long-term strategy for all divisions of the university.
- It is designed to work within the university's decentralized administrative structure.
- It provides incentives for divisional participation since the NPV of each conservation measure stays with each division.
- It ensures that the best projects – regardless of campus or location – will be funded and implemented.

Immediate Carbon Reduction Projects

Mission, Objectives, and Approach

This work plan is the first phase of the Energy and Carbon Evaluation and Reduction Program. This first phase will be slightly different than following years in that this is the first comprehensive, university-wide effort to collect, evaluate, and implement energy conservation measures through outside engineering consultants. In following years the effort will be conducted by the energy engineer in the Office of Sustainability.

Consistent with the Energy and Carbon Evaluation and Reduction Program strategy, energy conservation projects (ECMs) will be evaluated on the basis of both net present value (NPV) and greenhouse gas (GHG) reductions. Since the two are highly correlated, most of the projects with high NPV will likely have corresponding higher GHG reduction potential.

The work plan will proceed within a three step approach: first, the buildings with the highest potential for energy conservation will be evaluated through a data analysis exercise. The analysis exercise will establish baselines and performance benchmarks based on the performance of similar buildings on the campuses and among peer institutions. Buildings will be grouped by type – lab buildings, administrative buildings, classroom buildings, residence halls – and measured against high performance benchmarks. Those buildings consuming more energy than would be expected compared to similar, high performing buildings will be flagged for further evaluation and physical audits.

The second step is to conduct conceptual engineering studies – building audits – on the buildings that are flagged from the analysis exercise. Mechanical and electrical engineers will "walk" the buildings, evaluate mechanical rooms, review design documentation as required, and interview operating personnel. The final evaluation from the engineering team will include a comprehensive list of potential energy conservation measures with cost estimates of required actions or capital investments and annual energy savings estimates. From these reports, potential GHG reductions will be calculated.

The third step is to evaluate the opportunities and prioritize them in a way that maximizes value for the university. The system by which the ECMs can be ranked and prioritized is detailed above in the section, "Energy and Carbon Evaluation and Reduction Program."

NOTE: A full list of ECMs for the university, organized by division or campus, is included as an attachment.

Institutional Behavior Change

Mission and Objectives

Many simple measures – such as turning off computer monitors at the end of the day, closing fume hood sashes, and reducing non-essential printing needs – will save energy and resources. Currently there is no concentrated effort to engage the occupants of buildings to help realize these savings. This area of focus will concentrate on a comprehensive behavior change strategy to engage Johns Hopkins faculty, staff, and students with the goal of encouraging and empowering them to reduce resource consumption at the building level.

The goals of the work plan are to:

- Raise building occupant awareness about the opportunities for energy savings on an individual level;
- Increase the adoption of environmentally preferable and resource efficient behaviors;
- Reduce energy consumption per building by a predictable and measurable amount each year; and
- Identify green champions in each department or office to become "Green Campus Reps" to sustain building occupant participation and continue monitoring and identifying opportunities for further reductions and savings.

The Institutional Behavior Change initiative has a number of components focusing on specific areas of concentration within buildings or work units. The kinds of behaviors in lab buildings, for example, is very different that those behaviors within office space. The different behaviors are approached using different tactics and incentive structures. On the other hand, positive sustainable behaviors – such as turning off lights or equipment when not in use, being vigilant and observant, and engaging colleagues – are similar across disciplines and building types.

Actions undertaken at each building will include:

1. Scheduled meetings with office leaders, staff employees, selected faculty, and student employees.
   - *The behavioral resource coordinator (BRC) will build relationships with building occupants to ensure that everyone understands the University's goals and objectives.*

2. Creation of "Green Campus" representatives network.
   - *While meeting with the building occupants, the BRC will identify staff members in each office who are especially interested and enthusiastic about environmentalism and sustainability. These members will be asked to join a "green campus rep" group that will meet monthly and discuss ways of promoting the agenda.*

3. Cost savings workshops for departments / floors.
   - *The BRC will facilitate brown bag lunches at the floor or office level in which office occupants will be encouraged to brainstorm on ways to reduce costs and inefficiencies.*

4. Green building audits and recommendations.
   - *Continuing the successful Green Building Audit program, a team of trained Sustainability Interns will survey each building for low cost technological "fixes" and behavioral modifications that can create positive financial and environmental savings.*

5. Public posting of building energy consumption trends, rankings, and evaluations on monthly performance basis.
   - *As recommended in the President's Task Force on Climate Change final report, the BRC will produce "Sustainability Scorecards" that track energy consumption of each building relative to others on campus, updated on a monthly basis, and will create a set of reachable reduction targets for each building that can be influenced by occupants. By posting these results in public locations throughout the buildings, occupants will have constant and reinforcing reminders of their conservation efforts.*

6. Development of marketing materials, signs, and promotions to highlight important areas of influence.
   - *In some cases, positive behaviors may be influence by simple reminders placed in strategic locations, such as labs or public spaces.*

7. Interaction with custodial staff to get a better sense of activities in the buildings at different times of the day.
   - *Where appropriate, the BRC will engage in training to help staff identify areas of opportunity.*

As buildings are incorporated in the plan, staff will make regular visits to the building to provide ongoing support, inquire about any concerns building occupants may have and report on the progress of the program. During this period, individuals will be identified to serve as Green Campus Reps for their building. Green Campus Reps will continue to assess the sustainability of practices within their office, advocate for and implement additional strategies to improve the sustainability of their office allowing the Sustainability staff to transition out of the building while ensuring the behaviors are sustained. They will also serve as the contact person for environmental information for their department and the liaison for the Sustainability Initiative through regular Green Campus Team meetings.

Strategies for Incorporating Computing Efficiencies

Mission, Objectives, and Approach

This work plan involves the utilization of new software and technologies to reduce the amount of electricity consumed by personal computers (PCs) and servers. The options available will allow users to continue work as usual without interruptions and also allow the professional IT staff to update and monitor the units without compromising the systems. Three specific areas of opportunity are:

1. ***Deploy 1E software on networked PCs***. This is energy management software that places PCs into conservation mode during evenings and weekends, but still allows administrators to connect for software upgrades and security patches.
2. ***Deploy "thin client" technology.*** This technology replaces traditional PCs with a functional and energy efficient network terminal so that users are downloading applications directly off the servers instead of booting up individual computers.
3. ***Increase the capacity of servers by "virtualizing" them for maximum efficiency.*** New technology allows servers to be partitioned so that many server functions can be undertaken simultaneously.

These are not the entirety of opportunities for making computing more efficient, but are the most promising at this time. In the long-term, more opportunities will be evaluated by the Sustainable IT Committee, Hopkins Information Technology Systems (HITS) and coordinated with the Sustainability Office so that they are included in annual efforts of the Energy and Carbon Evaluation and Reduction Program (see above).

Plug loads represent one-third of the electricity consumed within our buildings, and computers are increasingly taking a larger share of plug loads. The Task Force identified PCs and servers as areas of high opportunity for conservation efforts, especially since the energy primarily comes from grid powered electricity.

Creating a Sustainable IT Committee

Mission, Objectives, and Approach

Rapidly growing computing needs for all areas of university operations and research have resulted in measureable increases in energy consumption – both electricity and cooling – and have become a large driver of GHG emissions. Server rooms supporting dedicated needs are growing at a rapid rate. This growth requires that dedicated cooling and back-up power be installed, resulting in increased capital costs; growing power consumption; increasing operations and maintenance costs; and allocation of space that might be better used for program needs.

At the same time, IT resources are leading the way in developing solutions to energy consumption, travel, commuting, and greater productivity. There is a need to work simultaneously in two directions: (1) reduce the burden of IT on the energy infrastructure, and (2) capture the potential of IT to be a driver of future sustainability solutions.

The mission of the proposed Committee will be to improve the environmental profile of Information Technology at the Johns Hopkins Institutions by building lines of communication among all the Johns Hopkins IT organizations, sharing ideas and best practices, collaborating on projects that produce wide-spread benefits, and highlighting successes to the entire Hopkins community.

The Committee will set the goals of identifying areas of success in each IT division that can be replicated in other divisions, developing projects that can provide savings and improved environmental performance through economies of scale and collaboration, and promoting accomplishments and raise awareness of environmental improvements.

To keep ahead of the curve, it is critical that the university focus the imbedded skills and knowledge of IT experts on finding solutions to sustainability challenges. A high-level Sustainable IT Committee, with members appointed by – and accountable to – the President or Provost is essential to meeting the two objectives above.

The Committee should comprise members with expertise in academic computing needs, operational and administrative computing needs, database management, server management, computer science, scientific research, and the needs of university users.

The Sustainable IT committee should produce an annual report on the status of sustainable IT at the Hopkins campuses with benchmarks of achievement, goals for the upcoming year, and issues of relevance to the Hopkins community. The Sustainable IT Committee will coordinate with the Johns Hopkins Sustainability Committee and the Johns Hopkins Office of Sustainability to ensure that progress tracks to established goals.

Part III: Providing Leadership for the Community

The Task Force recognized that sustainability accomplishments within the university would not be complete if not shared and expanded throughout the broader Baltimore community. In addition to being a good neighbor, there are significant educational benefits for students and faculty to apply their knowledge in a hands-on manner within the community, as well as operational benefits for administrators and staff to share knowledge with City officials, local entrepreneurs, and resident non-profit organizations. This Part focuses on how best to expand the first two parts of the Plan into the broader community.

Students and Outreach in the Community

Mission, Objectives, and Approach

The main objective of this work plan is to lay the foundation for more cooperation and outreach into the community to support better learning opportunities for students and greater benefits to the surrounding areas. To achieve this objective in the context of sustainability, the following actions will be undertaken:

- Expand the existing "Green Building Internship" program so that students trained in identifying energy and environmental opportunities on campus can be deployed into the City to do similar functions for non-profit organizations. These students will be called "coaches" and will assist local organizations in their greening efforts.
- Develop a set of "point persons" in each academic department who can coordinate and keep track of professors within their departments who are interested in collaborative projects with the community.
- Working with the City, community groups, and local businesses, develop a clearing house of potential projects that professors may want to consider as they develop their courses. This two-way street of communication of coordination will help to create a foundation that will eventually lead to more projects and more hands-on experience for the students.
- Tap resources in the community by setting up a directory of environmental organizations that are looking for interns and would like to have their name listed so that students who are looking for internships can contact them. Set up a career-services type of group that helps sets students up with the type of environmental internship that they're seeking.

These actions should be coordinated with the Environment, Sustainability, and Health Institute and the Center for Social Concern. A full time coordinator can bridge the gap between Johns Hopkins and the surrounding communities and will provide the training for the student Coaches. This person should also work with divisional development offices to contact alumni who have energy or environmental expertise, or who are working in those particular fields.

Coordination with Local Institutions

Mission, Objectives, and Approach

In the past few years sustainability has become one of the hottest topics in the greater Baltimore region. Baltimore City Mayor Sheila Dixon formed a Commission on Sustainability, local colleges and universities are taking on green building and sustainable practices, non-profit organizations are expanding their sustainability-related projects, and even the public City schools are going green. Hopkins has a rich tradition in being a leader in sustainability, and now is the time to demonstrate that leadership in ways that help lead the City towards a vision of a more sustainable future.

The objective of this work plan is to aggressively engage local institutions in ways that lead to greater cooperation in actions that build on the sustainability efforts in the region. The B-CaUSE initiative (Baltimore Colleges and Universities for a Sustainable Environment) is one avenue for this collaboration. B-CaUSE was launched in 2008 by Johns Hopkins and brings together university and college facilities directors, sustainability coordinators and other committed faculty and staff in the Baltimore area to network and share resources for improving campus sustainability and reducing environmental impact. The geographic proximity and operational similarity of our institutions present opportunities to leverage our influence to find solutions to the challenges we face. Additionally, because many institutions in the region specialize in one field or another, advances in research and innovation can be shared to maximize resources and hasten progress. Johns Hopkins, in 2009, also formed a similar group for institutions in the Washington, DC area.

There are other areas of opportunity for leadership; the Baltimore Commission on Sustainability comprise experts from around the City to brainstorm on ways to make the City more clean, green, and livable. Johns Hopkins can help facilitate this process by offering meeting space for the working groups, supplying Interns for Commission work, and staff time to help with research and development.

Part IV: Coordination and Review

In order to pull the parts of this Plan together in an organized and integrated manner, it is essential to have a clear and transparent structure for coordinating and managing the various actions and strategies. This Implementation Plan recommends the creation of a new Institute, the hiring of five new employees, the establishment of a Sustainability House, an expansion of the Sustainability Internship program, and the implementation of a project evaluation and analysis model. The current system will need to be reorganized in a way that accommodates these changes.

Establishing a Long-Term Approach to Coordinating Activities

Project Mission, Objective, and Approach:

The main objective is to establish effective, coordinated oversight for successful facilitation of this implementation plan through the Johns Hopkins Office of Sustainability. This element will focus on establishing a long-term coordination structure, including adding appropriate personnel in the Office of Sustainability, to oversee projects in the implementation plan. The initial focus will be to complete key activities related establishing a Governance Structure, and next, focus on the set-up of the administrative structure within the Office of Sustainability. These steps are important to establishing consistent, ongoing oversight and support for the plan.

Parts I, II, and III of the Plan recommend hiring the following new employees:

- Assistant Director, Environment, Sustainability and Health Institute
- Student Research Assistant, Environment, Sustainability and Health Institute
- Student / Community Outreach Coordinator, Office of Sustainability
- Energy Efficiency and Engineering Specialist, Office of Sustainability
- Administrative Assistant, shared with the Office of Sustainability and Institute
- 5 graduate Fellows
- 5 student Green Building Coaches

In addition, the Plan calls for the creation of the following new administrative structures:

- 3 Co-Chairs for the Institute
- Internal Steering Committee for the Institute
- External Advisory Committee for the Institute
- Sustainable IT Committee

This is in addition to the standing Johns Hopkins Sustainability Committee, formed in 2006. With these needs, this Plan recommends that sustainability efforts at the university be restructured into a comprehensive, connected, and coordinated framework. The new organizational framework has a number of benefits: it provides one institutional focal point for all sustainability activities; it provides a cross-divisional platform for cooperation and support; and it allows for a closer connection to the greater Baltimore community.

Holistically Manage Strategic Direction of Program in the Long-term

Given the extended time horizon for the achievement of the Climate Change goals, the structure will provide University leadership with an established capability to monitor the ongoing progress towards stated Climate Change goals.

Key decision makers within University Administration and the Divisions will be instrumental in the design and adoption of a flexible, workable governance structure by appointing the members of the Co-Chair leadership group. This group will ensure the appropriate individuals/groups are: aware of the program's progress; are engaged at appropriate times for decision-making; and, ultimately become champions for the program's success. To ensure progress and the timely implementation of the goals in the Implementation Plan, and to provide the appropriate leadership, guidance, and visibility, it is recommended that the Co-Chairs report to the senior University Administration (the Provost and Senior Vice President for Academic Affairs, the Senior Vice President for Finance and Administration, or the President).

Through the leadership of the Co-Chairs and senior administration, the Institute and the Office of Sustainability will focus on the establishment of a coordination structure to oversee the implementation of climate change priorities. This structure is intended to endure the lifespan of the implementation plan.

The Sustainability Office and the Institute staff will engage in several critical activities:

- Establish the framework, complete with tools, methodology, and required training for management and supervision of the portfolio of future Climate Change related projects, as defined in the Plan.
- Develop a Program Communications Plan, focused primarily be on providing status updates on the various projects to project leaders and strategic committees and leverage those status updates to communicate successes, generate discussion and gain increased support for the various projects.
- Establish schedule of ongoing committee meetings for communications / status reporting.
- Develop new tools and templates that will be used to provide ongoing support to the various projects. These tools will assist in the standardization of reporting and management methods.
- Develop an annual report on the progress of the implementation plan, identifying key areas of success, where greater attention is needed, and plans for the coming year.