

Swarthmore College Sustainability Charrette

February 11–12, 2015

Summary Report

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Swarthmore College conducted a Sustainability Charrette Feb. 11 and 12. The purpose of the charrette was to combine inspiring and thought-provoking talks from leaders² in sustainable design, engineering, policy, and economics with a collaborative, facilitated process to bring forth our best ideas for a sustainable campus. The charrette brought together more than 100 individuals—invited thought leaders, students, staff, and faculty from multiple college departments; Board Managers; Swarthmore borough officials; and community partners. For two days, participants worked in an atmosphere of exploration and collegiality and identified a number of initiatives that received broad support. This summary report details the major ideas and initiatives generated during this event.

Charrette Touchstones

Originating in 19th-century architectural practice, the purpose of a charrette is to reach a “design” solution. The process is most frequently associated with community development or building design. However, a charrette is often used to address economic, social, and political design challenges as well. Swarthmore’s Sustainability Charrette addressed a singular challenge: how the College should use its resources—human, financial, and material—to move toward its aspirational sustainability goals in a way that is consistent with its educational mission.

¹ This report is based upon a detailed report of the event by the charrette facilitator, Sandy Wiggins.

² Biographies of the charrette leaders are available here:

<https://www.swarthmore.edu/sustainability/sustainability-charrette-biographies-invited-speakers>.

The first step in a charrette is to develop a set of “touchstones,”—principles that clarify a project’s vision and guide decision-making throughout its planning and implementation. They emanate from deeply held collective values and motivate stakeholders to act in accordance with those values. Before Swarthmore’s charrette, a group of approximately 20 students, staff, and faculty met in a facilitated session to begin developing touchstones that would provide shape and guidance to the charrette. A smaller group refined the touchstones before the event. The following touchstones were presented to charrette participants:

Swarthmore College will apply its human, financial, and material resources to:

- *Build a just, sustainable future.*
 - *Deliberately advance justice and equity through education and action on campus and beyond.*
 - *Collaborate with alumni, surrounding communities, other colleges and universities.*
- *Implement a dynamic process for prioritizing possible short- and long-term actions and assessing the environmental and social impact of every substantive decision made.*
 - *Include a holistic assessment of life-cycle impact of all college decisions.*
 - *Recognize the complex root causes and manifestations of environmental problems and take action accordingly.*
 - *Create benchmarks and regularly assess progress towards stated goals.*
 - *Allow the process itself to evolve over time.*
- *Model the dynamic interplay between creative visioning, action, and learning to achieve outcomes that are net positive, not just net neutral, for society and the environment.*
 - *Hold individuals and Swarthmore accountable to move beyond discussion to taking action.*
 - *Integrate sustainable habits into community expectations.*
 - *Institutionalize practices that are necessary for a just, sustainable society locally and globally.*
 - *Cultivate sustainability as a core aspect of curricular and extracurricular education.*
- *Consider the College within its supporting ecosystems to foster natural beauty and regenerate the natural systems that support life.*
 - *Design to support and enhance natural processes.*

These touchstones were then posted on the wall throughout the charrette, and participants were invited to add their comments. They are as follows:

- *Is sustainability integral to our College? Yes, we want to educate so our students become agents of change.*
- *Nothing should be out of bounds, including the Inn and our investments.*

- *These are the jobs students' want—meaningful, dynamic, and creative in fast growing sectors. ... Swarthmore generally does not prepare its students for the universe of sustainability related jobs. It must do so.*

On the opening day of the charrette, participants were assigned to working groups of eight or fewer people and tasked with completing the following statement:

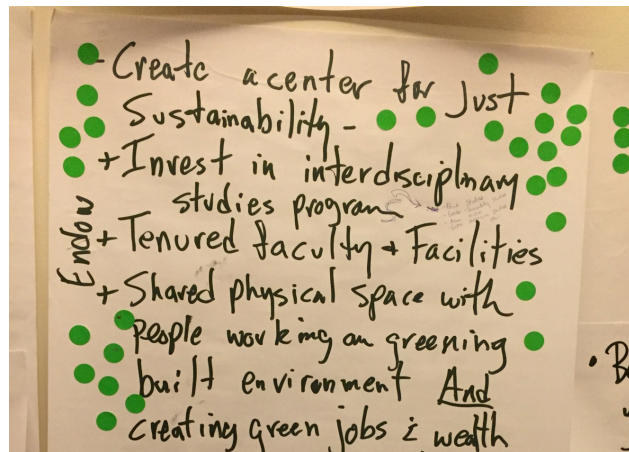
“The most important ways in which Swarthmore College can utilize its human, financial and/or material resources in order to live into its aspirations for a just and sustainable world are ...”

Two broad consensus ideas emerged:

- Take all steps necessary to embed the concept of “Just Sustainability” into the College’s DNA, i.e., as a guiding principle underlying governance, curriculum, administration, facilities and operations, and the ways in which it interfaces with surrounding communities.
- Focus the College’s educational mission on creating leaders for an environmentally sustainable and socially just world.

Proposals Generated by Charrette Participants

Starting with the touchstones and broad consensus themes, charrette participants worked to put forth and prioritize 35 proposals for action at the end of the second day. These ideas also built on the momentum developed through Interim President Hungerford’s Call for Big Ideas in fall 2014.



The top six proposals are listed below, prioritized from top to bottom based on a voting exercise by charrette participants. (Note: This prioritization does not represent community consensus but rather reflects the general level of interest among the self-selecting members of the community who chose to be involved in the charrette). The other proposals suggested during the charrette can be found in Appendix A.

Top Six Proposals Prioritized by Participants (Top to Bottom)

1. Create a Center for Just Sustainability, dedicated to environmental sustainability aligned with the advancement of social justice.
 - a. Invest in cross-cutting, interdisciplinary studies programs.
 - b. Build core curriculum components.
 - c. Endow tenured faculty and facilities.
 - d. Provide financial resources so that faculty from all departments have the time and resources to rotate through the Center.
 - e. Share physical space with staff working on greening the campus' built environment.
 - f. Engage in green job creation and wealth building in surrounding underserved communities.
2. Invest heavily in improving energy efficiency and other environmental functions of College-owned facilities, including faculty housing.
 - a. View energy efficiency improvements as an investment rather than as capital expenses. Finance through savings.
 - b. Engage students to research opportunities and costs, using the process as an educational opportunity.
 - c. Hire knowledgeable consultants to assess and oversee implementation.
3. Build a large photovoltaic array in the open area of campus currently used for composting.
 - a. This can be financed with a Power Purchase Agreement³ if necessary, but the College should also investigate it as an investment rather than a capital expense (typical yield 8 percent).
4. Engage with the borough of Swarthmore and city of Chester as partners in major initiatives, e.g., the development of utility scale renewable energy sources through Power Purchase Agreements.
5. Obtain the data needed to make informed investments:
 - a. Make the endowment portfolio transparent.
 - b. Research actual performance of fossil fuel stocks.
 - c. Have all fund/financial managers respond to the question, "How do you think about stranded assets risk?"
 - d. Determine which of Swarthmore's financial managers, especially of the separately managed funds, are able to provide fossil-free management.

³ On-site renewable power purchase agreements (PPAs) would allow the College to fund on-site renewable energy projects with no up-front capital costs incurred. With a PPA, a developer would install a renewable energy system on the College's property under an agreement that the College would purchase the power generated by the system.

Identify investment managers not currently working for Swarthmore who are able to provide fossil-free management from the list provided by Cambridge Associates.

6. Become a zero waste campus. Zero waste is a philosophy that redesigns resource life cycles so that all “waste” products are reused, recycled, or composted. No trash is sent to landfills and incinerators.



Next Steps

The College is committed to continuing the momentum of the charrette and will work to implement many of the ideas generated from the charrette and the 2014 call for big ideas in the coming months and beyond (please see Appendix B for a summary of the big ideas). The Board of Managers has also made it clear that it is willing to commit substantial resources to help Swarthmore become a leader in the efforts to combat climate change and will further discuss many of the proposals in appropriate committees in and beyond May 2015.

For proposals related to the College’s buildings and infrastructure, the immediate next step is to work with staff and external consultants to evaluate feasibility and determine the cost of implementation. The information gathered will be presented to Board committees and the community in May. We are proceeding with an evaluation of:

- the energy efficiency improvements for our existing buildings, with a goal to accelerate our improvements in the coming year;
- our housing stock; we will gather baseline data on age, occupancy, and energy costs this spring/summer and will hold further community conversation on the College's policies related to housing in fall 2015 and the spring 2016.
- the use and efficiency of College-owned vehicles in order to discuss ways we can better manage our fleet, ensure we have the right vehicles for our tasks, and look for opportunities to reduce our emissions.
- the feasibility of a photovoltaic array over the compost field and on future buildings, such as the new dorm currently being designed, to produce renewable energy on campus.

For proposals related to the curriculum and to new policies, further discussion is needed within the College community before these ideas could be fully realized; these conversations will begin this spring. However, interim steps can be taken concurrently with these discussions. For example, while a Center for Just Sustainability is being considered, interdisciplinary, crosscutting courses can be developed and partnerships with surrounding underserved communities can be strengthened. These steps do not require the development of a center but would support the center's mission if or when created. Similarly, we will review the College's purchasing habits and brainstorm ways to reduce waste sent to the Chester incinerator while the College community discusses whether or not to establish the goal of becoming a zero waste campus.

Finally, we invite the campus community to continuously evaluate the costs and benefits of the strategies we are pursuing for a just and sustainable future to ensure that the College's educational mission is always at the forefront of our decisions. Our resources exist to educate now and in the future. While actions to address climate change and issues of social justice and environmental health are essential to guarantee that we have a viable future, we recognize that the question of how to best use our resources—human, financial, and material—is complex. We need your thoughtful review and critical analysis to ensure that our path forward always aligns with our ever-present institutional mission of education.

APPENDIX A—Additional Proposals Generated During the Charrette

- Create a course, “Redesigning Swarthmore”—an interdisciplinary laboratory on Just Sustainability that includes service learning (contact Professor Betsy Bolton).
- Hold regularly scheduled charrettes to keep the process going, e.g., as we undertake new buildings like the new dorm.
- Allocate \$10 million annually for campus energy efficiency or establish a \$25- to \$50-million revolving fund.
- Establish a permaculture/food forest/farm garden on campus.
- Include Green Advisers in all student orientations and give them authority as a funded, rather than volunteer effort.
- Install interpretive signage throughout the campus.
- Keep it fun! Draw on all representative cultures on campus and in surrounding communities. Celebrate the process and successes.
- Commit \$5 to \$10 million per year for an “Office of Swarthmore Design” (toward Just Sustainability).
 - Analyze and recommend changes to institutional flows
 - Lend coherence to all of the opportunities and challenges
 - Requires full-time staff
- Poll students, faculty, and staff to understand what educational and financial resources they need to engage in this broad new agenda, and provide sufficient resources to respond to those needs (e.g. funding to free up time for faculty to really engage in sustainability-related work).
- Use the Center for Just Sustainability as an educational resource for the larger community.
- Include fossil-fuel-free options for employee retirement fund elections.
- Develop a plan to provide ongoing sustainability education to the Board of Managers.
 - Start with a half-day session at an upcoming Board meeting to focus on biophysical systems and their limits that govern the planet and why this matters to Swarthmore College.

- Leverage investments and purchasing power to support local communities as an anchor institution (See the Democracy Collaborative white paper *The Anchor Mission: Leveraging the Power of Anchor Institutions to Build Community Wealth* in the Appendices).
- Ensure that no student leaves the College without understanding the basics thermal dynamics and biophysical systems that support life and their relationship to sustainability.
- Audit the flows into and out of the campus to develop deep insight about the College's impacts and where resources need to be applied to correct those that are unsustainable: sunlight, rainfall, water, energy (all sources), durable goods, construction materials, food, waste, money, vehicles, people, etc.
- Create study programs that engage students to follow the flows into and out of the campus of energy, water, food, waste, money, etc.)
- Schedule regular meetings with Board and students to discuss Just Sustainability.
- Invest in the local community in ways that create green jobs
- Make a specific public commitment of funding for investing in Just Sustainability.
- Include Office of Student Engagement & Dean's Office in discussion and implementation.
- Engage College scientists with the new Biology, Engineering, Psychology Building design team in a meaningful and consistent way to increase the future building's performance.
 - Tie this initiative to curriculum and the work of the new Center for Just Sustainability. Involve students.
 - Repeat regularly.
- Involve the citizenry of Swarthmore and Chester regularly in the dialogue and planning for Just Sustainability.
- Develop economics curricula around Just Sustainability—environmental economics/macroeconomics/creative finance.
- Create a course in local/regional investment.
- Include the data team and special analysts who are already part of College in the Sustainability discussion.

- Begin to embed Just Sustainability in the DNA of the College with the faculty/students/staff who have the deepest commitment, and empower them to affect the whole community.
- Actively engage administration with the Just Sustainability curriculum and connect the curriculum to practical applications on campus and in surrounding communities.
- Hire a consultant(s) and appropriate funds to really follow through proposals that will move forward.
- Engage alumni who care about Just Sustainability. This is a development and opportunity as well as a possible source of investment.

APPENDIX B - Summary of “Big Idea” Proposals

Interim President Hungerford sent a message on Sept. 1 to the campus community asking everyone to “dream big, but concretely, about how Swarthmore can create change” with respect to stemming climate change and addressing the sustainable use of our resources. The campus responded deliberately and creatively. By the Oct. 10 deadline, more than 60 students, staff, faculty, and alumni, as well as full campus departments and committees, submitted more than 160 ideas. Below you will find a summary of the proposed ideas, organized by resource category.

CURRICULUM

Educate all of our students about sustainability and climate change.

- Offer an appealing array of courses at the first-year-seminar level. Different departments could collaborate on these courses as a means of piquing student interest in diverse fields of inquiry.
- Provide training for interested faculty to learn more about the climate change threat. Encourage faculty to integrate information into their courses.

Educate the community about sustainability and climate change.

- Hold a one-to two-year-long “seminar,” open to the College community, the broader regional community, and the community of engaged alumni. In this seminar, different departments would offer views both on what we know about climate change and on what we can do to mitigate the impacts.

Expand the College’s existing academic programs related to climate change.

- Establish an environmental peace-building faculty position. This new faculty member would both conduct research and offer courses on conflict management planning and peace building initiatives related to resource and climate change conflict. S/he could have a home in Peace and Conflict Studies while contributing to other programs.
- Revise and expand interdisciplinary environmental studies with a core faculty and a regular interdisciplinary major. Core faculty would consist of at least three tenure-line ENVS professors in environmental arts and humanities, environmental sciences, and environmental social studies.
- Create a Center for Just Sustainability in Martin Hall to bolster the interdisciplinary programs that teach principles of anti-oppression and intersectionality.

Produce radical new forms of environmental sustainability, self-sufficiency and stewardship at the College by 2050.

- Create the Swarthmore Futures Project: a lab, research and development center, think tank, and prototyping facility. This would be a new structure for pursuing a connected and cumulative form of problem-based, hands-on learning through an

entire generation of students. Each successive class of student and faculty participants would bequeath its experiments, initiatives, inventions, and insights to the next class of students, year after year, always defined in relationship to some concrete objective. Among its goals would be to get Swarthmore “off the grid;” to continue to reorient the College’s relationship to the natural and built environments around it; to prototype and disseminate technical and social innovations that contribute to environmental sustainability; and to continuously, critically, and skeptically evaluate commonly understood meanings of and beliefs about environmentalism and the environment.

BUILDING ENERGY AND INFRASTRUCTURE

Support Renewable Energy Use on Campus

- Install solar panels, geothermal heat pumps, or other renewable energy technology wherever feasible, e.g. install grid-connected photovoltaic solar collectors on the roof of the new BEP building, to be operated and maintained by our facilities department but monitored by equipment installed in the solar energy lab.
- Purchase renewable electricity through the Energy Co-op or similar supplier.

Make Existing Buildings and Infrastructure as Energy Efficient as Possible

- Green faculty houses through audits and retrofits.
- Replace steam radiators in dorms with modern systems that allow for individual room temperature control.
- Take remaining buildings off the existing steam plant and provide heat, hot water and chilling through high efficiency natural gas boilers.
- Add more Siemens controls to actively manage buildings.
- Convert/retrofit lighting to LEDS (or other efficient lighting) and install more lighting controls.

Build New Buildings to Highest Sustainability Standards

- New buildings should be passive house construction, particularly new faculty houses and dorms.
- Ensure that new buildings meet highest LEED standards and serve as examples of the state-of-the-art in sustainable architecture. Consider an energy efficiency standard much more aggressive than LEED.

TRANSPORTATION

Increase pedestrian and bicycle friendliness of campus.

- Revamp the bike-share program to make it more user-friendly and accessible. Include stations at Mary Lyon, Palmer, Pittenger, and Roberts to encourage more bicycle commuting and reduce shuttle van usage.

- Build more covered, sheltered, or locked storage spaces for bikes. Have more bike racks outside each building on campus, including the athletic facilities.
- Offer more bike maintenance and repair resources on campus including pumps, spare tires and other tools for personal repair.
- Add separate bicycle lanes and improved pedestrian crossings to campus roads and advocate for similar improvements to Swarthmore borough.

Promote use of nonmotorized and public transportation to campus.

- Reward staff and faculty who commute regularly without a personal vehicle, via direct subsidies for those who walk or cycle.
- Charge for parking access on campus and increase student parking space costs to discourage bringing cars to campus.
- Offer employee buses with routes to and from the most popular neighborhoods from which employees commute.

Increase the efficiency and reduce the carbon footprint of college-owned vehicles.

- Refine the process of assigning vehicles to specific purposes to minimize use of unnecessarily large vehicles for small groups.
- Downsize to smaller vehicles and or electric/hybrid vehicles when purchasing new vehicles.
- Have a no-idling policy on campus with good signage. Educate the drivers of College vehicles to not idle the vehicles.
- Build solar-powered electric vehicle charging stations around campus. Reserve spots for electric vehicles.
- Consider compressed natural gas (CNG) for vans and install CNG fueling stations.

WASTE

Improve on-campus waste stream infrastructure.

- Expand the composting program to more locations on campus as well as maintain compost collection for the entire year.
- Install tri-stream waste receptacles (compost, recycling, landfill) in more locations around campus accompanied by clear and user-friendly signage.
- Explore the feasibility of a waste transfer facility on or near campus to minimize the number of dumpsters and large refuse collection vehicles on campus.

Reduce waste produced and increase reuse and repurposing of materials.

- Eliminate the use of plastic water bottles altogether from all college-sponsored events, as well as the use of paper plates and plastic silverware on campus.
- Improve the College's mobile Web presence. Make it easier to go paperless and be more efficient with a better mobile information distribution system.
- Create a reuse center for all unwanted, clean materials channeled from the entire College system.

- Change College practices regarding equipment replacement cycles and consider leasing rather than owning equipment (e.g., lease refrigerators to students).

ON CAMPUS NATURAL ENVIRONMENT

Use more sustainable lawn care practices.

- Expand the organic turf program.
- Replace portions of the lawn with alternatives to grass.

Launch the Crum Woods Research and Restoration Preserve.

- Establish an environmental education center and hire a Crum Woods steward to support research and education.
- Reforest edges of Crum Woods; avert storm-water runoff, invasive species, and deer overpopulation; increase trail management.

WATER

Reduce potable water use for nonpotable purposes.

- Install toilets with multiple flush options.
- Build an innovative water treatment plant for new dorms (water goes into a bioswale and is returned to the water stream to flush toilets and HVAC use).

FOOD

Establish an on-campus farm.

- Establish an organic permaculture garden or a series of micro-farms around campus, cared for by a hired teaching farmer, volunteers, and students.
- Incorporate the farm into the curriculum as a lab space for existing classes and teach classes focused on the farm.
- Provide outreach to Swarthmore and the broader community through a farm stand, community fruit jams, and other methods.

COMMUNITY AND ADVOCACY

Support the Serenity House “Soular” Program in North Philadelphia and/or other community solar partnership.

- Set up an entity that would train people to install solar photovoltaic systems on local homes and businesses.
- Provide micro-loans to area residents to help them pay the cooperative to install solar panels on their roofs.
- Employ the cooperative to install photovoltaic systems on campus.

FINANCE

Establish an internal carbon tax.

- Tax ourselves for the carbon emissions generated by campus activities and put the proceeds in a carbon tax fund to support other initiatives to fight climate change.

Divest the endowment from the fossil fuel industry.

- Over the next year, negotiate with the College's 70 fund managers to divest from the 200 fossil fuel companies with the largest carbon reserves. Over the next two to five years, find replacement fund managers for any remaining that could not provide a fossil free management strategy.
- Reinvest a portion of the divested funds in community-based sustainability initiatives, such as the Serenity House Solar Program (see Community and Advocacy section).