

**Report of the Working Group
Sustainability**

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Vision and Goals

Climate change and environmental degradation are defining challenges of our time. As a leading liberal arts college, Williams is well positioned to confront these challenges through its teaching, research, and actions. Indeed, we have a responsibility to do so. According to the recent Intergovernmental Panel on Climate Change [report](#), the global mean temperature is on track to cross the threshold of 1.5°C above pre-industrial levels within the next 10-20 years, with increased risks of extreme weather events, receding sea ice, severe wildfires, species extinction, increased floods, and ocean acidification. Many of these consequences will disproportionately fall on the world's most vulnerable populations. Reducing greenhouse gas emissions will require a fundamental shift in the world's approach to technology, resource use, international cooperation, and decisions about consumption, production, and transportation.

Williams has responded to these challenges with increased urgency. In 2015 the President and the Board of Trustees established a suite of sustainability goals for [2020](#). These goals were ambitious in their own right, and they stimulated investment in key areas, including renewable energy, high-performance buildings, carbon neutrality, impact investing, and academic programming. The college has made substantial gains in all of these areas. Nevertheless, fossil fuels continue to heat and cool our campus, and some of our gains in renewable electricity and improved building efficiency have been offset by increased emissions from travel and an expanded campus footprint. In addition, other areas of sustainability received less attention in the 2020 goals, including toxins, waste, water use, and the procurement of materials and food. Strategic planning provides an opportunity for the college to build on its earlier successes and make transformative commitments to sustainable practices, teaching, and research.

In developing this report, the working group engaged with students, faculty, staff, alumni, and community members, connected with peer institutions, and reflected on the successes and failures of past efforts (see Appendix 2 for a description of the outreach process). These conversations proved invaluable in shaping our vision for sustainability at Williams.

A recurring theme in these conversations was the importance of leadership, accountability, and clear communication. Many emphasized the importance of “leadership from the top,” including the President, the Board of Trustees, and senior staff. We also heard related ideas about clarifying the governance structure of sustainability work, making sustainability a shared imperative across the college, and communicating progress toward goals openly and frequently.

Almost every outreach group mentioned the importance of setting ambitious goals for college emissions and other sustainability efforts, and we heard repeatedly that the college would benefit from a comprehensive sustainability plan. In the past, we have made significant progress toward sustainability only when we set clear goals. When the goals were less well defined, as for travel emissions, campus square footage, composting, waste, and real-food purchasing, we have made less progress. Our conversations and research have made it clear that we must outline our goals across a range of areas and identify strategies and timelines for achieving them.

Finally, throughout our conversations, we heard about the importance of embedding sustainability within the core educational mission of the college. As the college states in its

sustainability principles: “The College’s greatest contribution [to sustainability] is through educating our students [...] We do this through our teaching, research, and co-curricular offerings, and by demonstrating and embracing sustainable practices in the development and operations of our campus.” While the college has recently increased its curricular commitment to climate change, we can do more to teach all Williams students how to make informed environmental decisions in private and in public life.

This working group report recognizes Williams’ special obligation to prepare our students to respond effectively to global climate change and environmental challenges. It also realizes our moral responsibility to respond to climate change through reducing our own emissions, modeling sustainable practices, and being transparent and accountable in our actions. This, in turn, requires leadership from the top, measurement and accountability, and broad participation across the campus and community.

The following report provides a roadmap for helping the college enact its sustainability commitments in six key areas:

Climate action

We recommend that Williams commit to substantially reducing its carbon emissions over the next decade and to studying a pathway for eliminating fossil fuels from our power plant and purchased electricity by 2035. These commitments would reduce our reliance on carbon offsets and move us toward campus carbon neutrality. Strategies for shorter-term reductions in emissions include reduced travel, fuel-substitution, deep-energy retrofits, rigorous building standards for new construction and renewal projects, carbon pricing, and community partnerships. Longer-term strategies include reducing our energy load, transforming our heating and cooling distribution, moving to electrical heating and cooling, limiting the growth of square footage, and switching to alternative energy sources. We recommend that the college develop a climate action plan by 2021 that outlines specific goals and a strategy and timeline for meeting them.

The Built Environment, Landscaping, and Land Use

We recommend that Williams manage its facilities to optimize environmental performance and that it follow rigorous, established standards in the renovation, construction, and maintenance of its buildings. The college should take an approach that is holistic, data-driven, and focused on campus-wide sustainability goals. Further, we recommend that Williams commit to the sustainable management and stewardship of its lands, incorporating sustainable design into all construction projects and sustainable landscape management in its operations. Finally, we recommend that the college conserve and protect Hopkins Forest in the long run for the purpose of teaching, research, biodiversity, and recreation.

Education and Research

We recommend that Williams make sustainability a vibrant and prominent part of the curriculum and educate the campus community about sustainable practices and climate justice. This can be achieved through increased hiring of faculty whose research connects to sustainability, incentivizing course development, supporting co-curricular opportunities, deepening ties to existing programs such as Williams-Mystic, and highlighting sustainability course offerings and

pathways through the curriculum. Areas for curricular exploration and innovation include sustainability problem-solving, climate and environmental justice, agriculture and food systems, coastal resilience, and art and sustainability.

Responsible Consumption

We recommend that Williams make measurable improvements in the sustainability of its food, water, and other procurements, and that it substantially reduce its waste. Strategies include purchasing more local and unprocessed foods, increasing the sustainability of products purchased and used throughout the college, introducing materials management strategies that incentivize reuse, and reducing water consumption. Progress in our handling of waste will require reducing our consumption, increasing the proportion of waste diverted from landfills and incinerators, and reducing plastics and electronic waste.

Community, Equity, and Inclusion

Williams commits to building a sustainable campus in which all of its members can thrive, and in which all have access to environmental amenities and decision-making. Strategies include fostering cross-college partnerships and community collaborations, diversifying leadership and involvement in sustainability, developing an inclusive sustainability decision-making process, and making clear connections between our environmental actions and social justice.

Accountability and transparency

Sustainability needs to be led from the top, but embraced across all areas of the college. We recommend that Williams set ambitious and measurable goals, report regularly on its progress, and communicate with all constituencies openly and honestly. We will build our reputation in sustainability through ambitious actions and consistent, principled, and effective decisions. Strategies for improved accountability and transparency include detailed measurements, annual reports, dashboards to display our progress, and regular communications with the campus and community about our sustainability commitments.

Taken together, these goals define sustainability as a central commitment of the college, and one that is integrated into our operations, educational mission, and community.

Appraisal of the Current State

Williams has a long history of engaging with sustainability and the environment. In 1967, President Jack Sawyer founded one of the first environmental centers in the nation, the Center for Environmental Studies (CES), with the goal of fostering “the kinds of analyses, decisions, and recommendations for action that can help set in motion responses by the several levels of government and community leadership which are needed while there is still time to choose among the environmental options before us.”

The more recent movement toward campus sustainability emerged as a response to calls for climate action. In fall 2005, President Schapiro received a petition signed by nearly 1500 faculty, staff and students asking Williams to set greenhouse gas emissions goals. In 2006, he created the Climate Action Committee (CAC) and charged it with recommending goals and strategies for meaningful reductions in the college’s emissions. In light of the committee’s recommendations, the Board of Trustees unanimously agreed to reduce emissions to 10% below 1990 levels by 2020, and to establish sustainability as an institutional priority.¹ An important step toward implementing these goals was the founding of the Zilkha Center for Environmental Initiatives in 2007 with the generous help from Selim Zilkha ‘46. According to President Schapiro’s letter to the community, the Center was designed “to work with students, faculty, and staff to incorporate principles of sustainability into the fabric of campus life – in learning, in our purchasing and operations, in capital projects, and in the daily routines of us all.”

One of the Zilkha Center’s first tasks was to work with CES and various campus committees to craft a set of guiding principles, which were adopted in 2009:

Williams is committed to protecting and enhancing the natural and built environment in which we learn, work, and live, and to supporting the global effort to advance environmental sustainability. These efforts rely on the involvement of all members of the campus community. To succeed, initiatives must be not only environmentally responsible but also socially fair and economically sound.

The college’s greatest contribution is through educating our students, who will go on to become environmental stewards through their many roles as scientists, lawyers, investors, politicians, manufacturers, writers, advocates, artists, teachers, parents, consumers, and citizens. We do this through our teaching, research, and co-curricular offerings, and by demonstrating and embracing sustainable practices in the development and operations of our campus.

As faculty, staff, and students, we educate ourselves about important issues related to sustainability and pass on our learning to the larger communities of which we are all part. We eagerly share ideas with and learn from our neighbors and colleagues and seek consortial arrangements that can develop and broaden such practices. We work to

¹ This goal was later revised in 2015 to aim for a 35% reduction in greenhouse gas emissions from 1990 levels by 2020.

contribute to the development of environmental standards. We report regularly on our progress.

These principles remain compelling today. They also formed the basis of the college's first planning exercise (in 2010) around campus sustainability, a joint effort on the parts of CES, the Campus Environmental Advisory Committee (CEAC), and the Zilkha Center, in collaboration with numerous committees and constituencies on campus. The [report](#) made recommendations in several core areas of sustainability, including energy and emissions; natural resources; construction standards, procurement, consumption, and waste; and the built environment. One of the plan's most important recommendations was switching the fuel source in the central heating plant from No. 6 fuel oil to natural gas, a much cleaner fuel. When implemented in 2013, that change accounted for close to a 30% reduction in total emissions. The plan, as a whole, however, was never adopted as a formal guide to policy at the college. In some areas, such as emissions, the plan's recommendations were superseded by more ambitious commitments. In other areas, such as waste and recycling, the plan established goals that did not catalyze meaningful changes in practice. The current strategic planning process has given us an opportunity to revisit that report and incorporate some of its key recommendations.

The impetus behind the most recent sustainability goals came from a combination of increased urgency around climate change and the divestment movement on campus. The [Proposal for Divestment](#) presented to the Board of Trustees in December of 2014 and signed by more than 500 members of the community represented a call to action. After studying the issue, President Falk and the Board of Trustees concluded that divestment from a specific set of companies would be less effective than making significant investments in sustainability on campus and beyond. The [2015 statement](#) by President Falk and the Board of Trustees constituted an important step in the college's commitment to addressing climate change. The statement elevated the importance of addressing sustainability, noting, "We agree strongly that global climate change is an urgent issue and that Williams has an obligation to address the issue in substantive ways. Williams, as one of the most advantaged institutions of higher learning in the country, with a long history of environmental leadership and a tradition of producing leaders with the willingness and ability to address complex global problems, must assume a leadership role both on our own campus and in the national conversation in the fight against climate change." In addition, the statement laid out five specific goals as a step toward a more intentional educational and operational response to the challenges of climate change:

1. Reduce net greenhouse gas emissions 35% below 1990 levels.
2. Purchase sufficient carbon offsets to achieve carbon neutrality by the end of 2020.
3. Partner with students, faculty, staff, and the community to reduce fossil-fuel use.
4. Invest endowment funds in projects that benefit the environment.
5. Make new investments in our educational mission.

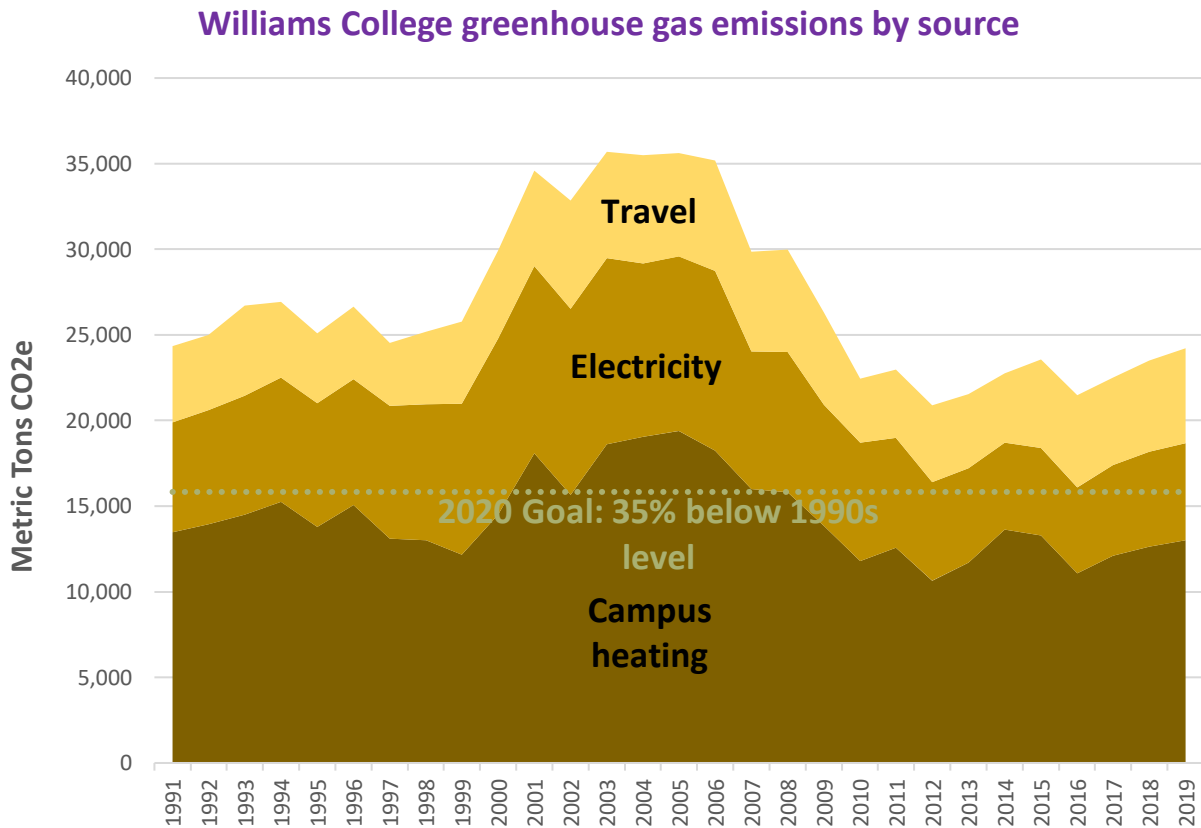
These goals marked an important moment in the college's commitment to addressing sustainability and climate change. They pushed the college to pursue aggressive emissions goals in all new construction; they motivated increased investments in renewable energy projects; and they challenged the campus community to confront climate change both inside and outside of the classroom. Perhaps more importantly, they also offered valuable lessons that have informed the

current planning process. The following section details the college’s progress toward meeting the 2020 goals and discusses the key lessons for the future.

Climate Action: Progress toward 2020 Goals

1. Reduce net greenhouse gas emissions 35% below 1990 levels

Our greenhouse gas emissions (CO₂ equivalent, or “CO₂e”) come from three basic scopes: scope 1, which includes emissions from our power plant and vehicle fleet; scope 2, which includes indirect emissions from purchased electricity; and scope 3, which includes indirect emissions from all other sources that occur as a result of our operations but from sources not owned or controlled by the college, such as business travel. We have pursued a variety of strategies to reduce campus emissions, including weatherization projects, solar installations, LED lighting upgrades, and aggressive emissions targets on capital projects. These efforts have lowered annual emissions from a peak of around 34,600MT CO₂e in 2005 to about 24,000MT CO₂e in 2019. This puts us on par with our 1990 levels and about 8,000MT above the goal.



Much of the remaining gap will soon be covered by an off-campus utility-scale solar project and a small purchase of renewable energy credits. In the spring of 2018, the college entered into a partnership with Amherst, Bowdoin, Hampshire, and Smith Colleges to construct a utility-scale

solar power facility in Farmington, Maine, which will reduce our carbon footprint by about 4,700MT. We have recently learned that the Farmington project has been delayed slightly, with an expected start date in the spring of 2021. In order to ensure that this delay does not compromise our emissions goals, we plan to purchase renewable energy credits during the interim that would closely match the characteristics of the Farmington project.

But even with the Farmington project, the college will struggle to meet its goal of reducing emissions to 35% below 1990 levels by 2020.² Partly, this is an artifact of a measurement issue with our conversion of electricity to CO₂e. Two years ago, the college moved to a more accurate measure of plant-level emissions data for converting purchased electricity to its CO₂e. This new measure actually lowered the measured amount of electricity-related emissions for the entire time period 1990–present, which sounds like good news. From the perspective of the emissions goals, however, this lowered the electricity share of emissions for the 1991–2019 period, which in turn lessened the percentage impact of the Farmington project on our emissions profile. This measurement error was then compounded by further mismeasurement of air travel, which led to upwards revisions of the entire series as we improved our estimates.³ In the end, we are likely to be closer to 30% below 1990 emissions levels than 35% below. Knowing that electricity emissions composed a smaller share of the total emissions profile, and travel a greater share, might have changed both the goals and the strategies in 2015.

Thus, one hard-won lesson is the importance of accurate measurement and tracking of all scopes of emissions. But a more important lesson is the recognition that our emissions strategy needs to focus not only on the source of energy, but also on our demand. Our air mileage, for example, increased 146% in 30 years, due partly to a 67% increase in the number of our staff and faculty employees. Because of improved efficiency in the airline industry, this increase in mileage translated into a 29% increase in travel emissions over the time period.⁴ At the same time, we had exhausted most of the low-hanging-fruit efficiency gains in the central heating plant and continued to demand similar amounts of energy on campus. A broader effort aimed at reducing the overall demand for energy across all three emissions scopes would have allowed for more progress, despite the measurement problems with electricity and travel. This lesson motivated the recommendation in this report that the college focus on reductions in energy use, as well as on improved efficiency.

2. Carbon neutrality

Recognizing that travel and combustion would leave the college with net positive emissions, the college set a goal of “neutralizing” the remaining emissions through the purchase of high-quality carbon offsets. A carbon offset is a certificate demonstrating the reduction, removal, or avoidance of one metric ton of CO₂e through projects in areas such as renewable energy, methane capture, or reforestation. In theory, offsets allow the college to finance carbon reduction projects anywhere around the world, which it can then use to offset its own residual emissions on

² All remaining emissions will be neutralized through the purchase of high-quality carbon offsets.

³ Note that larger amounts of travel emissions throughout the period reduce the relative importance of emissions from purchased electricity, which were the lynchpin of the college’s strategy.

⁴ It’s interesting to note that if we had stayed at our 1990 level of FTE but allowed per capita travel to follow the same pattern, travel emissions would have fallen by 22%.

campus. The challenge is making sure that the offsets lead to reductions in carbon that would not have taken place otherwise, a condition known as “additionality,” and also that they do not negatively impact their local ecosystems or human communities. In spring 2019 the Campus Environmental Advisory Committee task force developed a [set of guidelines](#) and recommendations for purchasing third-party verified offsets. The committee emphasized the importance of making sure these investments are transparent and foster critical engagement in teaching and scholarship. It also highlighted the importance of selecting projects with co-benefits in the areas of social engagement, equity, environmental health, and conservation. We purchased our first offsets in fall 2019 and are positioned to offset our remaining carbon footprint by the end of 2020. The first purchase went to three projects: forest protection in western Massachusetts; a biogas digester project in Vietnam; and a clean cookstove program in Honduras.

In conversations during our campus outreach, the majority of people wanted to see us move away from offsets over time and achieve reductions through investments in improved efficiency and reduced energy demand. While some appreciated the value of offsets as a transitional means of addressing our emissions, many felt that they were tantamount to buying our way out of a moral obligation. There was a clear sense that offsets should be used as a last resort, after all reasonable efforts have been made to reduce campus emissions. Some constituents also expressed a preference for local offsetting projects over international ones.

3. Partner with students, faculty, staff, and the community to reduce consumption of fossil fuels

Much of our impact on emissions, both positive and negative, has come from building projects around campus. But we have also addressed emissions through a series of smaller decisions across core areas of the college, including Dining Services, Facilities, and Planning Design & Construction. These changes include increased use of local foods, reduced food waste, increased electrical efficiency, the elimination of water bottles and Keurig cups, and a Green Office initiative aimed at helping departments around the college conserve energy and reduce unnecessary waste. While this list includes some clear successes, our approach to consumption was less targeted than our investments in solar installations, high-performance building projects, and renewable energy. As a result, we succeeded in transitioning to cleaner forms of energy, but we did not see equivalent changes in our consumption patterns. As we look to our future commitments to sustainability, it will become increasingly important to reduce consumption across sectors and to make sustainability a community-wide effort.

4. Invest the endowment in projects that benefit the environment

In the 2015 statement, the college committed to investing as much as \$50 million, over a five-year period, to address climate change. Of that \$50 million, \$25 million was to be allocated through the endowment to impact investment managers whose areas of expertise include companies, projects, or technologies focused on the reduction of greenhouse gas emissions. As with all of our investments, we sought impact investments that delivered the expected risk-adjusted rate of return required to support the college. In 2016, we made our first impact investment with a manager that provides debt financing to small- and mid-sized alternative energy projects (primarily solar) in North America. We made our second investment with this

manager in 2018, having committed a total of \$10 million across the two funds. In 2019, we made an additional impact investment with our second manager, in a fund that provides equity financing to utility-scale renewable energy projects (primarily wind and storage) in the United States. To date, we have committed a total of \$20 million against the theme of climate change and are on pace to meet the objective before the end of 2020.

One lesson we have learned is that it is not easy to find opportunities that meet our requirements of providing a measurable and reportable reduction in greenhouse gas emissions while still supporting the college through strong risk-adjusted expected returns. In order to identify its first two impact investment managers, the Investment Office interviewed over 90 prospective firms and devoted substantial staff resources to analyzing potential opportunities. Nevertheless, we feel that this has been an important element in the college's strategy, in that it pays triple dividends: it helps fund the creation of sustainable energy projects; it contributes to the development of a new market focused on impact investments; and it helps build our own capacity to select fund managers in this area.

5. Invest in our educational mission

Our most important commitment is our responsibility to engage with climate change as teachers, scholars, and students. As part of the 2015 goals, the college authorized two new tenure-track lines for faculty whose research and teaching focuses on key aspects of climate change. In 2017 we hired Laura Martin as an assistant professor in Environmental Studies. Laura studies how to maintain biodiversity in a rapidly changing world, and her work spans multiple fields, including conservation biology, environmental history, and science and technology studies. In 2018, we hired Alice Bradley in Geoscience. Alice's research focuses on Arctic sea ice and the impact of strong storms on the environment. These are just our two newest faculty. We also have a number of faculty across all three academic divisions whose work intersects with climate change.

The college's climate commitments kicked off in 2016–2017 with a [Year of Confronting Climate Change](#). Throughout the year, the college hosted speakers who addressed various aspects of climate change. The speakers included NASA's James Hansen and Gavin Schmidt, Stephen Gardiner, Van Jones, Maxine Burkett '98, Mark Tercek '79, and Bill McKibben. In addition, the Williams College Museum of Art invited the Ghana ThinkTank, an international art collective, to collaborate with the college on identifying and addressing climate challenges.

These investments in the educational mission have reinvigorated environmental scholarship and teaching at the college. There are many ways, however, that we could make sustainability a more coherent and visible part of the intellectual life of the college.

Education and Research

Writing in the Chronicle of Higher Education in 2006, then Cornell University President Frank Rhodes described sustainability as “the ultimate liberal art.” The pursuit of sustainability requires synthetic, multidisciplinary thought, and it bridges theory and practice in order to tackle the world's most pressing environmental challenges.

Sustainability is a rapidly changing field, and Williams is well positioned to be a leader in developing new approaches to environmental education. As we outline below, three entities – the Center for Environmental Studies, the Zilkha Center for Environmental Initiatives, and the Williams-Mystic Program – promote sustainability across the campus, along with a number of vibrant student and staff/faculty organizations.

Center for Environmental Studies

The Center for Environmental Studies was established in 1967, largely as a center linking the academic interests of the college with regional environmental constituencies. In 1970 CES began to offer an innovative academic coordinate program that crossed the divisional divide. In 1971, CES assumed the management of the Hopkins Memorial Forest, and has since developed it into an interdisciplinary field station for Williams College. The following year, CES established an Environmental Analysis Laboratory through a grant from the Richard King Mellon Foundation. Today CES also manages a robust alumni-funded student summer research and internship program. Each summer, CES funds 30+ students from all majors to pursue career-related internships, scholarly research, and creative projects. The [CES internship program](#) sets Williams apart from other institutions; it is an unparalleled asset that should be highlighted in promotional materials.

Although CES is one of the oldest institutions of its kind in the United States, it was late among its peers to offer a major. After an extended planning period supported in part by a grant from the Mellon Foundation, the college started to offer a major in Environmental Studies in 2010, and two of the first tenure-track faculty with appointments in Environmental Studies were hired the following year.⁵ A third tenure-track faculty member was hired in 2017. A number of affiliated faculty also contribute vitally to the Environmental Studies curriculum. For example, ENVI 102, the Introduction to Environmental Studies, is a team-taught course staffed by faculty with appointments in Geosciences, Biology, and Chemistry.

With three tenure-track faculty, the Environmental Studies program at Williams is notably smaller than some of our peer institutions. And yet, approximately 8% of students that apply to Williams indicate an interest in studying the environment. Of the enrolling group, 15% indicate this interest, and the Admission Office notes that student interest is increasing. The number of students majoring and concentrating in Environmental Studies is also growing rapidly. For the class of 2020, Environmental Studies has the greatest ratio of majors/concentrators to faculty of any academic unit at the college. Thus, the Environmental Studies program is poised for expansion.

The Zilkha Center

The Zilkha Center for Environmental Initiatives was established in the fall of 2007 with a donation from Selim Zilkha, Class of 1946. The Zilkha Center pursues sustainability at Williams by designing and advocating for operational change; researching and implementing best

⁵ The first tenure track faculty appointment was Thomas Jorling in 1972, who taught ENVI 101, ENVI 402, Environmental Law.

practices; and connecting groups across campus. It actively seeks out collaborations with peer institutions and partners to magnify our collective impact. The Zilkha Center also promotes sustainability through engaging students. The Davis and Zilkha Centers collaborate on Root, an EphVenture orientation program that focuses on sustainability, social justice, and identity. The Zilkha Center also oversees the Eco-advisors program, which focuses on peer-to-peer learning, as well as an active portfolio of student interns who play a central role in sustainability research and monitoring on campus. Other programs include Winter Blitz, a student-created community service weatherization program in local communities, and the Green Offices program, which focuses on addressing sustainability within departments. At present the Zilkha Center employs three staff members, along with a number of short-term student interns.

Williams-Mystic

The Williams-Mystic Maritime Studies Program was founded in 1977 by Professor Benjamin Labaree. Since then, more than 1,700 students from over 100 colleges and universities have spent a semester with Williams-Mystic. Students enroll from Williams and a range of other colleges and universities to spend an intensive, immersive 17-week long semester. During that time, students take four interconnected courses, pursue independent projects, participate in three extended field seminars at different sites (one offshore and two coastal), and cultivate hands-on skills. At present, the Williams-Mystic Program employs 5 faculty and 5 staff.

Other Williams organizations that directly promote sustainability include the Campus Environmental Advisory Committee (CEAC), the Design Review Committee, the Zero Waste Working Group, the Student Dining Services Committee, and student organizations including Williams Environmental Council, Williams Sustainable Growers, the Purple Bike Coalition, and Williams Recovery of All Perishable Surplus (WRAPS).

Williams has both a history of environmental education and engagement, as well as vibrant interest on the part of students and faculty. Nevertheless, some of this potential remains untapped. Williams has the opportunity to become one of the top institutions at which to study sustainability and the environment through strategic hiring, curricular and pedagogical innovation, and educating the campus community about sustainable practices.

Responsible Consumption

Some of the most visible areas of campus sustainability are the ones we interact with on a daily basis: food, waste, water, and purchasing. Students, in particular, pay attention to the demonstrated priority placed on responsible consumption, and our actions in these areas can help set cultural norms and contribute to sustainability education and adoption outside the classroom.

Waste

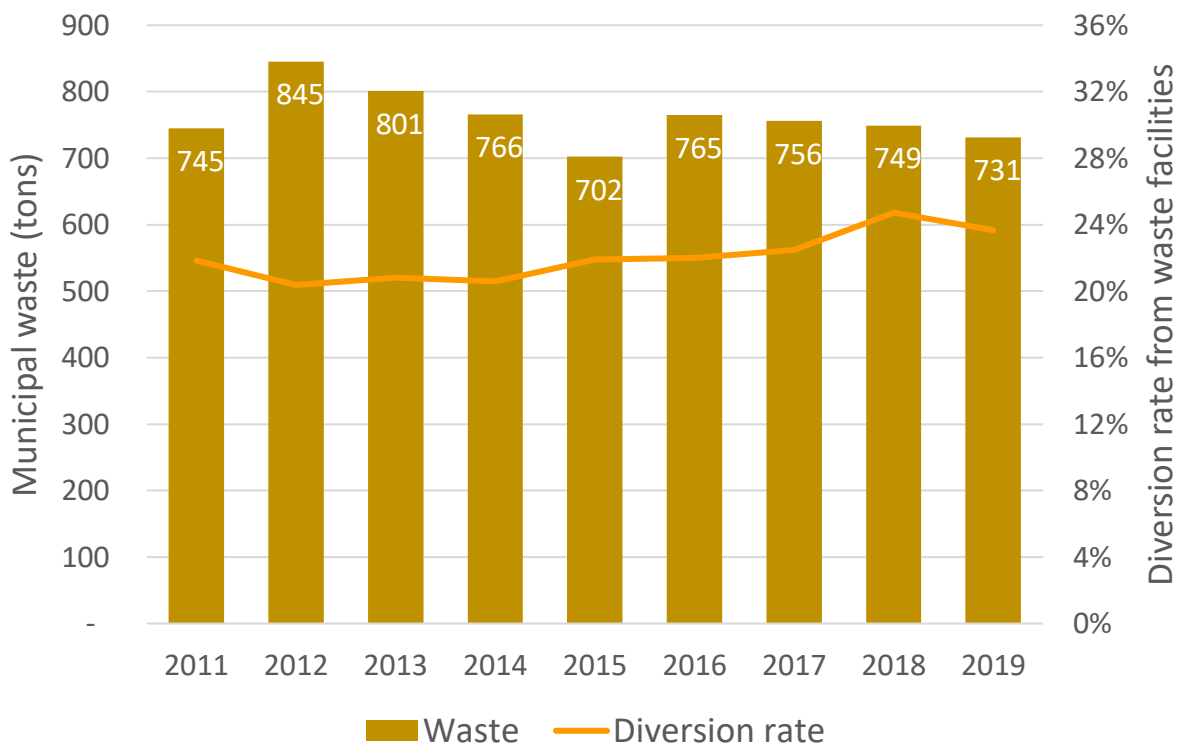
Williams sends about 750 tons of material to the municipal solid waste stream every year and that number has stayed relatively consistent since the early 2010s. Our trash is hauled to the [Wheellabrador Hudson Falls](#) energy-from-waste facility in Hudson Falls, NY, where it is

converted into a local fuel to generate electricity for sale to the local utility. Debris from construction dumpsters across campus goes to a landfill in Rensselaer County, NY.

Recycling began as a student-led initiative two decades before the practice was brought under the purview of Facilities in the early 1990s.⁶ Williams now collects paper, newspaper, cardboard, plastic, glass and metal containers, and batteries for recycling. Our campus Recycling Team picks up the recyclables once a week and takes them to [certain locations](#) around campus until our recycling hauler, Casella (formerly [T.A.M.](#)) hauls it to their recycling center in Pownal, VT.

Over time, numerous [strategies](#) for waste reduction and increased diversion from waste facilities have been explored. Two of the successes, Papercut, a printing reduction initiative, and Give It Up! an end-of-year donation program, are still operational and measurably contributing to campus sustainability.

Tons of municipal waste and percent of total waste diverted from waste facilities



Composting at Williams began as a student-led initiative in 1994. Compost collection started at Dodd House, where food scraps were composted using a pile system behind the student residence. Soon the program grew to all five dining halls, and CES paid two students to pick up and haul the compost each night in 15-passenger vans to Caretaker Farm or other local farms.

⁶ https://sustainability.williams.edu/files/2010/09/katie_solid_waste_2007.pdf.

Since 2002 composting has been managed by Dining Services. Dining starts by carefully tracking food waste and using as much of a food item as possible. The remaining food waste is either diverted through a student-led program to donate food or set aside for composting. A small local company collects food waste and compostables daily from each of the dining halls and empties this food waste into totes in the [Facilities storage area](#), where it is layered with sawdust until it is taken up to Casella's organics facility in Shaftsbury, VT. There it is placed into large windrows with other compostable material where it breaks down and turns into compost that can be added as an enrichment to soil.

In recent years, Dining Services has moved toward compostable serviceware as a to-go alternative. However, apart from a couple of locations around campus, dining halls are the only places that have compost collection bins. When a student takes a to-go compostable coffee cup out of the dining hall in the morning and heads to class, there are few bins elsewhere on campus where those compostable items can be properly disposed. Interested students have attempted to address the issue through piloting a couple of dorm-composting programs, with the support from the Zilkha Center and Facilities Operations.

In 2011, Williams requested that waste-service providers begin [reporting data](#) into a google spreadsheet, which has enabled us to more easily track our use of municipal solid waste, recycling, and composting over time. We use these data, along with periodic [waste audits](#), to determine trends over time and identify challenges that need to be addressed.

Water

Williamstown sits within the Taconic Range and receives ample fresh water in the form of rivers, brooks, springs, and lakes. The [town's water](#) comes from three artesian groundwater wells, which naturally push water toward the surface and are replenished by melting snow from the surrounding mountains. Despite the regional abundance of water, the college has a responsibility to reduce wastewater and to educate the college community about conservation methods and practices to increase sustainable water use. In addition, hot water use has direct implications for the college's emissions goals.

The college's own water use has declined in recent years. Total water use (potable and non-potable combined) decreased from about 47 million gallons in 2003–2004 to about 40 million gallons in 2017–2018, despite a substantial increase in the number of users. Over this period, average water use fell from 17,000 gallons per person to 13,000 gallons per person, a decline of 22%. However, in 2018–2019, water consumption rose again to almost 45.5 million gallons due to high cooling demands during an unusually warm summer. The college is looking into how to continue to reduce water use and educate the campus about the importance of water conservation.

Purchasing

Historically, purchasing has been decentralized at the college, and therefore, efforts to procure sustainable products have been dependent on how individual departments prioritized sustainability in their areas. Periodically, the Zilkha Center has collaborated with departments to

source recycled paper for printing and with the sciences to research sustainable options for equipment. Facilities has increased its purchasing of sustainable cleaning products; a 2018 audit determined that approximately 48% of cleaning products purchase were Green Seal or UL ECOLOGO certified and/or Safer Choice labeled.

Food

With an abundance of small farms in the region, Williams has been connected to local farms for decades. When the previous dining director, Robert Volpi, came to the college in 2002, he made purchasing local food a priority. In recent years, the college has expanded the definition of sustainable food and has begun tracking sustainable food attributes of products through student-initiated work, which began in 2012, with [Real Food Challenge](#) (RFC), which was co-founded by Anim Steel '94. The RFC framework defines food sustainability through the lens of four categories: local/community-based, ecologically sound, fair, and humane. Student interns have subsequently used the RFC framework to identify real food products and to quantify the share of real food as a percentage of Dining Services' purchases. In the 2016–2017 academic year, the percentage was 15%, and it has risen to 18% in 2017–2018. While Real Food is the standard used by many institutions across the country, in the last few years, a handful of new food programs have sprouted up and gained traction. Institutions using Real Food Challenge are aiming for 20% real food by 2020, though others in the Northeast have reached 25–30% with concerted efforts to reform their tracking mechanisms and purchasing policies. The Zilkha Center is currently in conversation with a number of other colleges to gain insight into these alternative approaches.

Built Environment, Landscaping, and Land Use

We have a large and complex campus, consisting of over 3 million square feet of historically important and newly constructed buildings. These buildings house critical functions of the college, including residence halls, classrooms, offices, dining spaces, arts facilities, and athletic venues. They also constitute the single most important driver of emissions on campus. The 2015 goals made a commitment to “invest deeply in sustainable design, building practices, and systems that meet ambitious energy efficiency goals.” This commitment has been a key component of the college’s emissions strategy and an important force offsetting some of the impact of the 2.5% increase in square footage over the past five years.

In 2016, the Board approved a [set of guidelines](#) for incorporating sustainable design into the procurement, planning, construction, and commissioning of new capital building and renovation projects. Those guidelines recommended that all building projects should conform to high sustainability standards and that those with a total cost of over \$5.3 million should seek [LEED Gold](#) certification (or a similar industry-accepted standard) or higher when feasible and pursue aggressive goals around energy use intensity (EUI).⁷ The LEED program has encouraged many institutions to incorporate sustainability into their projects, but its point system can sometimes lead to impractical solutions that are inappropriate for the project or the institution.

⁷ Energy use intensity (EUI) is a measure of energy used per square foot from all sources on a 12-month rolling basis, making EUI a useful tool to set design criteria and track building and campus improvement.

Project	Certification Level	EUI Target	Baseline EUI
Bookstore	LEED Platinum	40	66
Inn	LEED Gold	60	85
South Science*	LEED Gold	125	227
North Science*	LEED Gold	125	92
CDE Residence*	Net Zero	30	71
St. Anthony Hall*	LEED Gold	30	60
Garfield House	LEED Gold and Passive House	28	76
Fort Hoosac	LEED Silver + LBC Petal Certification	30	71

Note: The North and South Science buildings have a *combined* EUI of 125. The North building is likely to achieve a much lower EUI than the South building since it is mostly offices and classrooms, rather than labs. Similarly, the CDE residence hall and St. Anthony Hall have a *combined* EUI of 30. The residence hall is net zero, so that all of the net emissions will come from St. Anthony Hall.

Williams has increasingly experimented with standards such as [Living Building Challenge](#) and [Passive House](#), which are at least as rigorous as LEED Gold but introduce additional standards around building performance, materials choice, and occupant well-being.⁸ The International Living Future Institute (ILFI), for example, offers several pathways toward certification, organized around a system of “petals,” including energy, health, materials, and equity. The most rigorous of these is the Living Certification, which requires a building to meet all seven of the petals after a year of proven performance. The college has invested in the necessary infrastructure adjustments and anticipates that it will achieve full certification for which buildings? in 2021.

The growing market for certification systems has allowed us to experiment with standards that are both ambitious and appropriate for the projects at hand. At the same time, this flexibility has made it more difficult to communicate the college’s design standards to the campus community. LEED Gold provided an unambiguous standard for major projects. A menu approach, in contrast, would require that we clearly specify our design expectations and the certification standards for each new project. One of our recommendations below is that the college embed sustainability criteria into its internal design standards that strike a balance between flexibility, rigor, and accountability.

⁸ The Built Environment Working Group report provides a detailed description of these standards and their application to our recent projects.

The college's investments in sustainable design and building practices have helped contain emissions at the college, despite the growth in square footage. But if the college is serious about reducing its campus emissions, it will need to find savings through a combination of improved energy efficiency, reduced growth of square footage, and cultural change around the use of existing space. In some cases, individual projects will lead to an increase in the campus footprint. A holistic approach to campus space would help us offset some of these increases with strategic reductions elsewhere. The Built Environment Group has recommended that the college develop a decision matrix for future capital projects in conjunction with a flexible master plan for the campus. Such a plan would provide an opportunity for the college to think more holistically about its sustainability goals across the campus as a whole, rather than solely on a building-by-building basis.

Landscaping

Landscaping plays a crucial role in the sustainable design of our built environment. A recent campus landscaping study by Reed Hildebrand Landscape Architects noted the historical influence of the open, rolling landscape on the evolution of buildings on campus. The report includes recommendations about ecological planting, stormwater management, and ways to encourage pedestrian flows and a sense of community and inclusion. These recommendations provide a starting point for developing a framework for sustainable landscape design and maintenance, which would promote biodiversity, natural pest control and grounds maintenance, and pollinator-friendly practices. Such a framework would also allow for better integration between landscape and building design, including the ways in which landscaping can influence the solar gain, shading, heating, and cooling of buildings.

The landscaping study focused on the lands that shape our campus. The college also owns lands off campus that contribute to research, teaching, biodiversity, and recreation. These lands include Cole Field, Berlin Mountain, Stone Hill, Pine Cobble, Mount Hope Farm, Denison Park, Christmas Brook, and Hopkins Memorial Forest. In conversations with the campus and community, numerous people emphasized the importance of protecting Hopkins Forest in perpetuity as a site of study, conservation, and natural beauty. We particularly benefited from our exchanges with a group of student researchers under the guidance of Professor Hank Art, who produced a thoughtful study of various options for preserving the Forest.

Williams currently manages its grounds and fields with an environmentally sensitive approach to pest management, careful selection of plant species, and selective watering. The lawns surrounding residence halls, classrooms, and offices receive relatively light treatments, with an organic fertilizer (made from feather, meat, bone, and blood meal) applied annually in the fall and natural prevention and suppression for the management of weeds and insects. We do not apply any herbicides or fungicides to these lawns, but instead try to control weeds with fertilizer and good cultural practices. Athletics fields used in NCAA competition are more challenging from a sustainability perspective, with relatively frequent use of herbicides, pesticides, watering, and mowing. Our report includes recommendations for continued development of sustainable landscaping design and management.

Community, Equity, & Inclusion

In parallel with the college's efforts, Williamstown set its own greenhouse gas emissions goals in 2001, and the local government, businesses, and residents have worked with support from the town's CO2 Lowering Committee (COOL) to meet those goals and tackle other sustainability challenges. These goals were the outcome of a summer Williams College student project sponsored by CES that concluded that Williamstown should join the Cities for Climate Protection, an action that was endorsed by the Williamstown Select Board. Since then the college and town have worked together on a number of initiatives including the town's landfill solar array, financing for solar panels for the Williamstown Youth Center, and recently, a community carbon reduction project through the Community Climate Fund and a first attempt at a pre-consumer composting program with local businesses.

With regard to social equity and inclusion, the college has engaged with both the Living Building Challenge and Real Food Challenge's Real Food Guide, in part, because of the holistic way that those programs embed equity and inclusion in sustainability. In the spring of 2019, the Zilkha Center hosted an interactive art installation adapted from ILFI called the Equity Drafting Table, which is a framework intended to open a dialogue about equity in the built environment. That spring, CES also organized lectures by Dr. Dorceta Taylor (University of Michigan) on diversifying the environmental sector. A clear message from this work is that equitable and inclusive outcomes depend on equitable and inclusive processes, which we are continuing to develop in the college's operational work.

Accountability and Transparency

In some respects, sustainability is among the most transparent areas of Williams. Goals have been set by the President and the Board of Trustees and announced in letters to the campus community. The college provides annual updates on its campus emissions. And the [sustainability website](#) clearly advertises our actions in areas such as energy, transportation, buildings, food, and waste. Nevertheless, in the course of outreach, we repeatedly heard concerns that people did not know who "owned" the college's sustainability goals, how the College was progressing toward them, or who should be held accountable should the college fail to meet them. Since one of the working group's members is the provost, who oversees the Zilkha Center, these questions generated a certain unease at times.

The absence of a clear transmission mechanism from policy to implementation has meant that boundaries of responsibility are sometimes blurred. Planning, Design, and Construction (PDC) has embraced sustainable design in our buildings, but it is not responsible for college decisions about the growth of net square footage on campus. Facilities Operations staff have implemented many of the efficiency improvements on campus, but without internal goals or the robust tools and expertise to adequately assess progress. And the Zilkha Center was intended to be a small office that would have an impact through partnerships with other departments, but those partnerships have not always yielded concrete, sustained results. While the Zilkha Center may assist in piloting sustainability initiatives, it does not always have the capacity to continue them or the expertise to integrate them fully. Finally, it has not always been clear who's coordinating the work as a whole. With recent changes in leadership in some of the key areas responsible for

sustainability work at the college, there's an opportunity to develop clearer structures of governance, more open channels of communication, and clear expectations for all members of campus.

There is also the opportunity to transform the way that we communicate with campus as a whole. While descriptions of much of the college's sustainability work can be found if one knows where to look, it's harder to find a candid assessment of our progress toward goals. During our outreach conversations, we received several suggestions that we publish an annual report on sustainability and produce online "dashboards" that clearly display our progress in key areas. We also heard from several participants that the college would benefit from having an evolving and well-advertised sustainability plan that would both guide and communicate efforts on campus. A plan that's led from the top, with clear governance and communication, would help ensure that sustainability efforts remain transparent and accountable.

Recommendations and Strategies

1. Climate Action

Williams commits to substantially reducing its carbon emissions over the next decade and to studying what it would take to eliminate fossil fuels from our central heating plant and purchased electricity by 2035.

Recommendation 1.1: Accurately measure emissions from combustion, electricity, and travel.

In order to set goals and achieve emissions reductions on campus, we need an accurate measurement of our emissions from all relevant sources. We are currently far from this goal. Our largest gaps include the measurement of emissions at the building level, emissions from purchased electricity, and emissions from college-related travel. Strategies include:

- a. Define the boundaries of our campus emissions. Emissions from campus buildings obviously count, but what about emissions from programs like Oxford and Mystic or buildings such as the bookstore, the new inn, or faculty and staff housing units? What scope-3 emissions sources should we track as part of our goals?
- b. Commission another comprehensive energy audit of campus, coupled with a campus-wide needs assessment of capital projects. This would help us prioritize those projects that would also yield large emissions reductions.
- c. Create a metering master plan and space survey in order to track energy efficiency on a building-by-building basis. This will help us identify the buildings on campus that are both inefficient and substantial contributors to campus emissions.
- d. Capitalize on our recent status as an [ENERGY STAR](#) partner to utilize their tools across our building portfolio, which will help us obtain accurate data on both site efficiency and source efficiency and subsequently set ambitious and realistic goals. ENERGY STAR provides a common framework for measuring, tracking, and promoting energy efficiency on campus.
- e. Create a dedicated energy manager position in Facilities that would be responsible for measuring, monitoring, and sharing energy and emissions data across campus. This could be a new FTE or a re-imagined job description of an already-existing FTE.
- f. Develop a system that accurately tracks faculty, staff, and student travel and define a measure of travel emissions that we can accurately track for the purposes of our emissions goals. A centralized purchasing process would allow us to consistently track emissions and make targeted recommendations for substitutes.

- g. Construct an accurate and consistent measurement of our emissions from purchased electricity and electricity generated by our power plant. Because most of our electricity use is produced off-campus, we need to apply accurate conversion factors that reflect the carbon emissions at the power-plant level.
- h. Centralize the measuring and monitoring of the energy produced by our solar panels and arrays on campus. We have dramatically increased the amount of on-site solar production on campus, but we do not yet have a streamlined monitoring process to ensure that the arrays are producing the projected amount of energy.
- i. Clearly measure and track all scopes of emissions, both separately and in aggregate, to better reflect the controllable parts of our emissions profile and measure the impact of efforts to influence scope 3 emissions.
- j. Measure the carbon intensity of all campus electricity sources individually and in the aggregate to monitor the carbon efficiency of delivered power and support informed decision-making.

Recommendation 1.2: Reduce emissions on campus by 15 to 30 percent relative to 2022 over the following decade, while maintaining a commitment to carbon neutrality.

In conversations with people across campus, there was widespread consensus that the college should attempt to achieve real reductions in its own carbon emissions before turning to carbon offsets to neutralize the remainder. The 2022 starting point was chosen in order to ensure that we have an accurate baseline. We have maintained a range of 15–30% in recognition that steeper cuts will require changes in the central heating plant that are under exploration. Strategies include:

- a. Reduce travel emissions by 15% through reduced air miles, improved fleet efficiency, and reduced car miles. Given that the college will soon purchase most of its electricity from renewable sources, travel will loom larger in its emissions portfolio, accounting for between one-third and one-half of total emissions. Strategies for lowering travel include implementing internal carbon taxes, articulating department-specific travel goals, disseminating clear information about carbon impacts and travel alternatives (such as an institutional video conferencing membership and additional space dedicated to video conferencing), increasing the number of hybrid and electric vehicles in the campus fleet, and centralizing travel purchasing.
- b. Encourage low-carbon commuting to reduce commuter emissions. [Recent research](#) has shown that the energy intensity of car travel is similar to that of air travel for the same distance. While the current state of public transportation in the Berkshires makes it difficult to do without cars entirely, there are numerous ways that the college can influence the use of personal vehicles through creating pedestrian zones, strategically locating parking toward the periphery of campus, increasing bike infrastructure, and

encouraging carpooling. The college should also support the expansion of public transportation options through partnerships and collaborations with local governments.

- c. Improve the efficiency of buildings and contain square footage growth. (See Built Environment section below).
- d. Reduce the campus demand for electricity, as measured by total use and a campus-wide EUI, which is normalized by square foot. Despite increasingly efficient lighting and equipment, demand for electricity has increased in the past two decades due to computer usage, more complex building systems, and the recent boom in construction and renovation. The college should continue to carefully monitor its load and seek reductions through a combination of energy management and encouraging more responsible behavior on the part of users. We should also pay particular attention to how we schedule classes and share spaces to make the most of the square footage we have.
- e. Continue investing in on-campus solar. We are in the process of finalizing a 1 MW interconnection agreement with our utility provider, and we will soon move forward with new solar installations on campus that will bring the amount of solar-produced power to 10–15% of total electricity use.
- f. Reduce emissions from campus combustion. The central heating plant produces steam to heat much of the campus, and produces about 40% of the campus’s electricity during the winter months. While its electricity generation is more carbon-efficient than grid-supplied electricity, it accounts for the vast majority of our scope 1 emissions, and about half of our total carbon emissions. The central plant will play an increasingly important role in our carbon emissions strategy. Specific approaches for lowering our dependency on fossil fuels include:
 - i. Reduce thermal and electrical demand through:
 - increasing building automation and controls;
 - improving building efficiency through deep-energy retrofits, envelope improvements, and recapitalizing building equipment;
 - using heating and cooling set points and set-back opportunities, such as winter break shutdowns;
 - changing behavior through campaigns such as the Green Office program.
 - ii. With the help of a carbon emissions study by [Integral Group](#), consider the viability of alternative sources of thermal energy, including increased use of electricity, biogas, biomass, renewable fuel oil, and geothermal. These substitutes need to be appropriate for our climate and energy demands.
 - iii. Improve the efficiency of our central heating plant through fuel substitution, micro co-generation of steam and electricity, or other approaches.
 - iv. Consider converting buildings from steam to low-temperature hot-water heating, and replacing the associated distribution infrastructure.

- g. Maintain carbon neutrality. Continue purchasing high-quality carbon-offsets for the remainder of our carbon emissions according to the [principles established by CEAC](#), with the goal of reducing our reliance on offsets over the coming decade.

Recommendation 1.3: Incorporate the price of carbon emissions in the college’s decisions about energy use, building projects, and travel.

Increasingly, private sector companies, governments, and academic institutions have been using the social cost of carbon to guide decisions about investments and energy use. Williams College should incorporate the social cost of carbon in its own decisions about building, sustainability projects, food purchasing, and travel policies. One option would be to adopt an internal carbon charge (similar to the ones implemented at [Swarthmore](#) and [Yale](#)) consisting of two features: a proxy price to inform our decisions about renewal and building projects on campus, and a carbon charge on all three scopes of emissions (combustion, electricity, and travel). The charge would be funded out of a reduction in other sources of spending and the revenues would be devoted to emissions reduction projects.⁹

Recommendation 1.4: Partner with local communities and invest in emissions-reduction projects off campus.

The college has both a responsibility and an opportunity to engage local communities in carbon reduction projects. Strategies include:

- a. Continue to invest in local carbon reduction projects and develop standards to clearly articulate our standards of additionality, cost-effectiveness, and educational depth for these projects.
- b. Invest in sustainability infrastructure that lowers emissions for both the college and surrounding communities. Examples include electric car charging stations, solar installations, and bike infrastructure.
- c. Continue investing the endowment in “impact investments” that promote measurable reductions in global carbon emissions.

Recommendation 1.5: Develop and implement a climate resilience plan to help the campus adapt to changing environmental conditions.

⁹ Some economists might object to the idea of imposing both an emissions target and a price on carbon at the same time, given that a target implies a price and a price determines an optimal level of emissions. These can be complementary policies, however, in cases where we have central control over one source of emissions (e.g., combustion) but would like to create the right individual incentives for another source of emissions (e.g., travel).

Global climate change will affect temperatures and the frequency of extreme weather events in the Berkshires. The college should develop a plan for anticipating the impact of these changes on our built environment and landscaping, including approaches to storage, HVAC, and floodplain mitigation. It should articulate a plan for student residence halls that recognizes the climate change predictions for increased temperatures. And it should develop an integrated landscaping plan that anticipates changing climate zones and environmental stresses and recognizes the potential for plant species to both sequester carbon and support healthy environments.

Recommendation 1.6: Develop a climate action plan by 2021 that identifies ambitious goals and specific strategies for lowering emissions in both the short run (the next decade) and the long run (the next two decades).

The strategic planning process has helped us develop goals and strategies for lowering our carbon emissions. But there are still some unanswered questions about the right choice for our emissions targets and timelines and the most effective strategies for meeting them.

- a. Emissions reduction over the next decade. The utility-scale solar project in Farmington and on-campus solar installations will have eliminated most of the emissions from our purchased electricity use, leaving combustion and travel as the primary sources of emissions. We have proposed a target of at least 15% for our travel emissions, but we want to be sure that's ambitious enough, given improvements in the fuel efficiency of cars and airplanes. In addition, we need to learn more about our options for reducing emissions from our central heating plant.
- b. Emissions reduction over the next two decades. Our long-run goals will depend on our options for dramatically lowering or eliminating carbon emissions from heating and cooling our campus. Those options are under investigation at the time of writing, and we have commissioned a low-carbon conversion study by Integral Group to help us identify pathways for achieving substantial decreases in our use of fossil fuel combustion. All strategies that we are considering would involve lowering energy demands on campus as a first step, then shifting to low-carbon energy sources as a second, and offsetting our remaining emissions. Both short and long term goals should be set with state and regional targets as reference points.

2. Built Environment, Landscaping, and Land Use

Williams' facilities operations, building projects, and landscaping will be guided by ambitious sustainability goals.

Recommendation 2.1: Embed high-performance building criteria in design standards that will guide our teams in Facilities and Planning, Design, and Construction, as well as external contractors and architects.

The college should enhance its design standards to provide clear direction to designers and consultants in the form of a simple menu of design choices that would result in a building compliant with LEED Gold criteria or the equivalent. Updated standards would encode some of our most recent practices on projects such as Garfield House or the CDE expansion and renovation; they would provide clear guidance to architectural, engineering, and contractor teams; and they would clearly communicate the college's approach to building to the campus community.

Recommendation 2.2: Develop internal sustainability standards for maintenance and renewal projects.

The college has pursued rigorous sustainability standards on large capital projects. The college should apply similar principles to its investment in annuals (projects less than \$50,000) and renewals (\$50,000 to? \$2,000,000). While most of these projects are not candidates for a formal certification process due to their size or type, the college should develop internal criteria for selecting and executing these projects that mirror the priorities articulated in our design standards for major capital projects in areas such as materials choice, energy efficiency, and occupant health and well-being.

Recommendation 2.3: Develop education programs to optimize both the implementation and the use of our high-performance buildings.

Education is essential for successfully integrating sustainability into our building projects. This is true both for PDC and Facilities staff, as well as for the end users. Project managers need to develop themselves as sustainability specialists, and design teams have to consider the full life-cycle of a building rather than just the initial capital investment. Similarly, Facilities staff need additional training and support to maintain increasingly complex systems and tune building performance for daily use. Finally, the hand-over from PDC to Facilities and the end user should be more than just a milestone date on the schedule. This handover should be accompanied by a series of training sessions at various milestones, including move in, 6-months, and a final session at a year to 18-months, as well as ongoing measurement and verification reviews with design and operations staff.

Recommendation 2.4: Seek opportunities to contain or contract the total square footage of campus with the help of a campus master plan.

One of the most important factors in the growth in emissions from fossil fuel combustion has been the expansion of square footage over time. Further, construction generates large volumes of (often toxic) waste and debris. Indeed, one of the most frequent questions that we received during our outreach was when Williams would finally stop building. The college has intentionally sought opportunities for minimizing the growth of its physical plant, but there has still been modest growth of about 2.5% of net square footage over the last several years due to programmatic demands and opportunities. The Built Environment working group has recommended that the campus produce a campus master plan. We recommend that the plan incorporate strategies for reducing square footage in some areas of campus as a way to offset some of the inevitable growth that will come from projects such as the Science Center, the new Davis Center, and potentially a new college museum. Such a plan should be integrated with the landscaping plan derived from the Reed-Hilderbrand study, as well as the college's overall sustainability plan. Strategies include:

- a. Seek opportunities to reuse and repurpose existing spaces on campus.
- b. Meet increasing space needs through leasing or buying existing spaces in town.
- c. Constrain the growth of space in new projects through explicit design guidelines and encourage building committees to seek shared solutions to common spaces that might serve multiple constituencies and functions.
- d. Replace inefficient, outdated, or inflexible facilities through demolition and construction to reduce net area growth. Consider consolidating functions or facilities.
- e. Consider whether our current ratio of doubles to singles is appropriate as we replace and renew older dormitories.
- f. Consider programmatic changes, both curricular and extra-curricular, that might allow the college to reduce its environmental impact.

Recommendation 2.5: Approach building sustainability holistically.

Historically, the college has approached sustainability on a building-by-building basis. While this emphasis on individual projects has improved the efficiency of new construction, it has not provided a framework for considering the sustainability of the campus as a whole. A holistic approach would allow us to define our sustainability goals by sectors or building types and invest in solutions that have the greatest sustainability impact for the entire campus. Strategies include:

- a. Adopt an approach that allows us to make strategic decisions about emissions across the built environment. One approach would be to adopt an external framework, such as the [Living Community Challenge](#) (LCC) and [Volume certification](#). An external framework

would introduce consistent standards across projects, and it would help us communicate our building practices to constituencies on and off campus. One potential drawback, however, is that it may not be flexible enough for us to meet our sustainability and programmatic goals in ways that make most sense for the specific project at hand. An alternative (or complement) to a formal process would be an internal framework that would set clear guidelines around energy use, greenhouse gas emissions, toxic materials, and health and well-being. The challenge with an internal system would be ensuring that the standards were rigorous, transparent, and easy to communicate.

- b. Ensure that sustainability decisions include operational and maintenance considerations on the part of Facilities and Planning, Design, and Construction.
- c. Measure the emissions of all major buildings and seek cost-effective operational changes or renovations that improve performance. We should pay particular attention to newly constructed projects and make sure that performance matches our expectations.
- d. Continue to engage our Facilities operations staff during the building process and provide the training and tools that they need to help us optimize the efficiency of our buildings.
- e. Perform a lifecycle assessment of projects where the emissions impact of renovation versus replacement is unclear. It is almost always the case that new construction will outperform existing structures. But materials choices and the building process itself can generate offsetting amounts of emissions (“embodied carbon”) that could tilt the sustainability balance toward renovation. Lifecycle assessment provides a consistent framework for measuring the environmental impact of a potential project through all of the stages of a building’s life, including procurement, construction, operations, and end-of-life care. This process was an essential component of the recent Garfield House project and made a convincing sustainability case in favor of replacement over renovation.

Recommendation 2.6: Reduce the community’s exposure to toxins in materials and the maintenance of our physical plant, and transparently track the use of high-risk chemicals on campus.

The materials that we use in the construction and maintenance of our buildings can have negative impacts on the environment and personal health. The college has already incorporated sustainable materials choices into many of its recent projects, and Facilities uses non-toxic cleaners and products when practicable. Nevertheless, the college can do more to reduce toxins through the following strategies:

- a. Identify and track high-risk chemicals in building and maintenance materials used on campus.
- b. Identify chemicals of concern for which viable alternatives exist and develop a plan for eliminating exposure to those chemicals on campus. This could include, for example, a green list of solvents and materials in Facilities and Dining.

- c. Seek the [materials petal](#) or equivalent in new construction and renovation. Follow similar sustainability standards for renovation and maintenance projects.
- d. Create a materials working group to ensure buy-in from all parties on materials selection and an ongoing feedback mechanism for Facilities and PDC to confer about material choices.
- e. Assess performance and durability of materials over time and adjust standards accordingly.

Recommendation 2.7: Develop a comprehensive landscape design and management plan that addresses sustainability, access, aesthetics, and connections between the campus and town.

Site considerations and landscaping are crucial aspects of a sustainable campus. Building on the campus landscape study, we should:

- a. Develop guidelines for selecting and developing sustainable building sites on campus. These guidelines should encompass accessibility and sustainable design.
- b. Site new construction with an eye toward protecting habitats and fostering biological diversity. Where possible, projects should reuse existing space to minimize the impact on the natural environment.
- c. Ensure building project landscape design fits into the overall landscape plan to integrate project sites and surrounding sites. Recognize interstitial spaces between building sites as being part of the same fabric, so that the landscape between buildings doesn't have a patchwork feel where one site boundary ends and another begins.
- d. Integrate landscape design into new building design at an earlier stage to increase energy efficiency and reduce emissions. For example, strategically use deciduous trees as well as deciduous plants on pergolas to manage solar gain and create windbreaks on the north sides of buildings.
- e. Incorporate features, such as rain gardens and swales, that minimize, collect, and improve the water quality of stormwater runoff.
- f. Design new landscaped areas and renovate existing ones to eliminate pesticide use, fossil-fuel intensive fertilizers, and the need for frequent watering of plants.
- g. Develop a strategy for planting and replacing trees that is sensitive to our environment and the changing climate. Consider becoming a [Tree Campus USA](#) member.

- h. Adopt [pollinator-friendly practices](#), including planting species that pollinators can use for foraging, reproduction, and shelter, and minimizing the use of pesticides.
- i. Incorporate sustainable practices into the management of all grounds and fields. Athletics fields used in NCAA competition are more challenging from a sustainability perspective, with relatively frequent use of herbicides, pesticides, watering, and mowing. We should investigate more sustainable options for managing these grounds.
- j. Support the ability of the grounds staff to practice sustainable landscape management by investing in training and professional development.
- k. Initiate a regular landscape working group meeting with other institutions in the area to share and learn best practices.
- l. Adopt a clear and transparent policy governing pest management and the treatment of different types of grounds, including lawns, competition fields, and practice fields.

Recommendation 2.8: Protect Hopkins Forest for the purposes of research, as a community recreational asset, and as a biodiversity conservation area.

Hopkins Memorial Forest (HMF) has been an important site of both recreation and research in areas such as hydrology, geology, ecology, and meteorology. It also has been used in the past by courses in the History, Religion, and Studio Art departments. Preserving HMF in the long-run will ensure that the forest continues to serve a site for interdisciplinary education and research that can help us understand the impact of climate change and attract faculty whose research depends on the long-run access to research sites under permanent conservation. Such preservation would also guarantee future generations of Williams College students access to this unique resource only a mile from campus. Strategies include:

- a. Conservation easement. While conservation easements are permanent, they can be written in a way that protects future research needs and allows for a range of forest manipulation. Working with local land trusts, a conservation easement may also provide the college with an opportunity to demonstrate leadership and to leverage conservation of other forests of the Berkshire Taconic region. Nevertheless, an easement would come with the opportunity cost of foregone development rights, as well as additional costs associated with professional appraisal, survey, legal issues plus on-going compliance assessment. More work needs to be done to understand the details and tradeoffs involved with a conservation easement, but current information suggests that this a promising direction.
- b. Deed restriction. A deed restriction is a legally binding document that would not be permanent (renewable every 35 years) and would not require external monitoring. The drawbacks, however, are that the restrictions would not be credibly binding and therefore serve as weaker guarantees for the long-run preservation of the forest.

- c. Internal policy. The college could write an internal policy with various levels of reputational stakes. The advantages of an internal policy would be a high degree of flexibility, with the downside corollary that it would serve as a weaker commitment device.
- d. Strengthen student, faculty, staff connection to the space. Regardless of the measures taken to preserve the forest asset, the college should actively encourage research- and teaching-use of the forest by a diversity of departments and programs.

3. Education and Research

Williams will make sustainability a vibrant and prominent part of the curriculum and educate the campus community about sustainable practices and climate justice.

Recommendation 3.1: Prioritize sustainability and environmental studies in the hiring of new faculty.

The addition of two new tenure-track lines as part of the 2015 commitments has already opened up curricular possibilities at Williams, bringing new courses and scholarship in areas such as conservation, climate change, and environmental justice. At the same time, Williams has hired fewer tenure-track faculty into the Environmental Studies program than many peer institutions, including Middlebury, Wellesley, and Colby, despite robust demand on the part of students. While it is among the smaller units on campus in terms of faculty (3 tenure-track faculty), the program currently has more majors and concentrators than many medium-sized units (28 for the class of 2020, with 8 honors thesis students). Constituents from across campus have expressed interest in hiring faculty into Environmental Studies. Additionally, there is the opportunity to hire faculty in other units across the divisions. Sustainability touches on a far wider range of disciplines. The college has an opportunity to increase both the depth and breadth of sustainability offerings in the curriculum through strategic hiring decisions.

Recommendation 3.2: Pursue pedagogical innovation.

Participants in strategic planning proposed a number of exciting avenues for pedagogical innovation and expansion, including:

- a. Environmental Solutions Lab. This would involve a new type of course format that brings together faculty from across divisions to develop a collaborative, project-based course aimed at designing a solution to a specific environmental problem. A number of institutions have begun experimenting with such formats (see, for example, Harvard University's "[Climate Solutions Living Lab](#)," Bennington College's [Beyond Plastics](#) project, and Middlebury college's "[Sustainability Solutions Lab](#)"). Like the tutorial system, this format could be incentivized through dedicated internal funding and training.
- b. Environmental and Climate Justice. In the past few years, faculty from Africana Studies, Geosciences, and Environmental Studies, along with staff from the Zilkha Center, the Davis Center, the Career Center, and the Center for Learning in Action, have brought a number of international environmental justice leaders to campus. These events have generated great excitement among faculty, staff, students, and alumni. Faculty are also increasingly pursuing [community-engaged research](#) and teaching. For example, José Constantine and James Manigault-Bryant are working with students and community members of Tallevast, Florida, monitoring air contamination, and Centreville, Illinois, testing flood water quality, and Laura Martin is [working with students](#) and community members of Rensselaer, New York, on the environment and health impacts of a

construction and demolition debris landfill. There is the potential for much more of this work, in line with the Strategic Academic Initiative proposal to develop a Community Research Initiative, which aims to facilitate interactions between our students and communities in need.

- c. **Agriculture and Food Systems.** Feeding the world sustainably is one of the key challenges of the 21st century. At present, the only courses offered at Williams on food systems and food cultures are taught by visitors. And yet, many of our students are interested in graduate study and careers in food systems, agriculture, and food policy. Further, food systems courses are a core component of Environmental Studies and Sustainability programs at most institutions ([NCSE 2013](#)). Williams has a clear opportunity to hire faculty who research agriculture, food systems, and sustainability. With such a hire would come opportunities for community engagement and pedagogical innovation.
- d. **Sustainability and The Arts.** Many Williams students express interest in environmental design, architecture, and the arts. And indeed, many of our students go on to work in these fields. As the Future of the Arts at Williams group asks how might teaching across Williams be animated by a more intentional engagement with the arts, we urge the college to consider the intersection of environmental sustainability and the arts. Design is central to climate adaptation; the arts can also change attitudes around pollution and consumption.
- e. **Coastal Resilience.** The world's oceans and coasts are a platform for deep engagement with the complex and urgent issues facing our planet: climate change, sea level rise, ocean acidification, green energy technologies, global economy and shipping, and environmental justice. The Williams-Mystic Program teaches students about these issues through four integrated courses: Literature of the Sea, Marine Policy, Maritime History, and Oceanographic Processes or Marine Ecology. Recently, Williams-Mystic has shifted its curriculum toward sustainability and environmental justice. But at present the Williams-Mystic program is not well integrated with the Williamstown campus. Recently, the Dean of Faculty's office began offering a residential faculty fellowship at Williams Mystic to enhance competencies in interdisciplinary, collaborative, and experiential pedagogies, and to expand intellectual engagement with ocean and coastal studies. Other ideas that emerged during strategic planning include: creating a 2-3 year postdoc with time spent on both campuses; offering a Winter Study course for faculty on integrative pedagogy or on coastal sustainability; creating student Winter Study course options on the Mystic campus; and establishing a summer coastal sustainability internship.

Recommendation 3.3: Increase the opportunities for students to learn about sustainability in their coursework.

Strategies include:

- a. Create sustainability pathways through different majors and concentrations. Topics in sustainability surface across all three academic divisions, but it's not always clear how these courses form a coherent path for students in their majors and concentrations. Departments and programs could design pathways to show how students might engage with sustainability themes through their coursework both inside and outside their field of study.
- b. Make current offerings in sustainability (Appendix, Table 3) more visible elements of the curriculum. The college currently offers 30+ sustainability-related courses that are offered by 15 separate units. While the majority of these courses are in Environmental Studies, many fall outside the ENVI prefix. Organizing our offerings and highlighting connections would help students see the breadth of possibilities in our current curriculum.
- c. Create incentives for faculty to develop new courses focused on sustainability or integrate sustainability topics into existing courses. In conversations with faculty and staff, we heard competing ideas for how to increase student engagement with sustainability. Some proposed a sustainability requirement similar to the current [DPE requirement](#). But most expressed reservations about further constraining the Williams curriculum and favored voluntary mechanisms like encouraging course development in sustainability.
- d. Increase the number of courses that offer sustainability-related field trips. Sustainability learning should be place-based and community-specific. In addition to opportunities in the Berkshires, we can take better advantage of Hopkins Forest and Williams-Mystic as sites for teaching, research, and student projects.
- e. Teach students about sustainability in the world by encouraging relevant study away experiences and by connecting distant communities to Williams classrooms through Skype and other media. Climate change is a global phenomenon, and students need to engage with communities and research programs around the world. The international initiatives group has highlighted possibilities for strengthening Williams' engagement with other nations and cultures. While the carbon intensity of air travel would caution against frequent short-term trips, study abroad presents a perfect opportunity to engage with sustainability in other countries and cultures.

Recommendation 3.4: Continue to support faculty and student sustainability research

The college currently stewards two robust resources to support faculty and student sustainability research. To mark their 50th reunion in 2013, the Class of 1963 established a fund to support teaching and research on the cultural, economic, political, and scientific (or other) dimensions of sustainable systems. The Center for Environmental Studies also manages an aforementioned summer internship grant that enables dozens of students to pursue scholarly research, career-related internships, and creative projects. These opportunities should continue to be advertised widely. The college also has an opportunity to develop new funds for sustainability-related research. Increased staffing of the [Environmental Analysis laboratory](#) would also further enable faculty and student research in environmental science.

Recommendation 3.5: Strengthen the presence of sustainability in the co-curriculum and the intellectual life of the college.

In conversations across campus, we heard repeated suggestions for expanding opportunities outside the classroom and supporting intellectual engagement with sustainability through targeted speaker series and public events. Promising ideas include:

- a. Foster synergy among the Center for Environmental Studies, the Zilkha Center, and the Williams-Mystic Program. Strategic planning identified the tremendous potential for increased collaboration and innovation among these entities. At present, students, faculty, and staff experience these entities as relatively siloed. This is a barrier, especially for students looking to learn about and foster sustainability. These three entities should clarify their unique missions and seek connections that create opportunities for student and faculty engagement across all divisions and disciplines.
- b. Promote intellectual engagement through funded speaker series, lectures, and conferences. The [Year of Confronting Climate Change](#) showed how powerful it can be when the college organizes a focused series of public events centered on the theme of climate change. An annual series of events focused on sustainability themes would ensure that every year would be one of confronting climate change.
- c. Highlight educational and co-curricular opportunities in promotional materials. The revised [sustainability website](#) is a good example of how the college can communicate the centrality of sustainability to both education and operations. The communications office is also in the midst of an “identity project” aimed at refreshing the way that the college projects its identity and values to campus, prospective students, alumni, and the outside world. Sustainability should be a part of this identity.
- d. Strengthen connections among students and alumni working in sustainability-related careers. Many of our alumni are leaders in sustainability across different careers. The college should continue to expand networking and internship opportunities that prepare students to pursue projects or careers in sustainability.

Recommendation 3.6: Educate the campus community about sustainable practices.

The college has an opportunity to educate the campus community about the most effective steps that they can take to promote sustainable practices on campus. Some approaches include:

- a. Build sustainability education into First Days and JA training for students. The [Root](#) EphVenture orientation program provides one way for incoming students to engage with sustainability and social justice. Embedding sustainability into the First Days experience would help the incoming class learn more about the college’s approach to sustainability and how they can contribute to a more sustainable campus and community.

- b. Strengthen the sustainability module during new staff orientation and consider how to include it for the orientation of new faculty. As with incoming students, these transitions are crucial moments for establishing expectations and instilling the college's sustainability values and best practices in areas like energy conservation, travel, commuting, composting, and recycling.
- c. Work with the athletics department and student organizations to provide guidelines to promote sustainability across a wide range of campus activities.
- d. Develop clear communications and websites to help campus members make informed decisions about travel, purchasing, and food choices.
- e. Avoid mixed messages about sustainability, including our use of swag for events, the sustainability of catering, and how we organize large campus events. These are all opportunities to signal our values and reduce our impact on the environment. See the subsection about sustainable events below.
- f. Recognize and reward sustainability accomplishments at the unit level and sustainability awards at the college level for students, staff, faculty, and alumni.

4. Responsible Consumption

Williams will make targeted and measurable improvements in the sustainability of its food, water, waste, and procurement.

Recommendation 4.1: Reduce operational and individual consumption.

At a time when purchases can be made with the click of a button, it is becoming more difficult and more important to resist the immediate benefits of convenience and disposability. This is true both at the level of college operations and also with respect to the purchasing behavior of our students, faculty, and staff. Single-use plastics are especially concerning, as both byproducts of fossil fuel extraction and major sources of environmental injustice: people and other species are harmed by both the production and disposal of plastics. Strategies include:

- a. Collect data on our purchasing and consumption. Annual waste audits and data from waste haulers can also help us understand what is coming into campus and the opportunities to reduce and streamline purchasing.
- b. Dramatically reduce single-use plastic on campus. Single-use plastics constitute many familiar objects: plastic bags, balloons, tape, water bottles, bottle caps, yogurt containers, plastic wrap, snack wrappers, coffee capsules, straws and stirrers.¹⁰ Reducing our consumption of single-use plastic will require serious commitment from all members of the community. For an example of how to do this work, we can look to our neighbor, Bennington College, which in 2019, launched [Beyond Plastics](#), with the mission of “ending plastic pollution by being a catalyst for change at every level of our society.”
- c. Reduce electronic waste. The worldwide accumulation of e-waste has more than doubled in the past decade. Much e-waste ends up in developing countries, where communities are exposed to lead, mercury, and other toxins contained in e-waste. The college should consider the total lifecycle of electronics, from sourcing to appropriate disposal, as well as the length of the replacement cycle.
- d. Develop a streamlined inventorying process to identify where the college can realize cost savings through bulk purchasing and how it might foster reuse of materials.
- e. Encourage students to purchase through local stores rather than single-item online purchases that lead to wasteful packaging and shipping.

Recommendation 4.2: Increase the proportion of sustainable products purchased by and used throughout the college.

¹⁰ In some cases, such as the safe storage and handling of food in Dining Services, it may be harder to find adequate substitutes for plastics.

Waste reduction and diversion starts with sustainable procurement practices. Strategies include:

- a. Develop and distribute college-wide standards for environmentally preferred products and/or provide lists of recommended vendors.
- b. Establish sustainable purchasing guidelines for break rooms, catering, and office supplies.
- c. Consider environmental and social justice in procurement decisions.

Recommendation 4.3: Increase the proportion of sustainable food purchasing and reduce food waste, thereby reducing food-related emissions.

Sustainable food procurement can include shifting from “conventionally” produced items to products that are local, ecologically sound, or decrease our food’s carbon footprint. It also means taking into account the health, dignity, and compensation of workers and the treatment of animals in the food system. The college has made progress in recent years when it comes to sourcing more sustainable food items, but more can be done. Strategies include:

- a. Set specific and measurable goals for increasing the proportion of sustainable food purchasing over the next decade. The college should set overall sustainable food goals as well as in subcategories in which we want to ensure an increase, such as local and fair. Emissions reductions could come from decreasing animal-based protein offerings (especially [cattle](#)) and from creating a phase-out plan for energy-inefficient equipment. Further reductions could come from producing more common ingredients in-house, rather than purchasing them from commercial producers, where emissions from production and distribution are often difficult to track.
- b. Draft sustainable food guidelines and include sustainable food requirements in the RFPs for distributors.
- c. Support the ability of dining staff to handle more sustainable, fresh, and whole foods by investing in training and professional development.
- d. Strengthen our connections to small local farms. One idea would be to establish a sponsorship program with local farms (that would enable them to increase production in general or in the winter) paired with increased procurement commitment to those farms.
- e. Educate the Williams community about the impact of conventional food production systems and sustainable food issues.
- f. Strengthen campus-wide food recovery efforts by ensuring support for existing systems to collect and donate all uneaten but still edible and safe-to-serve food to local partner organizations.

- g. Engage with local food advocacy organizations, food pantries, and farms to offer volunteering opportunities for students, faculty, and staff or to participate in co-curricular programs.

Recommendation 4.4: Educate our community about the importance of water conservation and management.

Although water scarcity is not a problem on our campus and climate change models predict that Williamstown will get increasing levels of precipitation, water conservation is still important to reducing our emissions and chemical use. Further, water scarcity in other communities will reshape national and international relations. Many of our students come from communities that face water scarcity. Strategies include:

- a. Accurately measure and reduce water usage in new and existing buildings. Williams should set specific targets for water reduction and systematically gather, analyze, and communicate water data.
- b. Encourage the study of water in the curriculum and the co-curriculum. Current examples include Ralph Bradburd's tutorial on [Water as a Scarce Resource](#), student projects on water management, and information about the [college's own water use](#).

Recommendation 4.5: Reduce waste and increase the amount of waste that is diverted to reuse, composting, and recycling.

Over the last five to ten years, the college has increased the amount of non-construction waste that it has generated, and it has plateaued when it comes to diverting waste through reuse, composting, and recycling. Strategies for increasing diversion include:

- a. Accurately measure diversion rates. As a starting point, Williams should perform a comprehensive assessment of waste diversion and materials management.
- b. Develop a plan by 2021 for reducing waste that includes long-term waste reduction and diversion goals, as well as goals to establish materials-handling policies and necessary infrastructure.
- c. Standardize waste bins and signage, develop a plan for implementation across campus, and establish a policy for bin standardization that applies to all future capital projects and landscape environments.
- d. Explore a campus-wide composting program to divert the increasing amount of food waste and compostable serviceware that is discarded in trash cans outside of the dining halls and ensure that the compostable serviceware is actually composted.

- e. Establish a sustainable events policy (for large and small events) and infrastructure for waste management at these events (e.g., reusable dishes, compostable serviceware, portable bins and signage for trash, recycling, and composting).

Recommendation 4.6: Develop a hard goods management system to encourage reuse and decrease waste.

- a. Manage “surplus property” in ways that would best serve the college’s needs. Options include a digital asset management system and a centralized space for storage or thrift sales.
- b. Adopt a clear policy that articulates how individuals and departments can increase the reuse of hard goods.
 - a. Establish a process for how materials flow through this system – how long they are stored or posted, how they are distributed and donated to local partner organizations, how damaged items are assessed and repaired, and how items are dismantled for material recovery (e.g., metal, wood, and electronics recycling).

5. Community, Equity, & Inclusion

Williams commits to building a sustainable campus in which all of its members can thrive, and in which all have access to environmental amenities and decision-making.

Recommendation 5.1: Foster cross-college partnerships and community collaborations to increase impact.

As an institution of higher education we have a responsibility to learn from others in the field, share innovative strategies, and magnify our impact through collective action. Recent examples include the utility scale solar project in Farmington, Maine – a collaboration with Amherst, Hampshire, Bowdoin, and Smith – and the home weatherization program Winter Blitz – a partnership with Bennington College and MCLA. Other strategies include:

- a. Partner with the [COOL committee](#) and other organizations to further invest in community emission reduction projects through initiatives like the Community Climate Fund. Ideally, community projects would realize sustainability gains with cost-effectiveness at least equal to those available in our on-campus efforts and include curricular or co-curricular student engagement opportunities.
- b. Work with the town of Williamstown to realize comprehensive town-college sustainability solutions. Consider solutions at scale, such as improvements to the wastewater treatment facility, community solar projects, infrastructure investments for electric vehicles, or forest management efforts to sequester carbon.
- c. Partner with other colleges and universities to increase collective impact. Natural regional partners include peer institutions in the Pioneer Valley and colleges in and around the Northern Berkshires.
- d. Support environmental justice research in the region. Examples include PFOA contamination in Hoosick Falls and North Bennington and the GE Pittsfield/Housatonic River Site.
- e. Williams is a member of [Academics for Land Protection in New England](#) (A.L.P.I.N.E.), facilitated by Harvard Forest and the Lincoln Institute of Land Policy. We should further strengthen this relationship, along with partnering with local and regional land trusts in the sustainable management of college lands.

Recommendation 5.2: Diversify leadership and involvement in sustainability.

A 2014 [report](#) by Green 2.0 (co-chaired by Danielle Deane-Ryan '97) revealed that people of color do not exceed 16% of the staff in the country's 40 largest environmental NGOs. This trend extends to academic institutions as well. For example, according to the 2017 National Science Foundation Survey of Earned Doctorates, the percentages of Ph.D. recipients in environmental

fields who identified as white ranged from 70.2% (environmental engineering) to 89.0% (ecology). Williams should develop recruitment and retention strategies that would contribute to the excellence and diversity of our faculty in environmental fields. It should also find ways to attract and retain students, majors, and concentrators studying sustainability from a wide range of diverse backgrounds.

Recommendation 5.3: Develop inclusive decision-making processes.

Williams College should make sustainability and environmental decisions through inclusive processes. Inclusive processes clarify how decisions are made, ensure diverse perspectives are represented and heard at the table (including contrarian ones), and provide opportunities to give feedback. The college should also evaluate the impact of our sustainability policies, including potential unintended consequences, on all members of campus and community.

Recommendation 5.4: Make clear connections between our environmental actions and social justice.

Many of our sustainability efforts can be seen through the lens of environmental justice. Lowering emissions, for example, can be motivated by the disproportionate impact of climate change on marginalized communities. Reducing waste decreases the amount of items going to landfills and incinerators that are typically situated in black, brown, or low-income communities. And purchasing more sustainable products and less stuff in general can be a way to limit the harmful impacts of natural resource extraction and production externalities on marginalized workers and communities.

6. Accountability and Transparency

Sustainability needs to be led from the top, but embraced across all areas of the college. We will set clear and measurable goals, report regularly on our progress, and communicate with all constituencies openly and honestly.

Recommendation 6.1: Establish sustainability as a core institutional priority that is supported by a clear leadership structure.

At the highest level, the President and the Board of Trustees are responsible for ensuring that the college enacts its sustainability commitments. At the next level, responsibility falls to senior staff, with a special emphasis on the Provost and the VP of Finance and Administration, given their oversight of the Zilkha Center, OIT, Facilities, Dining, and Planning, Design, and Construction (PDC). These areas play a disproportionate role in the college's sustainability efforts, and it's essential that the directors of these areas work together toward a common set of sustainability goals and see sustainability as a core part of their responsibilities. These directors should meet regularly to coordinate efforts and to ensure that they are working together to advance sustainability across the college.

Recommendation 6.2: Charge departments and units with creating department-level sustainability plans and integrating sustainability into job descriptions in partnership with the Zilkha Center.

In order to make progress in areas like travel emissions, composting, procurement, and waste, sustainability needs to be broadly owned across all areas of campus. Unit-level sustainability plans will help units identify ways that they can support the college-wide goals, and they also have the potential to identify creative new approaches or strategies. Job descriptions with clear and meaningful job responsibilities that integrate sustainability will help to ensure that sustainability is embedded into department level work.

Recommendation 6.3: Clearly communicate goals and progress toward goals.

There needs to be intentional and consistent communication about goals, strategies, and progress in the area of sustainability. While much information about the college's sustainability work is available through the sustainability website and other platforms, it is important to communicate this information proactively and repeatedly. The sustainability website should provide dashboard measures (see [here](#) for an example from Santa Clara University) of progress toward all sustainability goals. Ideally, this information would also include finer-grained data in specific areas, such as emissions by buildings, departmental travel use, etc. The Zilkha Center should produce and publish an annual sustainability report that clearly explains the college's progress toward its goals, the strategies that it is pursuing, and the challenges that it has faced in meeting those goals.

Recommendation 6.4: Target a Gold rating in the Sustainability Tracking, Assessment and Rating System (STARS).

STARS serves as a common data set for most published ranking systems of sustainability in higher education, including the Sierra Club's Cool Schools list and Princeton Review's Green Schools. Currently Williams has a Silver ranking in STARS, which is the same ranking we received for our previous submissions in 2011 and 2016. After analyzing our latest [STARS report](#), the Zilkha Center has identified some areas where we could improve in ways that would both lead to a higher STARS score and, more importantly, support the broader sustainability goals of the college.

Concluding Thoughts

The strategies outlined in this report are designed to integrate sustainability into teaching, scholarship, and operations at Williams, and to do so in ways that reflect core values of accountability and inclusive engagement. These recommendations, however, are not a substitute for a comprehensive sustainability plan, which would set specific goals and require approval from the Board of Trustees and the President. Our final recommendation is therefore that the college create a Board-approved sustainability plan for the college that would address each of the major topic areas of this report. Such a plan would identify goals and pathways for reducing emissions from combustion and travel, articulate guidelines for buildings and landscaping, and set specific, measurable goals for key areas, such as consumption, waste, food, and educational opportunities. It would also attend to the financial sustainability of the college and prioritize strategies with the highest impact for a given investment of resources. While not all of our specific recommendations will make it into the sustainability plan, our hope is that many will and that we will more often err on the side of ambition than caution.

Transforming the college's sustainability efforts will demand leadership, commitment, and resources across all levels of the organization. Williams should first build the capacity and commitment to excel at sustainability before announcing a position of leadership. The response should not be symbolic or superficial, but rather rooted in the belief that the most effective way that we can inspire and educate future leaders is through our curriculum, scholarship, and actions. If the college follows through on its commitments, leadership will follow.

Appendix 1: Working Group Charge and Questions

The campus planning process provides an opportunity to define principles and strategies for integrating sustainability in our operations, scholarship, teaching, and community. While sustainability will be woven throughout the planning process, the working group will focus on the following key areas:

- Defining our commitment to sustainability following the completion of the 2020 goals;
- Integrating sustainability throughout the curriculum and co-curriculum;
- Improving communication, transparency, and accountability of our sustainability efforts;
- Developing strategies for sustainable food, waste, and travel;
- Creating sustainability goals for campus buildings and spaces.

This working group should consider the following questions:

- What will our sustainability goals look like for the next 5-10 years? What strategies will allow the college to face the true, social cost of emissions? Should we consider reducing our reliance on offsets as a means to achieving carbon neutrality?
- How can we connect some of the sustainability work at the college to the education on campus? How can we more effectively communicate the work that we're doing in this area and hold ourselves accountable for our successes and failures?
- What is our strategy for providing sustainable and locally-sourced food to our students? How can we encourage our community to incorporate sustainability in their decisions and everyday lives? How can we reduce food and water waste, while still meeting the needs of our students? How can we balance the need for students, faculty, and staff to travel with our interest in reducing emissions?
- What are our sustainability goals for new and renovated buildings on campus? What building standards will provide the right incentives to build in ways that support our sustainability goals and a healthy environment for our students, faculty, and staff?

Appendix 2: Methods and Outreach

Sustainability was one of three themes in the planning process that was meant to cut across multiple working groups, topics, and areas of the college. In designing an outreach strategy, the working group sought feedback from a broad range of students, faculty, staff, alumni, and community members with different levels of interest and expertise in the various topic areas of our charge. We met with numerous committees, individuals, groups, and college areas over the course of the fall semester, and we openly solicited feedback (anonymous or named) feedback through the college planning portal on the website. These outreach sessions could be broadly categorized into the following groups:

- Campus-wide sessions, including three joint presentations at The Log and Planning Day.
- Meetings with broad constituencies of students, faculty, staff, and community members.
- Meetings with areas and committees most closely responsible for implementing sustainability at the college, including The Zilkha Center, Facilities, PDC, Dining, CPR, CPC, and CEAC.
- Meetings with other working groups to focus on cross-cutting themes.
- Meetings with college leadership, including senior staff, the President, the Board of Trustees, and the President's Administrative Group (PAG).

In addition to these efforts, we also asked each member of senior staff to engage their respective areas with a series of sustainability questions and share their responses. The feedback that we received through these various channels shaped many of the directions that we pursued in the planning exercise. Recurring themes including the importance of accountability and transparency, the impact of campus construction on emissions, the need to have clear goals around all aspects of sustainability, and the importance of connecting this work to the education of our students.

Another important source of information came from researching sustainability efforts at other liberal arts colleges and research institutions, including many of our NESCAC peers and both public and private universities. We are particularly grateful to the sustainability team at Middlebury, which hosted us for a daylong visit focused on both operational and curricular aspects of sustainability.

Appendix 3: Current Sustainability-Related Courses at Williams

Prefix	Number	Course	Instructor
AFR	211	Race and the Environment	James Manigault-Bryant
ANTH	322	Trash	Joel Lee
ARTS	215	Sustainabuilding	Ben Benedict
BIOL	134	The Tropics	Joan Edwards
BIOL	329	Conservation Biology	Sonya Auer
BIOL	413	Global Change Ecology	Sonya Auer
ECON	204	Econ of Developing Countries	Michael Samson
ECON	213	Intro Envi & Nat Res Econ	Sarah Jacobson
ECON	214	Econ and Ethics of CO2 Offsets	Ralph Bradburd
ECON	228	Water as a Scarce Resource	Ralph Bradburd
ECON	238	Sustainable Economic Growth	Gregory Casey
ECON	387	Economics of Climate Change	Matt Gibson
ENGL	312	Ecocriticism	Jess Fisher
ENVI	101	Nature and Society	Howe, Martin, Kohler
ENVI	240	Conservation and Climate Change	Laura Martin
ENVI	248	Climate Change Policy Analysis	Pia Kohler
ENVI	270	Environmental Problems	Pia Kohler
ENVI	302	Environmental Planning	Sarah Gardner
ENVI	324	Corals and Sea Level	Mea Cook
ENVI	328	Global Environmental Politics	Pia Kohler
ENVI	329	Our Planet's Plastic Plight	Pia Kohler
ENVI	102	Intro to Envi Science	Cook, Auer
ENVI	110	The Anthropocene	Nick Howe
ENVI	217	Landscape, Place, and Power	Nick Howe

ENVI	229	Environmental History	Laura Martin
ENVI	243	Reimagining Rivers	Nick Howe
ENVI	250	Environmental Justice	Laura Martin
ENVI	283	Dirty Politics: Regulating Hazardous Chemicals and Waste	Pia Kohler
ENVI	303	Cultures of Climate Change	Nick Howe
ENVI	307	Environmental Law	David Cassuto
GEOS	103	Global Warming and Environmental Change	José Constantine
GEOS	104	Oceanography	Mea Cook
GEOS	207	Earth Resources	Ronadh Cox
GEOS	255	Environmental Observation	Alice Bradley
GEOS	309	Modern Climate	Alice Bradley
HIST	258	The World Oil Made	Karen Merrill
LATS	420	Latinx Ecologies	Jacqueline Hidalgo
MAST	211	Oceanographic Processes	Lisa Gilbert
MAST	231	Literature of the Sea	Christian Thorne
MAST	311	Marine Ecology	Tim Pusack
MAST	319	Marine Policy	Katy Robinson Hall
MAST	352	America and the Sea	Alicia Maggard
PHYS	108	Energy Science and Technology	Kevin Jones
PSCI	242	The Politics of Waste	Laura Ephraim
PSYC	346	Environmental Psychology	Ken Savitsky
RLSP	401	Climate Changes (Latin America): Aesthetics, Politics, Science	Jennifer French