WPI'S SUSTAINABILITY PLAN:

2020–2025

Worcester Polytechnic Institute

WPI's Sustainability Plan: 2020–25

Message from the President

There is no doubt that the needs and challenges in assuring a sustainable society are now greater than ever. Our changing world is calling on us to address opportunities for improvement in areas ranging from energy and waste to health and climate. WPI is committed to taking a leading role in advancing a more sustainable future by addressing environmental, economic, and social justice challenges together.

I am pleased to introduce WPI's next five-year Sustainability Plan. This plan was developed through the Office of Sustainability to create "a sustainability ecosystem" that envisions our campus as a living and learning laboratory. It applies our strengths through the engagement of our partners worldwide to address global sustainability challenges.

The development of this plan is the result of a broad effort of students, faculty, and staff from all areas of campus. It includes sustainability goals, objectives, and tasks that we have defined across academic departments and programs, research and scholarship, operations and facilities, and community engagement. The goals, objectives, and initiatives are ambitious but critical in meeting the most serious challenges of our time.

Most importantly, WPI's sustainability plan counts on each member of the WPI community to work together – locally, nationally, and globally. We are setting high aspirations both for ourselves and to lead in ways that inspire others to take action alongside us in creating a more sustainable future.

LA Leshin

Laurie Leshin
President

Introduction/Background

Since its acceptance by the Board of Trustees in February 2014, WPI's Sustainability Plan has served as a guide to advance sustainability at WPI. Overall, we have made excellent progress towards our sustainability goals, and our work has a strong foundation for continuing our efforts to engage the campus community and promote WPI as a leader in sustainability.

It has been more five years since the Sustainability Plan was completed. We recognize that the needs and challenges in sustainability are greater than ever before. As a premier technological institution, WPI is committed to taking on a leading role in meeting these challenges. This new Sustainability Plan will serve as a guide over the next five years to help us realize this role. This plan includes guiding principles and the vision, the broader sustainability ecosystem, and the goals, objectives and tasks that support and advance this plan.

Guiding Principles

The United Nations has defined sustainability as "meeting the needs of the present without compromising the ability of future generations to meet their own needs." (Brundtland Commission, 1987) According to the Environmental Protection Agency, "to pursue sustainability is to create and maintain the conditions under which humans and nature can exist in productive harmony to support present and future generations." Achieving sustainability requires the three mutually complementary aspects of sustainability: environmental stewardship, economic security, and social justice for all people:

Environmental Stewardship embodies the principle that human activities must respect the need to preserve our natural world.

Economic Security represents the understanding that all members of society deserve access to the means to support themselves and their families.

Social Justice represents our belief that respect for the dignity of every human being leads to the assurance of equitable rights and opportunities for everyone.

As we advance our sustainability initiatives, we will embrace these three sustainability principles to guide our actions and pathways to achieve our sustainability goals.

These three principles provide the foundation for all our sustainability initiatives. It is important to note that the three pillars of sustainability are not separate entities. In fact, the sustainability initiatives that have the greatest impact encompass all three aspects.

WPI has recognized that a number of foundational core areas serve as foundational underpinnings, supporting and aligning our mission throughout our academic and research programs. These include: diversity, equity, and inclusion; innovation, entrepreneurship, and value creation; project-based learning and STEM; design thinking and maker culture. Given how closely these guiding principles align with all of these core values, we recognize the beneficial impact that this Sustainability Plan can have on our sustainability initiatives.

Vision

WPI embraces a culture of sustainability that extends from the WPI campus and reaches across the globe, building on our project-based curriculum and unique blend of theory and practice to advance innovative solutions that support all three broad goals of sustainability: environmental stewardship, economic security, and social justice. We advance this culture of sustainability by embracing our campus as a living and learning laboratory, developing our local and regional community as a sustainability innovation hub, and engaging with our partners worldwide to address global sustainability challenges throughout the WPI Community.
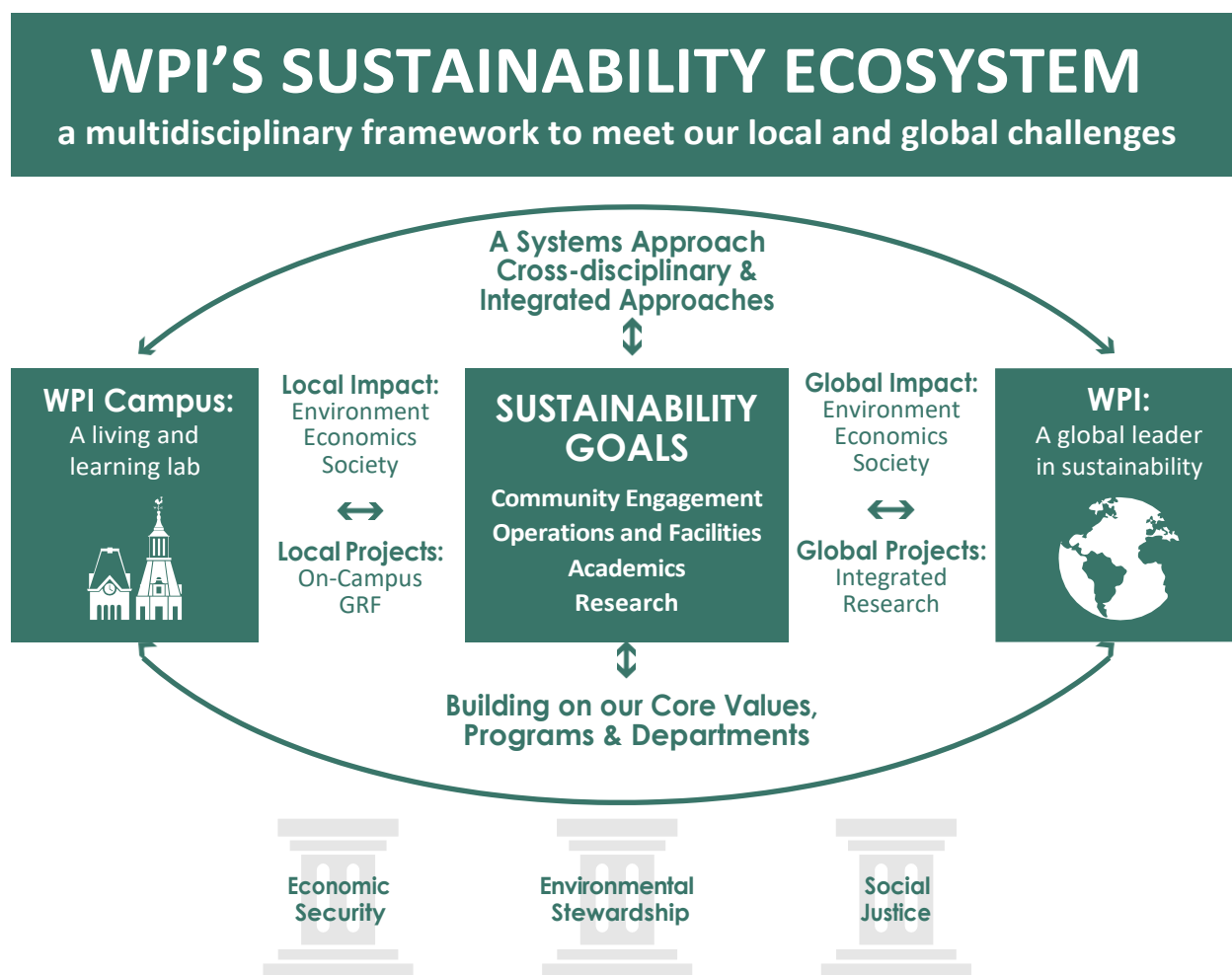
WPI's Sustainability Ecosystem

The cross-cutting aspects of sustainability at WPI are best represented as an "ecosystem" that supports and is nourished by many of our educational, research, and operational activities.

The Ecosystem Concept: WPI's Sustainability Ecosystem represents an integrated, multi-disciplinary framework that is aligned to meet local, regional, and global challenges in sustainability. More specifically, our ecosystem includes three primary initiatives:

(1) advancing sustainability within our campus as a living and learning laboratory,

(2) advancing sustainability locally by expanding our efforts beyond our campus and developing the local community and region as a hub for sustainability innovation, and

(3) advancing sustainability globally by reaching out beyond our campus (locally, regionally, and globally) to develop our academic initiatives that impact communities worldwide.

These complementary initiatives allow for advances in sustainability that will provide for beneficial local as well as global impact.

The sustainability plan, based on the three pillars—environmental stewardship, economic security, and social justice—provides the guidance for the values, actions, and endeavors for our ecosystem. We promote literacy and responsibility in sustainability throughout the entire WPI community. These three aspects will guide our actions as the plan is implemented over the five-year period.

WPI'S SUSTAINABILITY ECOSYSTEM
a multidisciplinary framework to meet our local and global challenges

A Systems Approach
Cross-disciplinary &
Integrated Approaches

WPI Campus:
A living and learning lab

Local Impact:
Environment
Economics
Society

Local Projects:
On-Campus
GRF

SUSTAINABILITY GOALS

Community Engagement
Operations and Facilities
Academics
Research

Global Impact:
Environment
Economics
Society

Global Projects:
Integrated
Research

WPI:
A global leader in sustainability

Building on our Core Values,
Programs & Departments

Economic Security

**Environmental Stewardship**

Social Justice

Alignment with WPI Programs and Initiatives: The Sustainability Ecosystem represents a framework that illustrates how we direct our efforts and initiatives from within our campus (our campus laboratory) outward across the regions and the globe (our global laboratory). Our various departments, programs, and offices provide a foundation for this ecosystem. Our cross-disciplinary approaches, advanced through broader, systems approaches (e.g., the circular economy; the life cycle analysis; and the triple bottom line), provide us with a unique perspective for addressing complex global sustainability challenges. The key features of these various initiatives incorporate four attributes of WPI's educational institution: academics and curricula, research and scholarship, facilities and operations, and community engagement.

The sustainability plan and this ecosystem helps us to address sustainability in aspects of our mission at WPI, including areas such as:

• Student learning, research, and scholarship

• Design, evaluation, prioritization, materials selection, and ongoing maintenance of building and landscaping projects

• Utilization and scheduling of campus space

• Campus-related product selection and purchases, including transportation and the procurement of food, vehicles, appliances, materials, equipment, cleaning, and office supplies

• Publication and communication of WPI's efforts and achievements regarding sustainability

• Cooperative work with institutions and governments to advance sustainability in the Worcester community and beyond

• Institutional strategic and master planning
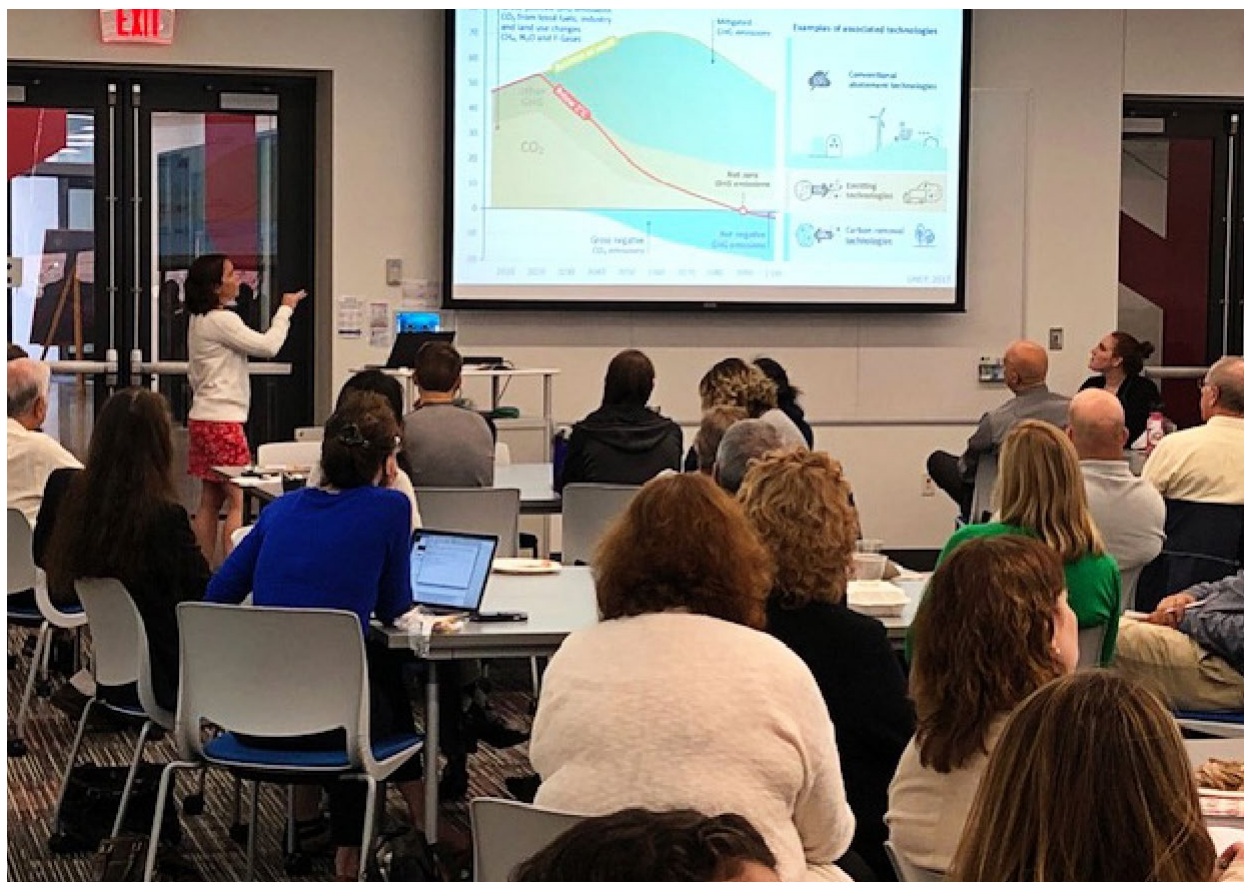
Local Impact: As a leader in local sustainability, we embrace and promote sustainability initiatives with an "all in" attitude, such that sustainability is a core value in the way we live. Our campus serves as a full test bed (i.e., laboratory) that we use to learn—and innovate—for sustainability. Our existing operations and facilities provide opportunities to learn and grow creatively. We advance sustainability initiatives through our student groups and activities. We also develop testbeds, which serve as a basis for new technologies and approaches to advance sustainability. We explore how our behaviors and practices can best be modified to cultivate all aspects of sustainability.

Global Impact: As a leader in global sustainability, we expand upon our local and on-campus initiatives to reach out beyond our campus—from the neighborhoods around our campus, to our region, to the globe. We direct our efforts at solving global problems, or grand challenges, and establishing our institution as a global leader in sustainability. Our core schools and departments, combined with our global and cross-disciplinary initiatives, serve as a springboard to launch our student initiatives to meet sustainability challenges. We develop our strengths in balancing theory and practice, as embodied in our motto, *Lehr und Kunst,* to the solution of these local, regional, and global problems. Our reach across the globe is supported through our global projects program, Global Lab, Institute for Project-Based Learning, and innovation and entrepreneurship initiatives. A schematic of this ecosystem is shown below. Our three pillars—environmental stewardship, economic, and social justice—provide the guidance for the values, actions, and endeavors for our ecosystem, which includes the various departments, programs, and offices. These pillars also provide an important reminder of the breadth of factors that are inherent in sustainability. From these foundations, our reach extends from our campus (our campus laboratory) outward across the globe (our global laboratory). Our cross-disciplinary approaches—advanced through broader, systems approaches (e.g., the circular economy; life cycle analysis; and the triple bottom line)—provide us with a unique perspective for addressing complex global sustainability challenges that involve all three aspects of aspects of sustainability. This sustainability plan serves as the central core that integrates, supports, and advances all of these initiatives. The key features of these various initiatives incorporate four attributes of WPI's educational institution: academics and curricula, research and scholarship, facilities and operations, and community engagement.

Incorporating a Systems View

Building on Our Core Values: WPI's core values—our "foundational underpinnings"—along with our approach to cross-disciplinary engagement serve as unique assets that support and promote sustainability. In addition to sustainability, these foundational underpinnings include diversity, equity, inclusion, design thinking, innovation and entrepreneurship, project-based education, and STEM. Sustainability draws upon all these core areas, and helps support and enhance them.

Cross-Disciplinary Initiatives: WPI's educational philosophy promotes collaboration and encourages cross-disciplinary collaborations, among various departments. An example to illustrate this collaboration is in the area of Materials and Manufacturing where efforts are underway to advance the "circular economy" by providing new ways to think about waste—even prompting us to envision a world without waste—and help us link economic security and environmental stewardship. Other examples include public health (Bio-Point), urban data analyses (the Smart World), and support for communities in countries such as Ghana and Paraguay (Global Initiatives). The array of programs that incorporate systems approaches allow for a holistic approach that enable us to account for the various aspects of sustainability, and recognize the complex relationship between society, technology, and our environment. Our sustainability plan strives to encourage new, innovative ways of thinking that promote creative solutions.
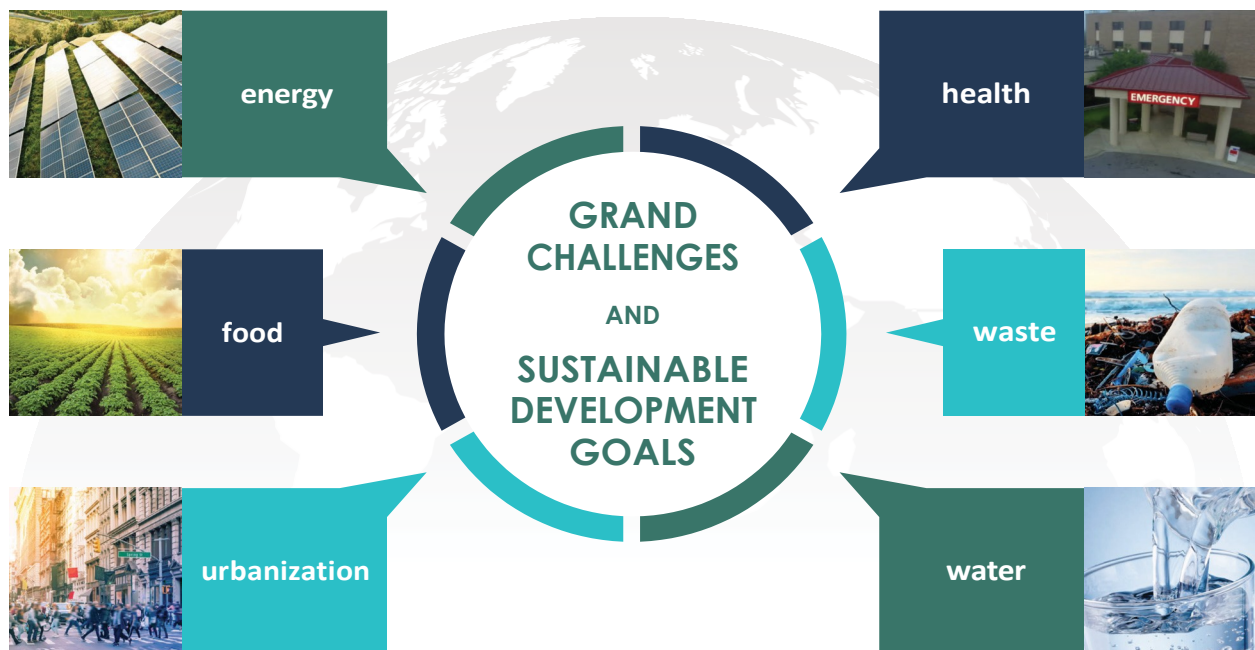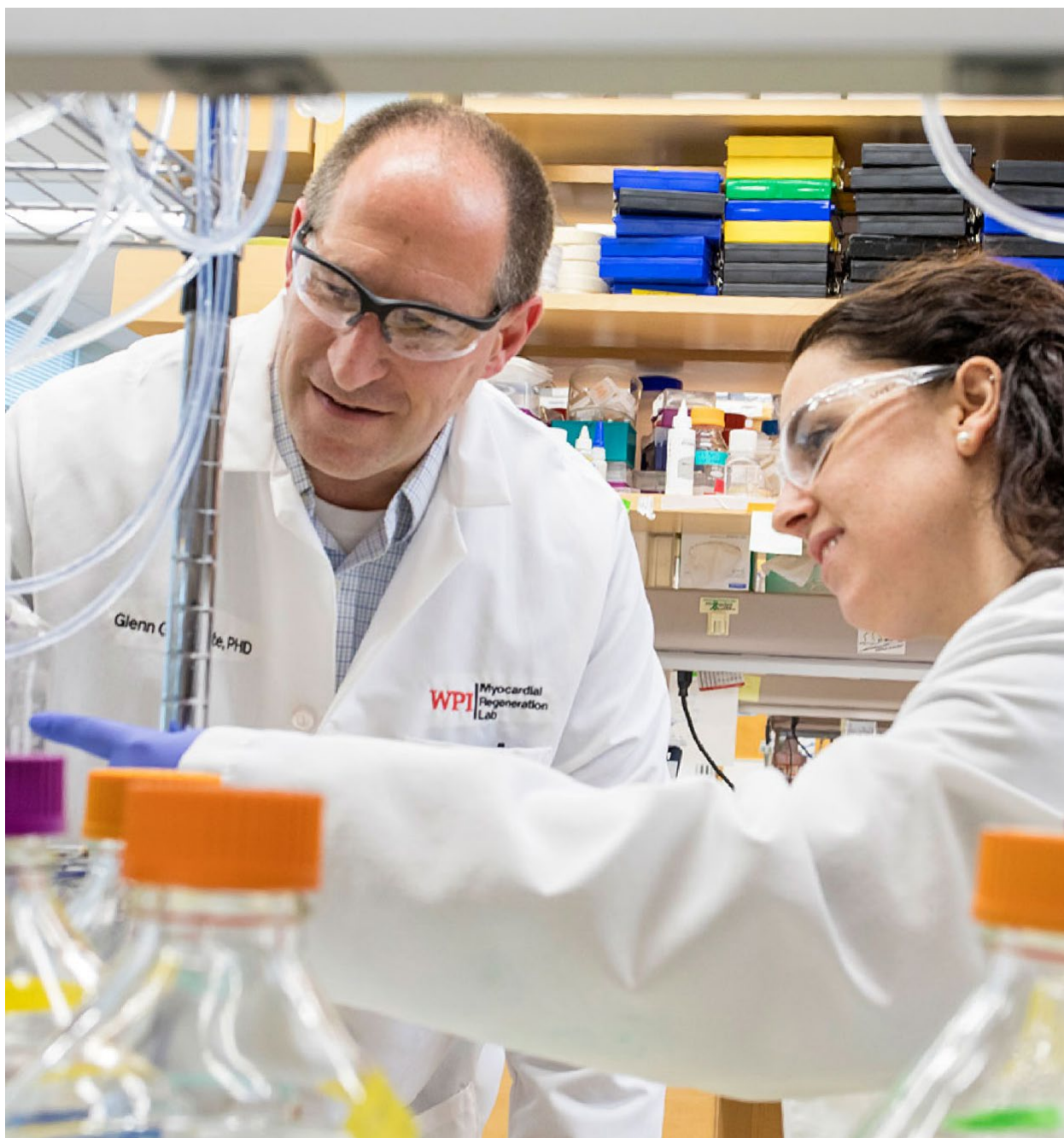
The Need—Global Challenges in Sustainability

We recognize the significant needs and challenges in maintaining a sustainable society. These challenges range from water pollution and lack of potable drinking water, to solid waste management and global challenges such as climate change and public health. All these needs involve environmental stewardship, economic security, and social justice.

The engineering and scientific community has recognized these needs and challenges as well. For example, two well-known institutions working to address these needs and challenges are the National Academy for Engineering (NAE) and the United Nations. The NAE initiated the Global Challenges Scholars Program (GCSP) to recognize the needs of society and better prepare engineers to change the world for the better. The GCSP is a combined curricular, co-curricular, and extracurricular program with competencies designed to prepare students to address the grand challenges facing society in the 21st century, in areas including sustainability, health, security, and joy of living.

The United Nations has proposed a 2030 Agenda for Sustainable Development that includes 17 Sustainable Development Goals (SDG) and several associated targets. The Agenda emphasizes a holistic approach to achieving sustainable development by building on its Millennium Development Goals and balancing the economic, social, and environmental aspects of sustainable development.

GLOBAL CHALLENGES IN SUSTAINABILITY

energy

health

food

waste

GRAND CHALLENGES

AND

SUSTAINABLE DEVELOPMENT GOALS

urbanization

water

Meeting our Society's Global Challenges

Sustainability is inherently a key consideration that needs to be addressed to meet the global challenges our society faces. With a number of new initiatives, WPI is uniquely positioned to address these challenges. Two of WPI's initiatives include the Research Discovery and Innovation (REDI) program and the development of the Global School. The REDI program will advance and coordinate WPI's research and educational activities in a number of interdisciplinary areas, including materials and manufacturing (Materials Reimagined), health and biological sciences (Bio-point, the Smart World, and Global Initiatives). The development of WPI's Global School will facilitate the students, staff, and professors to collaborate on learning, research, and project work with fellow academics, governments, NGOs, and members of the local community. The Sustainability Ecosystem is intended to advance and highlight these initiatives. Our sustainability goals and objectives provide a guide to track our progress and support our efforts.

Sustainability Goals

In the support of our vision, this Sustainability Plan identifies four goals. Each demonstrates a comprehensive approach to sustainability at WPI that addresses academic programs, research and scholarship, the engagement of our community, and campus operations and facilities.

Academic Programs and Initiatives: Our graduates will leave campus with the mindset and abilities to develop sustainable solutions to the world's problems.

Operations and Facilities: The principles of sustainability guide our operations as well as our academic and research programs.

Research and Scholarship: We will make significant contributions to the technologies, the policies, and the mindset to help assure a sustainable world.

Community Engagement: Every member of the WPI community will engage in sustainability-related education, awareness, action, and service, in order to achieve positive, long-lasting change for all our communities.

Sustainability Objectives and Tasks

This plan includes a set of objectives and tasks to achieve these goals. Each goal is supported by two broad objectives, which, in turn, are defined in terms of set of detailed sub-objectives and supporting tasks.

The goals, objectives, and tasks in all four areas support our sustainability ecosystem by advancing sustainability on our campus, within our local community and region, and across the globe by reaching out beyond our campus boundaries through our academic and research initiatives that impact communities worldwide. The goals, objectives, and tasks are summarized in the following pages.
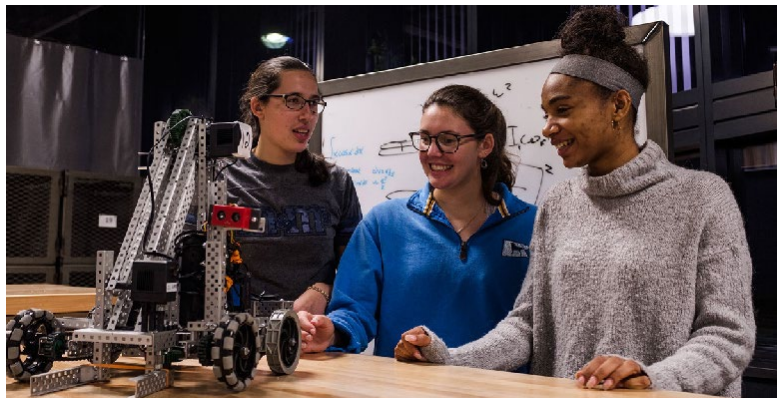
Sustainability Goals and Objectives

Academics

Operations and Facilities

Research, Scholarship, & Innovation

Community Engagement

GOAL 1: ACADEMICS

Graduates will leave campus with the mindset and abilities to develop sustainable solutions to the world's problems.

Sustainability is woven throughout our academic coursework and project programs. The WPI coursework is filled with sustainability topics that range from surface water quality to building envelope design to planning for sustainable communities. The Great Problems Seminar and many of the Interactive Qualifying Projects, Major Qualifying Projects, and graduate theses are rich with sustainability, addressing environmental issues, human concerns, or economic opportunities. All these projects have helped improve the human condition throughout local Worcester communities and around the world.

Academics Objectives and Tasks

In order to provide direction to the goal for academics, objectives (which have been developed by a team of students, faculty, and staff) can be found in the table on the adjacent page. Information on tasks, five-year outcomes, and responsible parties is included in Appendix A. The baseline year for each task is the current academic year, 2019–20, and the expected task completion is 2025. These objectives will help WPI strengthen its coursework and project work, and will advance social justice throughout our programs. They will serve as a guide to further elevate the impact of WPI's programs and make them more robust. They will lead WPI to utilize its many campus resources—buildings and processes and know-how—as a living and learning laboratory so that as we learn and advance how we design and develop creative solutions to our problems. This living and learning laboratory serves as a model for innovating with sustainability around the globe.

ACADEMICS OBJECTIVES

OBJECTIVE A1
Education and Learning for Sustainability – Major and Mission

WPI students have the awareness, ability, and motivation to integrate sustainability into their academic programs – including the major as well as the mission.

1 WPI students have awareness and ability to integrate sustainability into their academic programs.

2 WPI promotes the development of improved and new curricula (e.g. majors, minors, certificates) in all aspects of sustainability to support student interests, needs, and opportunities.

3 WPI integrates sustainability into project-work at all levels (first year (GPS), Inquiry Seminars, IQP, MQP, and Graduate) and provides valuable project-based learning opportunities in the sustainability area.

4 WPI advances social justice initiatives and ensures that all sustainability-related programs promote diversity, equity, and inclusion.

OBJECTIVE A2
Sustainable Impact – From Local To Global Reach

Through our academic programs, our students advance all aspects of sustainability in a way that will have meaningful, positive impact – with local to global reach.

1 WPI encourages initiatives that elevate the impact of our sustainability activities/programs, and promotes cooperative engagement with external organizations, partners, and communities.

2 WPI promotes design thinking, innovation, and entrepreneurship (I/E) throughout its sustainability programs and activities.

3 WPI provides academic opportunities that effectively meet a significant global issues and concerns (e.g. number of Grand Challenges and Sustainable Development Goals, (SDGs)), with a goal of providing significant positive impact in addressing sustainability issues.

GOAL 2: OPERATIONS AND FACILITIES

Principles of sustainability guide our actions as well as our academic and research programs.

As a technology-focused university, WPI has a strong record of operational improvements through smart engineering and effective systems management. WPI will continue to pursue its goal to reduce water and energy consumption and waste generation through promoting operational efficiencies and positive behavior change. WPI will continue to strive toward further reductions in greenhouse gas emissions through efficient energy and transportation choices. WPI will persist in its efforts to become a more vibrant, resilient, and welcoming campus for our WPI community in Worcester and across the globe. WPI will also promote a healthier campus by incorporating smart choices for buildings, operational processes, as well as dining, transportation, and physical wellness.

Operations and Facilities Objectives and Tasks

To guide our direction for this goal, objectives and tasks were developed by a team of students, faculty, and staff; these can be found in the table on the adjacent page. Information on tasks, measures, and responsible parties is included in Appendix B. The baseline year for each task is the current academic year, 2019–20, and the expected completion is in 2025. These goals will help to bolster WPI's commitment to protecting the environment by the way we operate. The goals are also designed to consider the campus as a living and learning laboratory, where it can both teach and learn new and creative ways to make sustainability an integral part of daily activities and conversations.

OPERATIONS AND FACILITIES OBJECTIVES

OBJECTIVE O1
Preserving Our Resources – New Ways To Achieve Sustainability

WPI reduces environmental impacts by reducing the use of energy, water, waste, and other resources, and by considering creative ideas to incentivize and promote efficiency and resource reduction.

1 WPI reduces environmental impacts of water and other resources, and reduces waste generation by incorporating creative ideas to incentivize and promote efficiency and resource reduction (including water, landfill waste, food waste, chemicals, paper, and others).

2 WPI reduces environmental impacts of energy consumption and greenhouse gas emissions by advancing efficiency and by incorporating creative ideas to incentivize and promote efficient resource reduction.

OBJECTIVE O2
A Sustainable Lifestyle – A Welcoming and Healthy Campus

WPI operations and facilities support the promotion of a healthy campus environment by assuring a safe, welcoming campus that promotes diversity, equity, and inclusion, and by providing sustainable alternatives (e.g. transportation, dining, and food source options).

1 WPI promotes sustainable and healthy living through transportation, dining, and food alternatives.

2 WPI maintains a welcoming and resilient campus.

GOAL 3: RESEARCH, SCHOLARSHIP, & INNOVATION

Our research and scholarship will make significant contributions to the technologies, the policies, and the mindset to help assure a sustainable world.

WPI has a strong history of collaboration and will enhance its efforts to more fully bring sustainability research into the laboratories, as well as into the physical space that is the WPI campus. We will embolden researchers to actively pursue solutions to global sustainability issues for the betterment of the planet. WPI will measure and report its successes and ensure that research findings are available to all disciplines at WPI.

Research Objectives and Tasks

In order to provide direction to this goal, objectives and tasks have been developed by a team of students, faculty, and staff—these can be found in the table on the adjacent page. Information on tasks, measures, and responsible parties is included in Appendix C. The baseline year for each task is the current academic year, 2019–20, and the expected task completion is in 2025. These goals will guide WPI toward increased collaborative and creative innovation in sustainability across disciplinary areas.
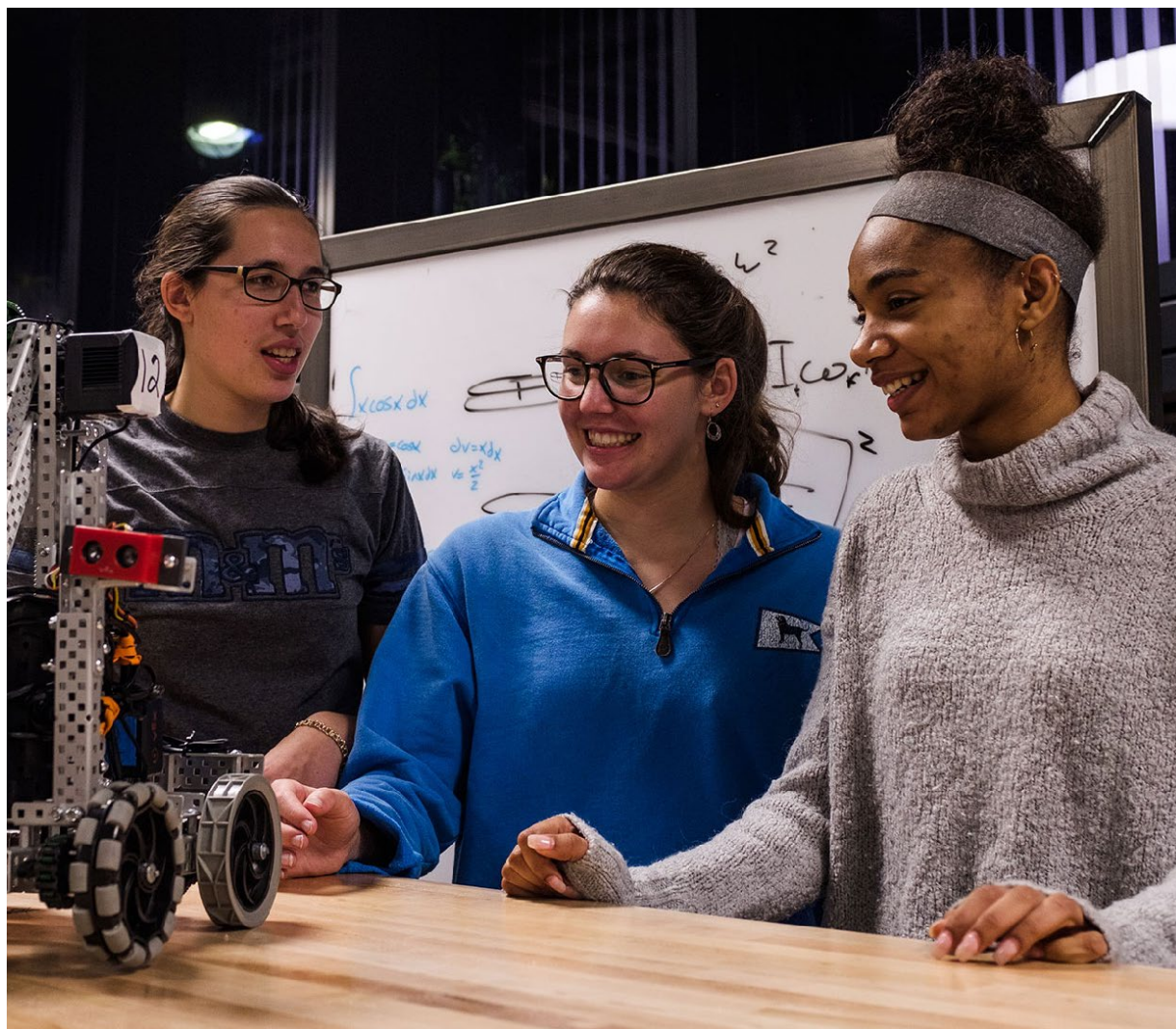
RESEARCH, SCHOLARSHIP, AND INNOVATION OBJECTIVES

OBJECTIVE R1
Innovating Green – Sustainability Research and Scholarship

Through research innovation and entrepreneurship, WPI's research and scholarship provide practical contributions in sustainability that encompasses and integrates a range of disciplines.

1 WPI advances research and scholarship that effectively addresses sustainability across all disciplines at WPI.

2 WPI's reputation is established as a leader in one or more areas of sustainability research.

WPI infuses innovation in sustainability through the development of interdisciplinary collaborations

OBJECTIVE R2
Systems For Sustainability – Cross-Disciplinary Approaches

By incorporating cooperative systems approaches (e.g. Circular economy, life cycle analysis, and development engineering), WPI's research and scholarship provides leadership in sustainability.

1 WPI infuses innovation in sustainability through the development of interdisciplinary collaborations consisting of faculty and students, including all schools (engineering, arts, and sciences, global, and business).

2 WPI's research program effectively addresses significant global issues and concerns (e.g. selected Grand Challenges and Sustainable Development Goals, SDGs), with a goal of providing significant positive impact in addressing sustainability issues.

GOAL 4: COMMUNITY ENGAGEMENT

Every member of the WPI community will engage in sustainability related education, awareness, action, and service, in order to achieve positive, long-lasting change for all our communities.

WPI's strong emphasis on community engagement is essential for achieving our sustainability goals. To meet our community engagement goal, WPI will foster a true "culture of sustainability". The intent is to encourage all members of the community to be actively engaged in programs and initiatives that advance sustainability, and to make sure that the impacts and performance measures for these programs and initiatives are broadly shared. Recognition is awarded to those who embody sustainability in their work. WPI strives to ensure that all three aspects of sustainability—social justice, economic security, and environmental stewardship—are integral to its community engagement, on campus, in the local community, and in project centers around the world. WPI will share its experiences and knowledge with communities everywhere for the benefit of the planet and all of its life forms.

Community Engagement Objectives and Tasks

To guide our direction for this goal, objectives and tasks have been developed by a team of students, faculty, and staff—these can be found in the table on the adjacent page. Information on tasks, measures, and responsible parties is included in Appendix D. The baseline year for each task is the current academic year, 2019–20; the expected completion is 2025. These goals will enhance WPI's communities and the impact of its actions at home and abroad. Without community engagement, these goals would be challenging to achieve. WPI is a robust and adaptable community, and working together on these goals will enrich this resilience. It is in this human component where WPI's strength lies, and through our strong engagement our impact will be significant.

COMMUNITY ENGAGEMENT OBJECTIVES

OBJECTIVE C1
A "Culture of Sustainability"

WPI maintains a "culture of sustainability", in which all WPI community members are engaged in activities that embrace and advance sustainability; and in which WPI recognizes and communicates sustainability impacts across all organizational, community, and academic activities.

1 WPI informs all members of the WPI community to make them aware of sustainability challenges, opportunities for positive action, and ways to integrate sustainability goals and values into their roles in relation to WPI.

2 The impact of WPI community members' activities on sustainability is demonstrated through assessment and encouraged through recognition.

3 WPI advances social justice initiatives and ensures that all sustainability-related programs promote diversity, equity, and inclusion.

OBJECTIVE C2
Sustainable Impact – From Local To Global Reach

WPI engages with communities beyond the WPI campus through effective dissemination, project engagement, partnering, and initiatives (e.g. STEM, PBL) to support the communities in their sustainability efforts.

1 WPI creates and encourages opportunities for partnership on sustainability in communities beyond the WPI campus through improved dissemination and easy accessibility to WPI's sustainability resources.

2 WPI's project program incorporates sustainability-related project-work that provides highly visible and impactful support for community sustainability needs.

3 WPI infuses design thinking, innovation, and entrepreneurship (I/E) throughout its sustainability programs and activities.

4 WPI engages the K-12 community, teachers, and parents as partners in creating a more sustainable culture for our region's youth.

Common Themes Among the Four Goals

Our four sustainability goals inherently reflect the three pillars of sustainability—environmental stewardship, economic security, and social justice. With these pillars as a foundation, our four sustainability goals are inherently linked with each other. Community engagement is essential to support our academics, research, and operations. We recognize that these pillars also reflect the importance of diversity, equity, and inclusion—all of which are inherent in sustainability.

Our Campus as a Living and Learning Laboratory

To fully achieve sustainability throughout our community, we need a culture of engagement. This idea is accomplished when our community integrates the role of sustainability into their academic and life mission. It is essential to ensure that our sustainability initiatives have a meaningful impact on our WPI community and in communities throughout the world.

This ideal is achieved by embracing the concept of our campus as a living and learning sustainability laboratory, in which our community actively integrates sustainability in daily life. Our campus serves as a test-bed for innovation to help us address the significant sustainability challenges facing the world. Our student groups, on-campus project programs, research initiatives, and Department of Facilities all drive the potential for this laboratory. To illustrate, the WPI Green Revolving Fund provides funding for sustainability projects that serve to increase energy efficiency and reduce costs (with savings rolled back into the fund for future projects). The WPI Sustainability Project Center engages undergraduates to address the needs for WPI's sustainability challenges. Initiatives such as these will continue to serve as important components of our sustainability plan.

Local Community and Region as a Sustainability Innovation Hub

We extend our vision of our living and learning laboratory to the broader community and the region. This approach recognizes our close relationship with the community within the City of Worcester, the Commonwealth of Massachusetts, and all of New England. Here, the local community and region can be viewed as a sustainability innovation hub, in which the communities we collaborate serve as test-beds for developing new approaches to advance sustainability. Our approach for this initiative is strongly supported by our local project centers, which include the Worcester Community Project Center (WCPC), Energy Sustainability Project Center, Food Sustainability Project Center, and Water Resources Outreach Center (WROC).

WPI as a Leader in Global Sustainability

WPI is recognized for its leadership in project-based approaches to global sustainability, in which we address significant global issues and challenges. Our living and learning laboratory and our sustainability innovation hub provide a foundation for new, innovative approaches to meeting these global challenges. Our global projects program—with more than 50 centers throughout the world that produce over 300 Interactive Qualifying Projects each year—is already addressing these challenges. The development of The Global School and Global Lab provide additional support to position our community to meet these challenges.

Moving Sustainability Forward at WPI

WPI is well positioned to address climate change and other important sustainability concerns now and over the upcoming decades. Our campus culture revolves around the three aspects of sustainability—environmental stewardship, economic security, and social justice. Each of these aspects figure prominently throughout our academics, research, operations, and community engagement; they are a fundamental component of our new sustainability plan's goals. We advance these goals with an effective organization and an established, continuous process.

A Continuous Process for Advancing Sustainability Goals and Objectives

The process for advancing sustainability goals and objectives includes support for sustainability initiatives and activities, a process for engaging community's ideas and suggestions, review, and planning, tracking and assessment, and annual reporting.
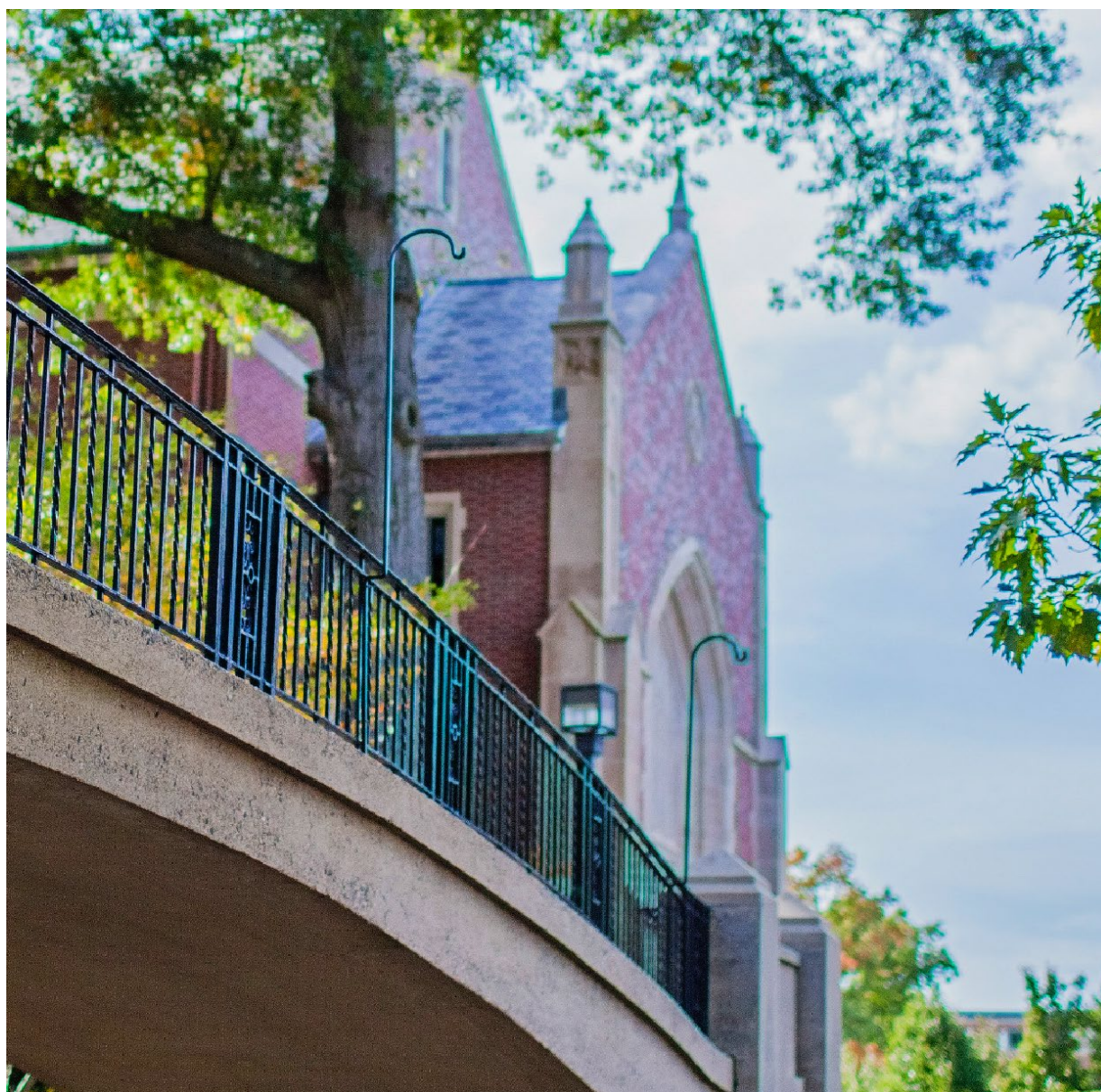
Support for Sustainability Activities and Initiatives

The Office of Sustainability will provide support for the sustainability objectives and tasks listed within the four areas of the plan—academics, research, community engagement, and operations and facilities. The breadth of the objectives and tasks require input from a variety of stakeholders. The objectives and their anticipated accomplishments will depend upon their engagement. The lead partners are included in the objective and tasks summary tables.

A Process for Engaging Our Community's Ideas and Suggestions

One of the goals for this Sustainability Plan is to recognize and value the insights and contributions provided by each and every member of our community. Hence, this plan includes a process for receiving community input and addressing suggestions, ideas, and concerns whenever possible. Responses will be recorded on a quarterly basis during the academic year. Then, during the summer for each year, we will include a review and assessment and will publish a summary of responses and recommendations.

Review and Planning

This sustainability plan serves as a guide for achieving WPI's sustainability vision and goals. Successful completion of the objectives and tasks includes engagement of various offices as listed in the objective/task tables, and it also depends on appropriate resource support. The Office of Sustainability and the Sustainability Advisory Committee will review its progress against our sustainability goals annually, with an intention of working to align efforts to more identify and refine best approaches, assure feasibility, and progress, and effectively engage with the WPI community. The review will also include an assessment in relation to long-term sustainability needs and opportunities, and consideration on whether any adjustments may be appropriate.

Organization and Oversight for Sustainability

A well-defined approach for achieving the sustainability goals and objectives is critical for success. Fortunately, the current structure has provided a solid foundation for oversight of sustainability. The following description shows the major positions, functions, and communication pathways for sustainability at WPI. The structure is intended to promote the breadth of participation essential for broad success.

Key Roles:

Director of Sustainability

- Half-time position.
- Reports to the Executive Vice President.
- Assumes responsibility for positioning the institution to meet the goals defined in the Sustainability Plan, as well as convening and guiding the stakeholders in the implementation of the Sustainability Plan's goals.
- Coordinates efforts across all areas while focusing on the academic aspects and working with the Associate Director who focuses on the operational aspects.
- Provides expertise and positions WPI as a leader in sustainability efforts on campus, in the Worcester community, and globally.

Associate Director of Sustainability

- Half-time position.
- Reports to the Director of Sustainability.
- Works in collaboration with the Director of Sustainability to realize the goals and support the initiatives of the WPI community. Involved in planning, implementing, and evaluating sustainability programs at WPI, focusing on operational and community aspects.

WPI Sustainability Operations Committee

- Supports sustainability efforts by providing input on sustainability activities and initiatives, and helping with coordination of implementation of sustainability initiatives among campus offices, groups, and community members.

- Works with Office of Sustainability to develop priorities and will communicate those priorities to their divisions and associated groups. These groups will work closely with the director in implementing the priorities.

- Ideally includes the following persons or appropriate representatives: EVP/CFO, Provost, Dean of Students, VP for Human Resources, Chief Marketing Officer, VP of Facilities, Director of Dining Services, Director of University Advancement, Dean of Engineering, Dean of Arts and Sciences, an appropriate faculty member, one undergraduate student, and one graduate student.

WPI Sustainability Steering Committee

- Provides guidance and support to advance broader sustainability goals and strategies at Worcester Polytechnic Institute, and works collaboratively with WPI to ensure that these efforts provide a positive impact on sustainability locally, nationally, and globally.

- Includes three to five external members (including one to two WPI alumni), and up to two WPI faculty members who will assist the Director of Sustainability to align the priorities and initiatives of WPI's sustainability ecosystem such that they match the sustainability needs and opportunities of organizations and stakeholders outside of the community.

- Works closely with the Director, Provost, and EVP/CFO to identify and develop priorities in sustainability, with consideration to external opportunities, needs, and sources of potential support for advancing the plan.

Working Groups

- Additional groups are established to work on appropriate topics in collaboration with the Sustainability Advisory Committee and Office of Sustainability. In recent years, working groups were established to support the Green Revolving Fund and to develop the Greenhouse Gas Reduction Plan. To support the development of the new sustainability plan, working groups were developed for academics, research, campus operations, and community engagement. It is anticipated that additional working groups will be established to support the campus as a living and working laboratory initiative, and global sustainability initiatives.

Tracking and Assessment

In order to track, report, and verify progress toward the four goals of this plan, clear and measurable outcomes—and responsible offices or groups—have been identified for the objectives and tasks. Ongoing measurement of each component of the goals is vital for verifying progress and for assuring the ultimate success of the plan. Some measures are already in place and have been reported in the previous annual WPI Sustainability Reports. These measures include utility consumption, waste generation, greenhouse gas emissions, number of academic majors and courses, among others.

For each of the four major goals of the Sustainability Plan, objectives and tasks have been developed by the Sustainability Plan Working Groups—they can be found in the table presented with each goal. For each objective and task, we have identified the following:

- Measures for progress, definition of the data to be measured, and the manner in which it will be measured
- Target objectives to be completed by 2025
- Responsible parties, specifying the person or group responsible for the desired outcome as well as person responsible for providing data to measure the progress toward the outcome.

The Director of Sustainability is ultimately responsible for the oversight of the Sustainability Plan and will be pivotal in managing key metrics. The director's primary role is to coordinate and centralize the collection of data from offices throughout the campus community—to ensure that the office staff overseeing key performance data are knowledgeable about the Sustainability Plan and the associated objectives and tasks so that they are actively engaged in data collection, analysis, and dissemination.

Annual Reporting

Annual reports are issued by the Office of Sustainability to the administration on progress toward sustainability goals. These reports include a review of items in relation to all four sustainability goals. Reports will summarize the broader initiatives in relation to the campus as a living and learning lab, the region as a sustainability innovation hub, and the accomplishments in addressing global challenges.

The Process of Developing This Sustainability Plan

With WPI's current Sustainability Plan approaching its fifth-year anniversary (and much progress had been made on that inaugural plan), the Office of Sustainability is committed to developing an updated Sustainability Plan. There is a need to include important new aspects of sustainability in campus culture: academic programs, research, and scholarship, operations and facilities, and community engagement. Leadership has been identified for the working groups to carry this forward.

An important aspect of developing a sustainability plan at WPI is engagement. The Office of Sustainability seeks the broadest input from the community so that the most comprehensive and inclusive plan will result. To that end, a formal launch event for the sustainability plan was held in December 2018. All members of the community were invited to participate in an input session, identifying goals and setting priorities for our campus around the topics of academics, research, community engagement, and campus operations. Both Executive VP/CFO Jeff Solomon and Provost Winston Soboyejo led the charge with their personal commitment to enhancing sustainability at WPI.

In February 2019, the Office of Sustainability held a "world café," a creative meeting process for leading collaborative dialogue, sharing knowledge, and creating possibilities for action in groups. It posed three questions to the more than 60 students, faculty, and staff in attendance: What does a sustainable WPI look like? What is your role in WPI's sustainability? How do we build a successful plan? The results of these deep conversations were then showcased in April in the second community input session, where goals were advanced and priorities were refined.

Acknowledgements

The development of the WPI Sustainability Plan for 2020-2025 was coordinated by the Office of Sustainability, working through Office of Finance and Operations and Office of the Provost. The support of these offices, particularly Provost Soboyejo and Exec VP Solomon, is truly appreciated. It is important to recognize that this plan reflects the insights and contributions from many students, staff and faculty who provided input while serving on working groups and participating in community outreach sessions such as the world café and feedback sessions. While we cannot name everyone who provided valuable input, we can identify some of our community members who were involved in the preparation of the goals, objectives tasks, and report preparation. Some of the people are as follows:

Office of Sustainability: Paul Mathisen (Director of Sustainability) and Elizabeth Tomaszewski (Associate Director of Sustainability)

Working Groups:

Operations and Facilities	Academics and Research	Community Engagement
Eric L Beattie, Siamak M Najafi	Krueger, Robert Derren Rosbach Jennifer Wilcox	Jennifer Daigle Anna Gold Gregory A Snoddy
Katherine Bishop, Shavaun Cloran Thomas Dziechciarz Benjamin Higgins Katarina Himmelberger Samuel Hopkins Joe Kraskouskas Amy J L'Heureux Michelle L O'Connell Shawn McAvey William P Spratt Maya A Su Kevin Wheeler Bryan, Erin Derren Rosbach Kyle Corry Joseph Kraskouskas Seyed A Zekavat	Stephen McCauley Derren Rosbach Katherine Chen Lauren Mathews Connie Aramento Joseph Cullon Michael Elmes David Olinger John Orr Maya Sun Jennifer Wilcox	Curtis Abel, Matthew Alvarado-Ross Jaime L Dillon Katherine A Elmes Robert Krueger Donna Levin Linda Looft Laura Roberts Elisabeth A Stoddard

Sustainability Advisory Committee: Winston Soboyejo (Exec. VP; Provost), Jeffrey Solomon (Exec VP, CFO), Corey Dehner, Mary Beth Harrity, Scott Jiusto, Julie Loveless, Martin Luttrell, John Orr, Derren Rosbach, Joseph Sarkis, Gregory Snoddy, and William Spratt

Students Providing Input and Support: Officers and members of WPI's Green Team, and the Office of Sustainability Interns, particularly Olivia Caton, Sarah O'Neil, Maya Sun, Kyle Corry, and a number of others

APPENDICES

Objectives and Tasks

**Including five-year outcomes
and responsible parties**

Appendix A: Academics

Goal 1: ACADEMICS — WPI graduates will leave campus with the mindset and abilities to develop sustainable solutions to the world's problems.

Objective A1: EDUCATION AND LEARNING FOR SUSTAINABILITY — MAJOR AND A MISSION: WPI students have the awareness, ability, and motivation to integrate sustainability into their academic programs, courses, and projects—including the major and a mission.

Objective A1.1: WPI provides students with awareness, ability, and opportunity to incorporate sustainability into their academic programs.

Tasks	5 Year Outcome	Responsible Party
Task 1: WPI articulates the role of sustainability by incorporating it into learning outcomes and values for undergraduate education.	Learning outcomes are defined	Office of the Provost
Task 2: WPI will increase student exposure to sustainability and expand participation of students in sustainability-related academic programs	10% increase in number of students enrolled and graduating per year	Office of Sustainability
Task 3: WPI will identify sustainability intensive courses and develop approaches to allow for recognition of student coursework in sustainability.	Ongoing tracking shows an increase in number of intensive courses and recognition	Office of Sustainability
Task 4: WPI will encourage students in ancillary disciplines to double major or minor in sustainability-related major/minor (e.g., sustainability/sustainability engineering).	10% increase in number of students per year	Office of Sustainability; Environmental & Sustainability Studies
Task 5: WPI will review and encourage academic programs/disciplines to include sustainability within their respective curricula.	10% increase in number of programs per year	Office of Sustainability

Objective A1.2: WPI develops new curricula (e.g., majors, minors, certificates) in all aspects of sustainability to support student interests, needs, and opportunities.

Tasks	5 Year Outcome	Responsible Party
Task 1: WPI will track number and nature of initiatives and programs to support our sustainability goals, along with student enrolling in and graduating from these initiatives	Increase in number of major initiatives in place for major areas of sustainability, and numbers of students actively engaged	Office of Sustainability
Task 2: WPI will support the development of new programs and initiatives to advance our sustainability goals.	Increase in number of major initiatives in place to support goals in major areas of sustainability	Office of Sustainability
Task 3: WPI will organize faculty learning centers that support and promote sustainability.	Increase in number of learning centers in place addressing all 3 pillars of sustainability	Office of Sustainability; Educational Development Council
Task 4: WPI will identify funding sources and establish a "sustainability expert-in-residence" or "professor of practice" position that will include someone who may have industry or applied expertise in sustainability, to support academics and serve as a liaison between faculty/staff and students of WPI and funding agencies, government, or non-governmental organizations with a focus on sustainability.	Position is created and engagement is in place	Office of the Provost; Academic Departments

Objective A1.3: WPI advances social justice initiatives and promotes diversity, equity, and inclusion in all sustainability related programs.

Tasks	5 Year Outcome	Responsible Party
Task 1: WPI will review concepts of social justice and human needs in sustainability-related courses, projects, and activities and support increased content in these areas.	Social justice is included in coursework and projects	Talent and Inclusion; Office of Sustainability
Task 2: WPI will advance Diversity/Equity/Inclusion in sustainability education and activities.	DEI is reflected in sustainability-related educational activities/projects	Talent and Inclusion; Office of Sustainability

Academics (continued)

Objective A1.4: WPI integrates sustainability into project work at all levels (first year (GPS), Inquiry Seminars, IQP, MQP, and Graduate) and provides valuable project-based learning opportunities in the sustainability area.		
Tasks	**5 Year Outcome**	**Responsible Party**
Task 1: WPI will track and review projects that incorporate sustainability, building upon new initiatives for e-projects and library tracking.	Project tracking is in place, with increase number of sustainability themed projects by 10% each year	IT and Library Services
Task 2: WPI will assess role of project-based learning in advancing sustainability goals, and consider how it can be advanced to enhance learning for all students.	Learning outcomes are established, assessment and continuous improvement process in place	Office of the Provost; Office of Sustainability
Task 3: WPI will advance the on-campus project centers (sustaining WPI project center, food and energy sustainability project centers, STEM).	Number of projects and students participating is increased by 10% per year	Office of Sustainability; Provost Office
Task 4: WPI will develop and coordinate on-campus projects and initiatives that can support sustainability in academic, research, campus operations, and community engagement.	Number of initiatives is increased by 20%	Department of Facilities; Office of Sustainability
Task 5: WPI will promote close linkages between facilities/operations and academia that encourage student projects and research.	Number of projects is increased by 10%	Department. of Facilities, Office of Sustainability
Task 6: WPI will establish working space to promote student project work and innovation in sustainability.	Working space is established and supports /promotes sustainability	Department. of Facilities; Office of Sustainability
OBJECTIVE A2: SUSTAINABILITY IMPACT – FROM LOCAL TO GLOBAL REACH: Through our academic programs, students advance all aspects of sustainability in a way that will have true meaningful, positive impact on communities beyond the WPI campus—with local to global reach.		
Objective A2.1: WPI facilitates initiatives that elevate the impact of our sustainability programs, and promotes cooperative engagement with external organizations, partners, and communities.		
Tasks	**5 Year Outcome**	**Responsible Party**
Task 1: WPI will enhance the student experience and impact in the sustainability area as it relates to the major and mission initiative.	All students identify significance of their programs in relation to sustainability, increase in number of students engaged	Major and Mission initiative; Office of Sustainability
Task 2: WPI will track and publish impacts of our projects and academic sustainability activities (including other initiatives such as the Project-Based Learning Center and ASSISTments) on communities beyond the WPI campus.	Program is initialized to quantify impacts, increase in number and types of projects	Project-based Learning Center
Task 3: WPI will advance academic activities, programs, and curricula that promote STEM to enhance the awareness and knowledge of sustainability for a wide array of audiences (youth, college/adult, etc.)	Student participation increases by 10% per year	Project-based Learning Center
Task 4: WPI will maintain a physical space on campus that embodies and showcases sustainability as a key aspect of WPI's strategic plan.	Space is made available and sustainability is routinely showcased	Department of Facilities; Office of Sustainability

Academics (continued)

Objective A2.2: WPI infuses design thinking, innovation, and entrepreneurship (I/E) throughout its sustainability programs and activities.		
Tasks	**5 Year Outcome**	**Responsible Party**
Task 1: WPI will review and enhance Innovation/Entrepreneurship in our sustainability initiatives.	Sustainability is integrated as part of I/E	Innovation and Entrepreneurship; Office of Sustainability
Task 2: WPI will review and advance design thinking as it pertains to sustainability throughout the curriculum.	Design thinking includes sustainability concepts	Innovation and Entrepreneurship; Office of Sustainability
Task 3: WPI will advance academic activities, programs, and curricula that promote STEM to enhance the awareness and knowledge of sustainability for a wide array of audiences (youth, college/adult, etc.).	Student participation increases by 10% per year	Project-based Learning Center
Task 4: WPI will maintain a physical space on campus that embodies and showcases sustainability as a key aspect of WPI's strategic plan.	Space is made available and sustainability is routinely showcased	Department. of Facilities; Office of Sustainability
Objective A2.3: WPI provides academic opportunities that address significant global issues and concerns (e.g., number of Grand Challenges and Sustainable Development Goals (SDGs)), with a goal of providing significant positive impact in addressing sustainability issues.		
Tasks	**5 Year Outcome**	**Responsible Party**
Task 1: WPI will promote academic programs and Grand Challenges Scholars Program that establish WPI as a leader in meeting the grand challenges and SDGs.	Number of student participants is increased and major initiatives integrating UG and Grad students are developed in at least three areas	Office of the Provost, Grand Challenges Scholars Program, Office of Sustainability
Task 2: WPI will facilitate initiatives that advance integrated approaches for addressing sustainability issues at a broad scale (e.g., life cycle analysis; systems engineering; circular economy).	Number of WPI accomplishments increases and leadership is recognized for systems approaches in at least two areas	Office of the Provost/Office of Sustainability, Department of Facilities

Appendix B: Operations and Facilities

GOAL 4 - Operations and Facilities - Principles of sustainability guide our actions as well as our academic and research programs.
OBJECTIVE O1: PRESERVING OUR RESOURCES - CREATIVE WAYS TO ACHIEVE SUSTAINABILITY - WPI reduces environmental impacts by reducing waste and the use of energy and water and other resources, and by considering creative ideas to incentivize and promote efficiency and resource reduction.
Objective O1.1: WPI reduces environmental impacts of water and other resources, and reduces waste generation by incorporating creative ideas to incentivize and promote efficiency and resource reduction.

Operation and Facilities Tasks	5 Year Outcome	
Task 1: WPI will reduce landfill waste.	25% reduction tons of waste	Office of Sustainability; Department of Facilities
Task 2: WPI will reduce paper printing.	25% reduction in paper spending	IT
Task 3: WPI will reduce food waste.	10% reduction in pounds of food waste each semester	Dining Services
Task 4: WPI will increase green purchasing in accordance with its green purchasing policy	Green purchasing is widely considered in procurement efforts	Procurement
Task 5: WPI will reduce disposal of unused chemical products.	25% reduction in tons of chemical waste	Environmental Health and Safety
Task 6: WPI will reduce environmental impacts of maintenance through the implementation of a robust PM program.	A PM program is implemented, with a 15% reduction in number of failures	Department of Facilities
Task 7: WPI will improve laboratory equipment sharing by creating an equipment inventory system.	10% reduction in lab equipment purchases	Provost's Office
Task 8: WPI will reduce water consumption on a per capita basis.	15% reduction in gallons of water/FTE	Office of Sustainability; Department of Facilities
Task 9: WPI will provide increased opportunities for student projects that impact the operations of our campus.	The number of IQPs and MQPs on campus related subjects is increased.	Office of Sustainability

Objective O1.2: WPI reduces environmental impacts of energy consumption and greenhouse gas emissions by advancing efficiency and by incorporating creative ideas to incentivize and promote efficient resource reduction.		
Operations and Facilities Tasks	**5 Year Outcome**	**Responsible Party**
Task 1: WPI will continue energy efficiency projects.	10% reduction in KwH/FTE	Office of Sustainability; Department of Facilities
Task 2: WPI will implement additional renewal energy systems on campus.	25% increase in KwH of renewable energy production	Office of Sustainability; Department of Facilities
Task 3: WPI will reduce greenhouse gas emissions.	20% reduction in metric tons of Scopes 1 and 2 emissions beyond what was established in the 2014 Carbon Emissions Reduction Plan	Office of Sustainability; Department of Facilities
Task 4: WPI will construct new academic and residential buildings that will be LEED-certified.	New construction will achieve LEED ratings	Office of Sustainability; Department of Facilities
Task 5: WPI will reduce computing energy consumption.	20% reduction in KwH/FTE from 2019 level	Information Technology
Task 6: Campus set-points and night setbacks will be implemented campus-wide.	An implemented university policy has achieved 10% reduction in occupied hours/sq. ft	Department of Facilities

Operations and Facilities (continued)

OBJECTIVE O2: A SUSTAINABLE LIFESTYLE – A WELCOMING AND HEALTHY CAMPUS – WPI operations and facilities support the promotion of a healthy campus environment by assuring a safe, welcoming campus that promotes diversity, equity, and inclusion and by providing sustainable alternatives (e.g., transportation, dining, and food source options).

Objective O2-1: WPI promotes sustainable and healthy living through transportation, dining, and healthy food alternatives.

Operations and Facilities Tasks	5 Year Outcome	Responsible Party
Task 1: WPI will improve alternative modes of transportation—walking, bikes, ridesharing.	15% reduction is shown in number of SOV commutes/FTE	Office of Sustainability
Task 2: WPI will make the campus fleet more sustainable through operating policies and purchase of green vehicles.	30% decrease is shown in gallons of fossil fuel	Department of Facilities; Campus Police
Task 3: WPI will evaluate carbon emissions resulting from travel related to student projects, athletics, or other activities, and consider alternatives.	Implement data capture for trips in miles/FTE and alternative transportation modes are considered	Office of Sustainability
Task 4: WPI will reduce its parking footprint by implementing parking management plan.	Implement parking management plan is in place to reduce number of parking spaces and avoid construction of new parking lot	Department of Facilities
Task 5: WPI will increase sustainable food sources.	5% increase in spending each year	Dining Services
Task 6: An on-campus garden will be created.	Garden is created	Dining Services; Department of Facilities
Task 7: WPI will promote plant-based versus meat-based diet choices.	5% increase in volume of plant-based foods consumed	Dining Services
Task 8: WPI will implement a carbon foodprint software.	Implement Compass software	Dining Services
Task 9: Dining Services will provide information kiosks to promote sustainable and healthy food choices.	Kiosks are installed to communicate and educate community on sustainability and healthy choices	Dining Services

Operations and Facilities (continued)

Objective O2.2: WPI provides a welcoming and resilient campus.		
Operations and Facilities Tasks	**5 Year Outcome**	**Responsible Party**
Task 1: WPI will promote a campus that embraces diversity, equity, and inclusion.	The WPI community embraces DEI in all initiatives, as seen in increase in student and staff participation	Talent and Inclusion
Task 2: WPI will ensure that all building entrances, classrooms, offices, and restrooms are physically accessible.	All building entrances and restrooms are accessible	Disability Services; Department of Facilities
Task 3: WPI will improve the neighborhood walkability, livability, and safety.	Student/Staff input improves livability of neighborhoods around WPI based on community input	Department of Facilities
Task 4: WPI will improve campus resiliency to sustain operations during emergency events.	Development of Emergency Management Plan addresses resiliency	Campus Police
Task 5: WPI will communicate and educate the campus community around sustainability initiatives through signage and messaging.	Signage and messaging is in place to communicate and educate community on campus sustainability initiatives	Office of Sustainability; Marketing and Communications
Task 6: WPI will increase the frequency of community updates about sustainability topics.	Protocol is established to communicate and educate community on campus sustainability initiatives and the number of communications increases each term	Marketing and Communications; Office of Sustainability
Task 7: WPI will require student participation in sustainability learning outcomes during NSO.	Training for all first year and transfer students affects participation in Tasks 1-4	Student Affairs; Office of Sustainability
Task 6: WPI will educate to affect human behavior around the topics of resources and energy.	A number of students are trained to progress in achieving objectives 1-1 and 1-2	Office of Sustainability
Task 8: WPI will increase the frequency of community updates about sustainability topics.	Protocol is established to communicate and educate community on campus sustainability initiatives and the number of communications increases each term	Marketing and Communications; Office of Sustainability

Appendix C: Research, Scholarship, and Innovation

GOAL 2: RESEARCH INNOVATION AND SCHOLARSHIP — Research and scholarship will make significant contributions to the technologies, the policies, and the mindset to help assure a sustainable world.

OBJECTIVE R1: INNOVATING GREEN—SUSTAINABILITY RESEARCH AND SCHOLARSHIP: Through research innovation and creativity, WPI's research and scholarship provide valuable contributions in sustainability that encompass and integrate a range of disciplines.

Objective R1.1: WPI advances and makes publicly available research and scholarship that addresses sustainability across all disciplines at WPI.

Research, Scholarship, and Innovation Tasks	5 Year Outcome	Responsible Party
Task 1: WPI will track and assess sustainability-related research funding, publications, theses, and dissertations, presentations, patents, and various forms of outreach.	Number of grants, publications, student thesis work, and amount of funding for sustainability is increased by at least 10% per year. Breadth and quality of publications exhibit steady improvement	Office of Sponsored Programs in coordination with Office of Sustainability
Task 2: WPI will develop collaborative teams, research groups, and research communities with faculty and students through coordination, seed grants and other supportive approaches.	Number of research groups communities and impacts/outcomes in different areas is increased.	Office of Sustainability; Provost's Office (Research)
Task 3: WPI will develop/promote research initiatives that employ creative scholarship, and also promote design thinking, innovation, and entrepreneurship into all aspects of sustainability.	Initiatives; internal and external engagement with I/E and Design development is increased.	Provost's Office (Research); /I/E; Office of Sustainability

Objective R1.2: WPI infuses innovation in sustainability through the development of interdisciplinary collaborations consisting of faculty and students, including all schools (engineering, arts, and sciences, global, and business).

Research, Scholarship, and Innovation Tasks	5 Year Outcome	Responsible Party
Task 1: WPI will track funding, publications, presentations, student research, patents, and other forms of outreach, with consideration to scholarship, impact, and consideration to Innovation, Entrepreneurship, Design, and Value Engineering.	Tracking process is established, number of grants and amount of funding, publications, patents, etc. has increased	Provost's Office; I/E; Office of Sustainability
Task 2: Office of Sustainability will promote the development of relationships with partners from the private (e.g. Industry) and public sectors (e.g. government) to advance sustainability research, scholarship, and innovation..	An increased number of partnerships and research initiatives that involve external partners in sustainability	Provost's Office; Office of Sustainability
Task 3: WPI will identify funding sources and establish a "sustainability expert in resident" or "professor of practice" position that will include someone who may have industry or applied expertise in sustainability, to serve as a liaison between faculty/staff and students of WPI and funding agencies, government, or non-governmental organizations with a focus on sustainability (task include jointly with Academics).	Position is created and engagement is in place	Provost's Office; Academic Department(s)
Task 4: Office of Sustainability will collaborate with I/E office to promote initiatives that advance impact of research.	An increased number of I/E initiatives are in place each year, with tracking of I/E advancement	I/E; Office of Sustainability

Research, Scholarship, and Innovation (continued)

Objective R1.3: WPI's reputation is established as a leader in one or more areas of sustainability research.		
Research, Scholarship, and Innovation Tasks	**5 Year Outcome**	**Responsible Party**
Task 1: WPI will facilitate an annual process (possibly with a consultant or facilitator) to advance the university's internal and external key areas of strength and emphasis for sustainability research.	Process is in place and completed, with actions being taken	Office of Sustainability; Provost Office (Research)
Task 2: WPI will establish/advance centers in three or more areas of sustainability and promote the associated activities.	At least three centers are established and receiving recognition	Provost Office (Research); Office of Sustainability
OBJECTIVE R2: SYSTEMS FOR SUSTAINABILITY – CROSS DISCIPLINARY APPROACHES: By incorporating cooperative systems approaches (e.g., Circular economy, life cycle analysis, and development engineering), WPI's research and scholarship provides leadership in sustainability.		
Objective R2.1: WPI embraces the concept of campus as a local, living and learning laboratory that fosters innovation to address significant sustainability challenges.		
Research, Scholarship, and Innovation Tasks	**5 Year Outcome**	**Responsible Party**
Task 1: WPI will identify on-campus sustainability-themed innovative projects or initiatives that can support research innovation.	Sustainability-themed research projects increases by 10% per year	Office of Sustainability; Department of Facilities
Task 2: WPI will identify potential test/demonstration facilities that can promote sustainability research and encourage innovation.	Increasing number of test facilities are established	Office of Sustainability; Department of Facilities
Objective R2.2: WPI's research programs effectively address significant global issues (e.g., selected Grand Challenges and Sustainable Development Goals, SDGs), with a goal of providing significant positive impact in addressing sustainability issues.		
Research, Scholarship, and Innovation Tasks	**5 Year Outcome**	**Responsible Party**
Task 1: In coordination with Global School and Global Initiatives, WPI will identify key areas that are supported by WPI's capabilities.	Coordination and advancement increases in at least three areas	Global School; Office of Sustainability
Task 2: WPI will promote research that establishes the university as a leader in meeting grand challenges and SDGs, with consideration of WPI's strengths in relation to needs.	Tracking numbers of projects/ research linked to GCs and SDGs, as well as number and quality of collaborations, visiting scholars, partnerships, involvement in research centers throughout world	Office of Sustainability; Global School
Task 3: WPI will build and support international collaborations by promoting global visits by our students and scholars as feasible, engagement in international research teams, and projects.	Number and nature of international research activities and scholarly exchanges	Global School; Office of Sustainability; Provost's Office
Task 4: WPI will encourage and support initiatives that advance integrated perspectives on sustainability (life cycle analysis; circular economy; development engineering).	At least two significant systems-related initiatives support sustainability.	Provost's Office (Research); Office of Sustainability
Task 2: WPI will promote close linkages between facilities/ operations and academia that encourage student sustainability-themed projects and research.	Projects increase by 10% per year	Office of Sustainability; Department of Facilities

Appendix D: Community Engagement

GOAL 3: COMMUNITY ENGAGEMENT — Every member of the WPI community will engage in sustainability-related education, awareness, action, and service in order to achieve positive, long-lasting change for all our communities.

Objective C1: ALL IN FOR A CULTURE OF SUSTAINABILITY — WPI fosters a "culture of sustainability" in which all WPI community members are engaged in activities that embrace and advance sustainability, and in which WPI recognizes and communicates sustainability impacts across all organizational, community, and academic activities.

Objective C1.1: All members of the WPI community are aware of sustainability challenges, opportunities for positive action, and how to integrate sustainability goals and values into their roles in relation to WPI.

Community Engagement Tasks	5 Year Outcome	Responsible Party
Task 1: WPI will engage and inform WPI stakeholders through a variety of communication venues (e.g., events, websites, social media, pitch competitions, resource fairs, conversations, etc.).	90% of campus is aware of sustainability objectives through increased communications	Office of Sustainability; Marketing and Communications
Task 2: WPI will increase the level of awareness of sustainability events, activities, and opportunities at WPI to ensure that all stakeholders are reached.	25% increase in participation	Office of Sustainability; Marketing and Communications; Student Affairs
Task 3: WPI will expand the living inventory of sustainability activities, metrics, and accomplishments, on and beyond campus.	Inventory is accessible to WPI and beyond	Office of Sustainability
Task 4: WPI will facilitate easy access to all proposed and completed student projects related to sustainability.	Project database is accessible to WPI and beyond	IT and Library Services
Task 5: WPI will creatively promote community engagement in sustainability, and promote the campus as a living laboratory for sustainability action.	Number of active engagements in sustainability throughout the campus community increases	Office of Sustainability; Marketing and Communications; Student Affairs; Provost's Office

Objective C1.2: The impact of WPI community members' activities on sustainability is demonstrated through assessment and encouraged through recognition.

Community Engagement Tasks	5 Year Outcome	Responsible Party
Task 1: WPI will assess progress toward adopting a culture of sustainability at WPI (e.g., awareness, values, beliefs),	Strong culture of sustainability across campus is seen by increase in event participation	Office of Sustainability
Task 2: WPI will evaluate and increase the levels of engagement in sustainability-related academics, clubs, events, activities, and programming.	A 10% increase is seen in engagement of sustainability programming	Office of Sustainability
Task 3: WPI will effectively publicize sustainability metrics and accomplishments.	Number of updates increases each term	Office of Sustainability
Task 4: WPI will incorporate components of sustainability into performance reviews based on sustainability measures.	Components of sustainability is incorporated into review process	Talent and Inclusion
Task 5: WPI will advance the reward and recognition of sustainability achievements through the development of a variety of sustainability awards.	Number of staff and student sustainability awards increase	Office of Sustainability

Objective C1.3: WPI advances social justice initiatives and ensures that all sustainability-related programs promote diversity, equity, and inclusion.

Community Engagement Tasks	5 Year Outcome	Responsible Party
Task 1: WPI will integrate concepts of social justice and human needs into sustainability-related initiatives and activities.	Increase in number of initiatives is integrated through a wide array of activities	Office of Sustainability; Talent and Inclusion
Task 2: WPI will assess and advance diversity, equity, and inclusion in sustainability education and activities.	DEI is incorporated into all activities	Office of Sustainability; Talent and Inclusion

Community Engagement (continued)

Objective C2: MEETING COMMUNITY NEEDS BEYOND WPI — WPI engages with communities beyond the WPI campus to meet their sustainability needs, through effective dissemination, project engagement, partnering, and initiatives (e.g., STEM, PBL).

OBJECTIVE C2.1: WPI creates and encourages opportunities for partnership on sustainability in communities beyond the WPI campus through improved dissemination of information and easy accessibility to WPI's sustainability resources.

Community Engagement Tasks	5 Year Outcome	Responsible Party
Task 1: WPI will develop WPI stories on sustainability for internal and external audiences.	Increase in number of sustainability themed stories are prominent in WPI communications	Office of Sustainability; Marketing & Communications
Task 2: WPI will regularly publish metrics on WPI's impacts on sustainability in communications.	Metrics are published each term	Office of Sustainability; Marketing & Communications
Task 3: WPI will establish a sustainability clearinghouse and free speaker bank to facilitate access by our communities beyond campus to WPI's expertise on all dimensions of sustainability.	A clearinghouse is available for WPI and beyond	Office of Sustainability; Marketing & Communications; Provost's Office
Task 4: WPI will assess and share how the impacts of WPI's activities positively affect sustainability goals of our communities by creating an annual "Sustainability Impact Statement."	Annual impact report is published	Office of Sustainability
Task 5: WPI will coordinate with alumni to promote awareness of WPI sustainability contributions and opportunities.	There is a 10% increase in awareness and donations	Alumni Relations
Task 6: WPI will coordinate with external organizations to increase awareness among WPI students of sustainability-related opportunities and employment opportunities.	There is a 10% increase in student awareness	Career Development Center
Task 7: WPI will reach out to prospective undergraduate and graduate students to highlight the opportunities and characteristics of the sustainability culture at WPI through Admissions.	A 10% increase in number of students is reached each year	Office of Sustainability

OBJECTIVE C2.2: WPI's projects programs incorporate sustainability-related project-work that provides highly visible and impactful support for community sustainability needs.

Community Engagement Tasks	5 Year Outcome	Responsible Party
Task 1: WPI will identify and enhance best practices for advancing sustainability through community engagement through its project centers and other project centers.	Best practices are promoted to increase sustainability engagement	Office of Sustainability; IGSD
Task 2: WPI will develop our community engagement expertise to support sustainability needs in our communities.	Community engagement expertise meets the needs of the community	Office of Sustainability; Student Affairs
Task 3: WPI will assess and advance community impacts of our projects on community sustainability goals.	Impacts of projects are widely recognized	IGSD
Task 4: WPI will formalize and recognize community engagement accomplishments through certifications.	Achievements are represented through STARS and other platforms	Office of Sustainability

Community Engagement (continued)

OBJECTIVE C2.3: WPI's sustainability programs and activities promote design thinking, innovation, and entrepreneurship initiatives that advance all three aspects of sustainability for the WPI community and communities beyond the WPI campus.

Community Engagement Tasks	5 Year Outcome	Responsible Party
Task 1: WPI will review and enhance I/E in WPI's sustainability initiatives.	Sustainability is integrated in I/E	I/E; Office of Sustainability
Task 2: WPI will review and advance opportunities to promote design thinking (e.g., design thinking challenges) as it pertains to sustainability.	Sustainability is integrated into design thinking	I/E; Office of Sustainability
Task 3: WPI will develop regionally and nationally recognized social entrepreneurship programs that advance social justice and sustainability (e.g. MIT Solve; Enactus).	There is an increase in number of social entrepreneurship programs that are pivotal in social justice and sustainability	I/E; Office of Sustainability
Task 4: WPI will advance innovation and entrepreneurship education and also partnerships related to sustainability.	Increase in number and substance of sustainability I/E programs and sustainability partnerships	I/E; Office of Sustainability

Objective 2.4: WPI engages the K-12 community, teachers, and parents as partners in creating opportunities for youth in our region and in other regions where we work to learn about and contribute to sustainability.

Community Engagement Tasks	5 Year Outcome	Responsible Party
Task 1: WPI will encourage and provide support for STEM educational programs on teaching sustainability.	There is an increase in number of STEM programs teaching sustainability	STEM; Office of Sustainability
Task 2: WPI will identify new approaches for reaching out to advance STEM, and for supporting organizations and teachers advancing STEM, for our region's youth.	There is an increase in number of students in WPI STEM programs that have robust sustainability programs	STEM; Office of Sustainability
Task 3: WPI will support/assist Mass Academy in developing strengths in programs for learning about sustainability.	There is an increase in the number of Mass Academy robust sustainability programming	STEM; Office of Sustainability