

Blueprint for Resilience and Innovation*

Laying the Foundation for Personal Wellbeing, Social Justice,
Financial Stability, and Ecological Balance at Colby-Sawyer College



2019

Jennifer White, Director of Sustainability and Innovation

*Addendum to the *GreenROUTES Climate Action Plan for Colby-Sawyer College: The Pathway to Carbon Neutrality & Whole Systems Sustainability* (Ratified by the Board of Trustees in 2010)

TABLE OF CONTENTS

EXECUTIVE SUMMARY	3
INTRODUCTION	3
A DECADE OF PROGRESS 2009-2019	4
GREENHOUSE GAS INVENTORY & CARBON COMMITMENT	7
RESILIENCE & STRATEGIC PLANNING	9
ACTION PLAN = CARBON + RESILIENCE	12
SUSTAINABILITY INITIATIVES: Overview.....	12
SUSTAINABILITY INITIATIVES: Academics	13
SUSTAINABILITY INITIATIVES: Engagement	14
SUSTAINABILITY INITIATIVES: Operations.....	15
SUSTAINABILITY INITIATIVES: Planning & Administration.....	16
SUSTAINABILITY INITIATIVES: Innovation & Leadership.....	17
RESILIENCE STRATEGIES: Overview	19
RESILIENCE STRATEGIES: Ecosystem Services.....	19
RESILIENCE STRATEGIES: Financial	20
RESILIENCE STRATEGIES: Human Health & Wellness	21
RESILIENCE STRATEGIES: Infrastructure	23
RESILIENCE STRATEGIES: Social Equity & Governance	23
CONCLUSION & NEXT STEPS	25

EXECUTIVE SUMMARY

The *Blueprint for Resilience and Innovation: Laying the Foundation for Personal Wellbeing, Social Justice, Financial Stability, and Ecological Balance at Colby-Sawyer College* was developed in partnership with college administration, faculty, staff, students, regional experts, and our community partners. It is a compilation of recognized and relevant best practices, as well as specific, innovative initiatives that support Colby-Sawyer College in achieving its institutional, social, economic, and environmental missions. This document is an addendum to the *GreenROUTES Climate Action Plan for Colby-Sawyer College: The Pathway to Carbon Neutrality & Whole Systems Sustainability* (CAP), which was ratified by the Board of Trustees in 2010.

Since the initial CAP was written, the language and landscape within higher education have expanded from simple carbon emission reductions on campuses (mitigation) to include resilience and capacity building in partnership with the communities in which they are embedded (adaptation). In 2017 Colby-Sawyer signed Second Nature's Climate Commitment, which added a resilience component to its previous pledge to achieve carbon neutrality by 2050. This *Blueprint* outlines Colby-Sawyer's progress over the last decade, and offers an updated vision and set of priorities that are in alignment with the commitments and goals outlined in the *Colby-Sawyer College Strategic Plan (2018-2023)*, as well as with the shifts taking place in both the academic and global communities.

Climate Commitment = Carbon (Emissions Reductions) + Resilience (Capacity Building)

INTRODUCTION

The first part of this *Blueprint* highlights key sustainability programs implemented by Colby-Sawyer from 2009 through 2019. The next section outlines the carbon reduction milestones set forth by the college, as well as the student-centered process that resulted in the initial sustainability assessment and annual greenhouse gas inventory for campus. Relevant components of Colby-Sawyer's *Strategic Plan* are then featured to demonstrate the alignment of suggested actions in this *Blueprint* with the achievement of those broader institutional goals. And, the description of resilience in that same section helps provide the rationale for the inclusion of more expansive community-wide initiatives into this plan's framework.

The remainder of the *Blueprint* is the **Action Plan**, which lists recommended **Sustainability Initiatives** and **Resilience Strategies** for the college. The **Sustainability Initiatives** are organized into the Association for the Advancement of Sustainability in Higher Education's (AASHE) five institutional categories: Academics, Engagement, Operations, Planning & Administration, and Innovation & Leadership. Each of those sections are divided into three time frames, which align with the *Strategic Plan* and represent Colby-Sawyer Senior Leadership Team's assessment of the relative priority and/or feasibility of those initiatives. The **Resilience Strategies** were identified in collaboration with community partners and are organized using similar time frames. The categories mirror Second Nature's five dimensions of resilience: Ecosystem Services, Financial, Human Health & Wellness, Infrastructure, and Social Equity & Governance. Hyperlinks are included throughout the *Blueprint* to provide additional background and facilitate the implementation of the **Action Plan**.

A DECADE OF PROGRESS | 2009-2019

The origin and evolution of sustainability at Colby-Sawyer College has been student centered. Students' passions combined with the collaborative effort of multiple constituents helped spur incredible progress and action on campus over the last decade. In 2006 nine students in the Community-Based Research Project class conducted a sustainability assessment of Colby-Sawyer College and created the framework for *GreenROUTES* (Redirecting Our campUs Towards Environmental Sustainability.) In their final report students had proposed that the administration consider signing the American College and University Presidents' Climate Commitment (ACUPCC), and Colby-Sawyer became a charter signatory of the Commitment in 2007.

Soon after that in 2008, a new student group enrolled in that same class helped the college fulfill its ACUPCC reporting requirements by completing a baseline greenhouse gas inventory and assembling recommendations that could reduce environmental impact. Consistent with students' suggestion, Colby-Sawyer administration decided to hire its first-ever Sustainability Coordinator in 2009, and in 2010 the Board of Trustees ratified the *GreenROUTES Climate Action Plan for Colby-Sawyer College: The Pathway to Carbon Neutrality and Whole Systems Sustainability*.

That *Climate Action Plan* (CAP) identified three emissions reduction milestones, using the initial greenhouse gas inventory results from 2008 as a baseline. Those goals were: 50% reduction by 2015, 70% reduction by 2020, and a 100% reduction or carbon neutrality by 2050. Since 2010, the college has run on green energy through the purchase of Renewable Energy Certificates (RECs) for 100% of its electricity consumption, drastically reducing its overall carbon emissions and earning it annual recognition in the EPA's Green Power Partnership.

The CAP also outlined initiatives that should be accomplished within each of those time frames, and sorted those into six different categories: Energy; Transportation; Water and Biodiversity; Food; Waste and Consumption; and Culture, Curriculum, and Investment. By 2015, 100% of the actions for that time frame were accomplished or ongoing, as were 65% of the actions for 2015-2020, and 50% of the actions for 2020-2050. Colby-Sawyer's integrative approach was referred to in the CAP as Whole Systems Sustainability, as the goal was, and still is, to promote and leverage simultaneous progress in areas of personal wellbeing, social justice, financial stability, and ecological balance.

Soon after the CAP was ratified "Living Sustainably" became one of Colby-Sawyer's four Strategic Themes, along with Engaged Learning, Linking to the World, and a Dynamic Devotion to Excellence. Tying into the GreenROUTES premise the college started an outreach campaign called "Walking Our Talk" that helped begin to infuse sustainability principles and practices into all aspects of campus language and operations. Early on Colby-Sawyer was the recipient of a \$360,000 private foundation gift in support of sustainability programming, which allowed the college to create an endowment for student internships and provided seed-funding for many of the initiatives described below.

Over the next several years the college enacted Earth Week programming, Zero-Sort™ commingled recycling, Zero-Waste Mountain Days, ENERGY STAR appliance policies, and *Procurement Guidelines for Health and Sustainability*. Windy Hill School, an early childhood laboratory school, was recognized as the college's first-ever green building with LEED Silver Certification. Sustainability began to appear in new student (and new employee) orientations, in RA programming, in the local and organic food multiplying in the dining hall, and in the stickers and posters around campus that reminded the campus community of the power they had to make a difference. Prompted by a petition signed by 734 students, steps were taken to increase the percentage of food in the dining hall sourced from within 100 miles up to 20%. With support from student research and a local grant, the dining hall also explored alternatives to food waste disposal, and it currently uses an "Eco-Vim" to dehydrate pre-consumer organics that are brought to a local farm to be composted.

For six years, with support from another generous donation from an alumna, an animated polar bear reported electricity consumption via sub-meters and monitors to students in their residence halls and in the Curtis L. Ivey Science Center. More recently, campus-wide, aggregated consumption data is available online anywhere via a customized [Sustainability Dashboard](#). A demonstration-scale, pole-mounted solar system and residential-scale wind turbine paved the way to renewables on campus; both contained web-based monitoring systems for use in classrooms. The turbine was also the first in operation in New London after a height variance had been recently adopted by the town for such systems.

Colby-Sawyer's first real foray into renewables included an array spanning four buildings (Ivey Science Center, Windy Hill, Lethbridge Lodge, and Lawson Hall), with a total of 517 solar photovoltaic panels, which generated approximately 152,000 kWh annually. At the time of its installation in 2012 it was one of the largest systems in the state. It was obtained using a Power Purchase Agreement (PPA) and was funded in part by a \$100,000 New Hampshire Public Utilities Commission grant. This system required no up-front investment by the college and resulted in an immediate savings of \$13,000 annually on electricity bills. The project was valued at approximately \$550,000, and after the 6-year term of the agreement the college had the option to buy-out the panels and own the entire array for only \$75,000.

In 2012 the college was awarded a \$150,000 grant from New Hampshire Pay for Performance to help conduct a campus-wide energy efficiency project, which included upgrades to lighting, building envelopes, water, controls, and HVAC systems, and resulted in a reduction in fossil fuel usage and overall energy costs. During that project Colgate Hall received over 1,000 square feet of new insulation and the updates to the equipment in the Dan and Kathleen Hogan Sports Center reduced the power demand for lighting alone in that facility by 35 percent. The Measurement and Verification process instituted a year after Energy Conservation Measures were implemented suggests the college achieved approximately \$163,000 in annual cost-avoided savings.

More recently Colby-Sawyer engaged in another Power Purchase Agreement and received donor funding to help install an additional 228 photovoltaic panels on the roof of the new Center for Art + Design in 2017. This 68 kW array combined with the original system generates roughly 232,020 kWhs of solar electricity annually. The structure itself earned the Honor Award from the New Hampshire Chapter of the American Institute of Architects "as an aesthetic, creative, safe, valuable and sustainable building." The building boasts a steel frame with high recycled content; water conservation fixtures; high efficiency windows, lighting and boiler units; natural daylighting and ventilation to reduce energy consumption; and non-toxic materials—all design functions that reduce environmental impact, lower operational costs, and improve the health and comfort of occupants.

Improvements have also been made to the grounds of Colby-Sawyer and currently interns maintain the Anne Baynes Hall Organic Permaculture Garden, which now features a food forest, an organic vegetable garden, a wetland area, and an outdoor classroom. This living laboratory provides engaging learning opportunities for students across the curriculum, as well as free and fresh vegetables for college community members. As a complement to these installations the college launched a public "Sustainable Living Series" to help educate students, faculty, staff, and residents on topics such as: renewable energy systems, sheet mulching/lasagna gardening, mushroom propagation, apple tree care and pruning, bee keeping, and planting for pollinators.

In Fall 2012, students designed and built the Sustainable Classroom adjacent to the garden, using timber frame construction, a straw bale wall, passive solar heating, and locally-sourced, natural building materials. Both the garden and the classroom were products of experiential coursework that included Colby-Sawyer students and community members. The "final exam" of the Shelter and Sustainability class was a presentation of their building design to the Town of New London's Planning Board for review and approval. The Sustainable Classroom consists of many unique and innovative features, and at the time it was the only commercial structure in the state to include a straw bale wall system.

Other firsts include a student-driven Fair Trade Committee which achieved Colby-Sawyer recognition as the first Fair Trade Certified private college in New Hampshire, helping promote global farmers' rights and sustainable agriculture. Another student group, Feed the Freezer, reduced food waste and food insecurity in the region by instituting the first certified chapter of the National Food Recovery Network in New Hampshire. This volunteer-run program has donated over 100 pounds of frozen meals per week to local food pantries. Colby-Sawyer also received donor contributions in 2018 to install its first Level 2 Electric Vehicle charging station adjacent to the wind turbine and Sue's Sugar House. And two new wellness initiatives, also introduced in 2018, provided opportunities for students, faculty, and staff to reduce their stress and increase their productivity via Midweek Mindfulness sessions and a four-week MindStrength Training.

In the realm of curriculum, the Sustainability, Teaching, and Academic Resources (STAR) Task Force was convened in 2010 to establish online resources for faculty to empower them to integrate sustainability into the classroom. Members created a survey to track the progress of that integration, as well as an online wiki document for faculty called *Sustainability Across the Curriculum: A Resource Guide*. The college sponsored two programs for faculty: an open workshop on Energy & Climate Change, and a Sustainability Fellows program where

participants received specialized training and financial support for the development of new activities and courses across disciplines.

New classes emerged in Fair Trade, Environmental Law, Sustainable Living, Permaculture Design Certification, and more, and the business department offered a Sustainable Business Concentration. Students in every major currently have the option to minor in sustainability and many faculty integrate these same principles into existing classes. The recent revision of the Liberal Education Program in 2019 uses the concept of global themes or “wicked problems” to allow students to actively explore the connection between their passions and interests and the major challenges and solutions embedded in sustainability and resilience. The Integrative Studies courses at the end of that same Program will now include a service-learning component where students can put those broad concepts into action within the local community.

Colby-Sawyer’s student Eco-Reps received the President’s Leadership Award at the Campus Compact for New Hampshire 9th Annual Presidents’ Award Luncheon and have worked with the Office of Sustainability and Innovation to enhance the college’s recycling infrastructure and overall sustainability efforts. The Eco-Reps often partner with the student club, Sustainability Core, to develop outreach materials and host awareness-raising events for the community. Sustainability Core’s most successful initiative, ReChargers, started in 2012 and is an affiliate of the Post Landfill Action Network (PLAN). PLAN is a nation-wide nonprofit program developed at University of New Hampshire (UNH) that provides guidelines to colleges to reduce the amount of student move-out waste. Student volunteers at Colby-Sawyer divert more than 20 truckloads of usable materials from the landfill in the spring and then resell those at a yard sale over the move-in period in the fall.

Several other positions were created on campus to give students opportunities to learn and practice the principles of sustainability, including: Sustainable Dining Intern, Permaculture Garden Interns, Zero-Sort Recycling Ambassador Internship, Sustainability Assistant, Student Outreach Coordinator, Graphic Design Assistant, Communications Assistant, and Sustainable Learning Initiative Program Assistant. In these roles students are empowered to make contributions to the goals of various departments on campus while developing practical skills that prepare them for their careers.

Another program where students put sustainability and resilience principles into practice is Colby-Sawyer’s Sustainable Learning Initiative at Franklin Falls (SLI). This unique initiative was seeded by an Innovation Grant from the college, which was funded through the Davis Educational Foundation in 2014. SLI is a long-term partnership between Colby-Sawyer College and the nonprofit PermaCityLife, which offers students in every discipline experiential learning opportunities to explore, design, and develop sustainable solutions to real and evolving community needs in nearby Franklin, New Hampshire. The initiative pairs intended learning outcomes across campus with the to-do lists of the project partners working on the sustainable revitalization effort in that city, and, to-date, over 300 students have participated in the program.

Through this ongoing collaboration the director of sustainability and innovation and course faculty have facilitated opportunities for students to participate alongside residents and business owners in a grassroots effort to reinvigorate a struggling community and help create a model for a resilient, vibrant, diverse, and sustainable city. In doing so, students learn and practice the skills that prepare them to succeed at all levels. Some sample projects include: contributions to the City of Franklin’s Master Plan; design of signage for the local bicycle-trail system; construction of an access database for the upcycled art gallery; development of a parking inventory for redevelopment planning; comprehensive branding strategy and business plan for Mill City Park’s biking and whitewater project; analyzing aquatic life to assess water quality prior to the in-river modification and park restoration; community garden design; and sociological interviews related to quality of life.

Several classes within the standard Colby-Sawyer curriculum, notably Principles and Practices of Sustainability and the Community-Based Research Project, have also specialized in pairing students with an on or off-campus “client” where students produce actual deliverables that further the organizational mission and which align with sustainability and resilience. Some examples of those recent projects include: local food and farm inventories for Kearsarge Area Eat Local, the city of Franklin, and Parkhurst Dining Services; *Landscape Management Plan* for Colby-Sawyer; best practices report for Farm-to-Institution New England’s FoodShift pilot program; stakeholder interviews for a national zero-waste pilot program with the Post Landfill Action Network (PLAN); and campus waste inventory and national recycling research pilot for BUSCH Systems.

Since Colby-Sawyer College became a charter signatory of the American College and University Presidents' Climate Commitment in 2007, there has been evidence of significant infusion of sustainability into academics, engagement, operations, administration, and culture on campus. Colby-Sawyer's first sustainability assessment, greenhouse gas inventory, and carbon reduction plan was sparked by students' passions, and their efforts helped catalyze widespread action on campus from 2009 through 2019. It is only fitting that students' initial resilience assessment, feasibility analysis, and presentation to the Board of Trustees was one of many factors that prompted the college administration to seriously consider expanding its focus from emissions reductions to capacity building.

In 2017 Colby-Sawyer [renewed its commitment to sustainability](#) by becoming the 100th institution to sign Second Nature's [Climate Commitment](#). This revised pledge integrates the goals of carbon neutrality and sustainability with those of capacity building and resilience, allowing institutions to collaborate with the communities in which they are embedded. The next two sections of the *Blueprint* outline the college's history and current status with regard to carbon mitigation, and then provide background and context for the strategic expansion into climate adaptation.

GREENHOUSE GAS INVENTORY & CARBON COMMITMENT

In 2008 the college submitted its first Greenhouse Gas Inventory in accordance with the American College & University Presidents' Climate Commitment (ACUPCC). Students spent a year collecting and compiling data and their calculations estimated that the amount of greenhouse gas emissions created during the 2007-2008 fiscal year was 7,944.3 MTCO₂e (Metric Tons CO₂ equivalent).

The percentage values of those total emissions from 2008, as sorted into their Scope 1-3 categories, were as follows:

- 34% from Scope 1: 2,737.6 MTCO₂e (gasoline for campus fleets and propane for heating)
- 43% from Scope 2: 3,386.3 MTCO₂e (electricity consumption)
- 23% from Scope 3: 1,820.4 MTCO₂e (commuting, travel, waste, paper consumption, and other indirect emissions)

In subsequent years it was determined that the students had selected an eGRID emission rate for Scope 2 that assumed Colby-Sawyer's regional electricity grid was powered entirely by coal. When a more accurate New England subregion fuel mix rate was utilized, it changed the college's 2008 baseline emissions value to 7,637 MTCO₂e. It is this revised baseline amount against which future (and retroactive) percentage reduction benchmarks were calculated. It is expected within the industry that an institution's emission totals and benchmarks will be adjusted periodically to reflect both efficiencies and expansions in data collection, as well as improvements and refinements in scientists' calculation methodologies.

As indicated previously, the college set three carbon emission reduction milestones in its 2010 *GreenROUTES Climate Action Plan for Colby-Sawyer College*. A 50% reduction by 2015, 70% reduction by 2020, and a 100% reduction, or carbon neutrality, by 2050. The college began purchasing Renewable Energy Certificates (RECs) for 100% of its electricity consumption in 2010, essentially eliminating its Scope 2 emissions. Additional emission reductions were achieved through significant campus-wide Energy Conservation Measures instituted in 2012, as well as other policy and behavior changes (e.g. paperless offices, energy awareness campaigns, transition to more organic fertilizers, etc.)

To achieve the 2015 benchmark of a 50% reduction from the 2008 baseline emissions, the college elected to purchase third-party certified offsets, which support reductions made elsewhere through investment in renewable energy projects or carbon sequestration. Emissions generated from the transportation of all students, faculty, and staff have been nearly equivalent to the difference between Colby-Sawyer's net emissions and the amount needed to maintain the 2015 carbon reduction goal. Under business-as-usual conditions, these types of emission sources would be difficult for the college to otherwise avoid or eliminate, so offsets in this case are a reasonable and practical solution.

During the 2017-2018 fiscal year, the college's gross and net emissions were approximately 4,437 and 3,502 MTCO₂e respectively, which represents a 54% reduction in emissions from the 2008 baseline (including offsets). The percentage values of those total emissions from 2018, as sorted into their Scope 1-3 categories, are as follows:

- 57% from Scope 1: 2,511 MTCO₂e (gasoline for campus fleets and propane for heating)
- 0% from Scope 2: 0 MTCO₂e (electricity consumption)
- 43% from Scope 3: 1,926 MTCO₂e (commuting, travel, waste, paper consumption, and other indirect emissions)

The largest sources of remaining emissions on campus are from propane (2,397 MTCO₂e), solid waste (1003 MTCO₂e), and transportation (938 MTCO₂e). As mentioned previously, these amounts represent an estimation or snapshot of the college's impact, which reflect the accuracy of both the data that was reported at the time as well as the calculation methodologies available. Colby-Sawyer may decide to adjust its emissions boundaries, reset its benchmarks, or update its strategies, as additional information and opportunities arise.

The college continues to explore additional mechanisms for more carbon-neutral and localized energy production, and has received high-level proposals for a 500 kW ground-mounted solar array as well as a centralized wood chip heating plant. Since there is no existing central heating plant on campus, this fuel-switching option would also involve the construction of a new building for large-capacity boilers, as well as trenching pipes to other campus locations to distribute the heat. Preliminary estimates for a biomass system are between \$6-8 million, and recent analyses of market conditions have not yet presented a favorable enough return on investment to pursue it.

As funds become available Colby-Sawyer can also implement the detailed, building-by-building list of Phase Two Energy Conservation Measures identified by our vendor partners, which include: additional lighting and water conservation upgrades; updating controls and equipment for greater efficiency; and, sealing and insulating building envelopes. In addition to reducing carbon emissions many of those actions save money by decreasing consumption of electricity and propane, as well as increasing occupant safety and comfort.

In 2018 students from the Principles and Practices of Sustainability class were involved in a national pilot program alongside the Post Landfill Action Network (PLAN). PLAN has developed a holistic framework that analyzes the policies and operations of waste management systems at institutions and then collaborates with campus stakeholders to develop a Zero-Waste Strategy that drastically reduces resource consumption and successfully diverts reusable materials from the landfill. Colby-Sawyer students facilitated Phase One of that assessment process, and the college will engage PLAN for Phase Two in the next few years. This will directly address the college's emissions with regard to solid waste.

The emissions reported in the transportation category (especially for faculty, staff, and student commuting) are gross estimates—as this data is not currently collected from individuals in any systematic way. Calculations have been based on the results of a community transportation survey conducted in 2013-2014. A new survey was issued in spring 2019 and those revised results will be used in future estimates. The college can still examine policies and processes regarding college-sponsored travel, encourage alternative modes of transportation (e.g. biking, carpooling), and promote more fuel-efficient vehicle technologies—but this category is a challenge for many rural campuses such as Colby-Sawyer, so offsets are typically employed to address the majority of these emissions.

Other on-site incremental progress with regard to emissions from propane, waste, and/or transportation may be possible in the short-term, but is likely that the 70% emissions reduction goal for 2020 will be initially met through third-party offsets as well. At current prices those offsets would cost the college approximately \$3,266 for a 70% reduction (2,149 MTCO₂e difference @ \$1.52/MTCO₂e), and \$6,744 annually for a 100% reduction or carbon neutrality (4,437 MTCO₂e difference @ \$1.52/MTCO₂e).

Since 2007, Colby-Sawyer's greenhouse gas inventory has presented experiential learning opportunities to students in either the Community-Based Research Project, Sustainable Organizations, or Independent Studies courses. In 2017-2018 the data collection and reporting shifted out of the classroom and into the Office of Sustainability and Innovation, where student workers continue to collaborate with staff to gather necessary information. Over the last ten years, many inconsistencies and inefficiencies in the data collection and analysis process have been identified and addressed; some approximations will always be unavoidable, but in many areas better documentation and reporting protocol now exist.

For example, the aggregation of all utility data has been drastically improved and completely standardized by accounts payable and the college's recycling vendor conducts an annual campus waste audit that reports volumes and diversion rates. Opportunities for improvements in record-keeping and ownership of reporting responsibilities could streamline the greenhouse gas inventory system, allowing individual departments to have a better understanding of their contribution to the college's carbon footprint and further incentivize reduction solutions within those departments where the emissions originate. Another challenge with accurately tracking emissions values occurs because the coefficients and mechanisms of the online reporting platform change from year-to-year, but these inconsistencies are not unique to Colby-Sawyer and are experienced across the board by all member institutions.

The college realized additional efficiencies in its Greenhouse Gas Inventory by utilizing a dashboard service to amass the data and normalization factors—this tool also provides a user-friendly, real-time means for tracking and managing usage. This [Sustainability Dashboard](#) is accessible online via the Colby-Sawyer website and on an interactive monitor in the lobby of the Ivey Science Center; it can be utilized for educational purposes in both curricular and cocurricular settings. All of the data aggregated by the dashboard service and collected by the college is entered into a spreadsheet which is then uploaded into UNH's Sustainability Indicator Management and Analysis Platform (SIMAP) to calculate the carbon (and eventually nitrogen) equivalents for all campus activities. Those results are submitted into Second Nature's reporting platform, which houses all participating institutions' greenhouse gas inventories, annual reports, and climate action plans.

RESILIENCE & STRATEGIC PLANNING

Institutions, corporations, and municipalities around the world are now weaving resilience into their long-term planning processes, and this broader focus is in some ways transcending that of “sustainability,” which has traditionally been focused primarily on environmental protection and greenhouse gas reductions. In some sectors a more holistic “triple bottom line” approach was employed, wherein many colleges and companies examined their ability to simultaneously leverage returns for people, planet, and profit. Colby-Sawyer is one of those organizations that incorporated whole systems sustainability into its original climate action plan, which included personal wellbeing, social justice, financial stability, and ecological balance.

Innovative leaders have now recognized that in addition to continuing to “mitigate” their contributions to future changes in climate through sustainability initiatives, companies and cities also need to “adapt” to the present-day impacts of climate change and reduce those consequences by bolstering the capacity of our communities to prevent, anticipate, and respond to problems as they arise. Colleges are now working with community partners to identify shared risks and opportunities related to their region's ability to continue business as usual in the event of a disruption in supply lines, threats to human health, and/or weather-related emergencies.

These collaborative efforts support improved self-reliance (e.g. local food), redundancies in services (e.g. energy production), strong social networks (e.g. communication and resource sharing), and healthful populations (e.g. access to bicycle routes), which can improve the wellbeing of individuals and the communities in which they live. After signing Second Nature's Climate Commitment in 2017, Colby-Sawyer's first steps toward adaptation and capacity building were to assemble a Community Resilience Advisory Committee and submit a preliminary [Resilience Assessment](#), including initial indicators and current vulnerabilities.

The college is fortunate in that several comprehensive assessment and strategic planning processes already exist and these analyses have been conducted by collaborative community groups with broad representation from sectors throughout the region (including the college). The preliminary resilience information and indicators submitted to Second Nature were a compilation of reports from three sources: 1) Town of New London Hazard Mitigation Committee; 2) New London Hospital Association; and 3) Colby-Sawyer's Community-Based Research Project class.

The Hazard Mitigation Committee (in partnership with the Upper Valley Lake Sunapee Regional Planning Commission) conducts periodic risk assessments and has developed an emergency management strategy for the region that is updated every five years. The most recent version is their *Hazard Mitigation Plan Update 2018*. The New London Hospital Association, together with its Community Health Assessment Partners, coordinates

periodic data collection and evaluation through [Community Health Needs Assessments](#) (CHNA). This group recently published a *2018-2020 CHNA Implementation Plan* to improve the wellbeing of residents in the Lake Sunapee region. And, students from the 2016-2017 Community-Based Research Project class conducted an analysis of the strengths and vulnerabilities of the town and the college relative to climate, food, and natural resources.

The [preliminary indicators](#) submitted to the reporting platform in 2017 were those that received the highest priorities from each of the above groups. Below are the strengths/assets and vulnerabilities identified in that first report to Second Nature:

Strengths

- Existing emergency management assessment and plan (for community and campus)
- Existing regional wellness assessment and strategy
- Strong campus-community involvement/integration
- Ability to operate some critical systems (from community and campus) with generator
- 20% of campus food purchases sourced from within 100 miles
- Significant green/forested spaces on campus and in the community

Vulnerabilities

- Climate Change Hazards
 - Hurricane/Typhoon/Cyclone
 - Severe Storms
 - Tornado
- Climate Change Impacts
 - Fire
 - Invasive Species
 - Power Outage
- Climate Change Additional Exacerbating Factors
 - Drug/Alcohol Abuse
 - Food Insecurity
 - Inadequate Health Systems
 - Poverty

Since then, further discussions and analysis by key members of the Community Resilience Advisory Committee, identified several short, medium, and long-term strategies and indicators for resilience that align with regional efforts and identified needs. These collaborative goals are outlined in the **Action Plan** section of this *Blueprint*, under **Resilience Strategies**. These initial focus areas were selected based on their relevant risk to people and property, as well as their potential for positive impact in the region. This specific college-community partnership is in its infancy and this *Blueprint* should be considered a living document that will change as those conversations evolve.

Colby-Sawyer College and the Town of New London are both currently re-defining their long-term goals. Colby-Sawyer's Board of Trustees recently approved a new [Strategic Plan \(2018-2023\)](#) and New London is in the midst of a revision of its ten-year Master Plan. As these plans emerge, opportunities exist to deliberately identify shared goals that improve the sustainability and resilience of the region as a whole. Second Nature, defines five categories of resilience for campuses, including: Ecosystem Services, Financial, Human Health & Wellness, Infrastructure, and Social Equity & Governance.

These categories are equally relevant to community resilience, and also parallel the Four Foundational Commitments outlined in Colby-Sawyer's *Strategic Plan*: "As an institution, Colby-Sawyer is committed to the foundational commitments of financial stability, social justice, ecological balance, and personal well-being. These commitments inform and permeate our mission, shared values, our programs, our promises to our students, and our priorities. They are reflected in the values our faculty, staff, students, and alumni hold as well as in the way our community approaches how we deliver our educational programs." This expanded focus on resilience may also present additional opportunities for collaboration and experiential learning, as the college expands its programming in health sciences education and training.

Several other features of Colby-Sawyer's *Strategic Plan* intersect explicitly with the actions outlined in the *Blueprint*, including:

- Mission Statement: "...prepares students to thrive in, and make a positive impact upon, a dynamic, diverse, and interdependent world."
- Vision Statement characteristics: "...leader in sustainability," "...curriculum that offers innovative pedagogy," and "...graduates who make meaningful contributions to their professions and communities."
- Values Statement—Respect: "...fully integrating sustainable and environmentally responsible practices."
- Promises to Students—Sense of Place: "...commit to preserve and enhance Colby-Sawyer's Sense of place that maximizes the natural resources and beauty of New London."
- Strategic Goals: "Embed a whole-systems sustainability approach across the institution."

This *Blueprint for Resilience and Innovation* is designed to complement Colby-Sawyer's *Strategic Plan*, as the **Sustainability Initiatives** and **Resilience Strategies** outlined in the next section will also enhance the college's ability to meet and exceed the broader institutional priorities set forth in that *Plan* as well.

Analysis conducted by Second Nature and the Association for the Advancement of Sustainability in Higher Education (AASHE), demonstrate that climate commitment-related activities can also significantly contribute to an institution's broader strategic priorities. In their publication *Beyond the Right Thing to Do: The Value of Sustainability in Higher Education*, [AASHE](#) suggests that, "A strong sustainability culture can alleviate administrative challenges and promote institutional success." The table below highlights the alignment between the institutional sustainability outcomes identified by AASHE and Colby-Sawyer's nine [Strategic Goals](#).

AASHE's Sustainability Outcomes for Institutions*	Colby-Sawyer's 2018-2023 Strategic Goals**
:: Sustainability education prepares students for career success and responsible citizenship.	:: Improve student outcomes. :: Deliver a dynamic curriculum that exposes students to a range of disciplines as well as equips them with essential skills.
:: Sustainability improves organizational efficiency, decreases operational costs and reduces risk. :: Sustainability catalyzes increased giving and new funding sources.	:: Establish and enhance financial stability.
:: Sustainability helps attract, retain and motivate top students and employees.	:: Recruit and retain students from diverse backgrounds who can excel at Colby-Sawyer. :: Attract and retain talented faculty and staff who share the institution's values and reflect diverse backgrounds and talents.
:: Sustainability strengthens community relations and facilitates new partnerships.	:: Provide a range of leadership and engagement opportunities to students. :: Strengthen and create new partnerships with the Town of New London, the region, and employers.
:: Sustainability research and education demonstrates relevance in addressing grand challenges and helps unify the campus around a shared sense of purpose.	:: Embed a whole systems sustainability approach across the institution. :: Build a culture of high performance.
* Source	** Source

ACTION PLAN = CARBON + RESILIENCE

The **Action Plan** below is designed to help the college achieve the combined goals of carbon neutrality and resilience, as set forth in Second Nature's [Climate Commitment](#). For convenience and clarity the Plan is divided into two sections, **Sustainability Initiatives** and **Resilience Strategies**, but it should be noted that there is significant overlap between the actions and outcomes in those separate sections. For instance, installing renewable energy systems or sourcing food locally, may be seen as both a mitigation and an adaptation strategy for climate change.

To facilitate the practical integration of this *Blueprint* into the college's policies and daily operations, an interactive online database has been developed to give the Senior Leadership Team and Directors the internal ability to track initiative details, such as: specific metrics, project status, associated costs, timelines, reference documents, and the person/department responsible for implementing each initiative. The actions listed below are meant to provide guideposts for institutional and regional outcomes, with the assumption that many individuals will collaborate on the development of specific implementation details.

Climate Commitment = Carbon (Emissions Reductions) + Resilience (Capacity Building)

SUSTAINABILITY INITIATIVES: OVERVIEW

Headings and goals within the **Sustainability Initiatives** section parallel the categories from the Sustainability Tracking, Assessment & Rating System™ (STARS) developed by the Association for the Advancement of Sustainability in Higher Education (AASHE.) STARS is a nationally recognized sustainability benchmark against which institutions can rate and compare their progress. The alphanumeric code and hyperlink after each action links directly to the criteria and reporting requirements in the [STARS 2.1 Technical Manual](#). The checklists found there can serve as a guide for implementation as departments begin to customize and operationalize these initiatives in accordance with the college's *Strategic Plan*.

Each category area below is prefaced by a vision statement and organized into three time frames:

- Short-term: 5 years (2018-2023)
- Mid-Term: 6-15 years (2024-2033)
- Long-Term: 16+ years (2034-2050)

The relative priority of actions were determined by a ranking system used by the Senior Leadership Team that considered five criteria: 1) alignment with strategic goals, 2) anticipated capital and operational costs, 3) ease of implementation using existing personnel, 4) potential short and long-term revenue generation, and 5) benefits to students and the Colby-Sawyer community. Those which received highest ranking have been listed as shorter-term goals, and those which received lower rankings have been relegated to the future. In the previous iteration of the *Climate Action Plan* it was found that opportunities often arose to implement goals sooner than expected, so these relative priorities are only estimates.

SUSTAINABILITY INITIATIVES: ACADEMICS

VISION

Colby-Sawyer provides a place-based, holistic, and transformational educational experience that supports the realization of students' personal and professional potential, while developing in them the knowledge, skills, and awareness to become thoughtful global citizens. The college is recognized for its dynamic and innovative curriculum, and an experiential Liberal Education Program that allows students to witness first-hand the applicability of all majors to the interconnected challenges and solutions of whole-systems sustainability and resilience.

SHORT-TERM (NEXT 5 YEARS)

- Offer an interdisciplinary, sustainability/resilience-focused undergraduate degree program, which explores its interrelated personal, social, economic, and environmental dimensions. ([AC 3](#))
- Provide an interdisciplinary, sustainability/resilience-focused immersive experience such as community-based internships and field-study programs, which use sustainability as a lens. ([AC 5](#))
- Conduct an inventory to assess sustainability/resilience course offerings across disciplines and make that listing available to prospective and current students. ([AC 1](#))
- Include one or more learning outcomes related to Colby-Sawyer's four interdisciplinary foundations of whole systems sustainability into the elements of the Liberal Education Program. ([AC 2](#))**

MID-TERM (6-10 YEARS)

- Inventory the percentage of faculty engaged in sustainability/resilience research and scholarship, which leads toward solutions that simultaneously support social wellbeing, economic prosperity, and ecological health. ([AC 9](#))
- Provide programs, policies, and/or resources that incentivize faculty and students to engage in sustainability research and scholarship. ([AC 10](#))
- Incorporate sustainability/resilience learning outcomes at the institutional, school, programmatic, and/or course level to ensure all students graduate with those knowledge and skills. ([AC 2](#))**
- Utilize campus operations and infrastructure as a multidisciplinary living laboratory that provides real-world, practical research and learning opportunities for students to develop problem-solving skills related to sustainability and resilience and which enables them to advance those goals on campus. ([AC 8](#))
- Conduct an interdisciplinary sustainability literacy assessment to assess the impact of our sustainability/resilience education initiatives. ([AC 6](#))
- Adopt a policy that ensures that all future scholarly articles authored by faculty and staff are deposited in a designated open access repository to stimulate learning, innovation, and the public benefits that advance sustainability. ([AC 11](#))

LONG-TERM (16+ YEARS)

- Offer an interdisciplinary, sustainability/resilience-focused graduate degree program [major, minor, concentration, or certificate], which explores its interrelated personal, social, economic, and environmental dimensions. ([AC 4](#))
- Develop ongoing program of funding, release-time, and/or training to help incentivize faculty to include sustainability/resilience into new or revised curriculum. ([AC 7](#))

** Senior Leadership Team ranked this as a Mid-Term Initiative, but since the Liberal Education Program is being currently revised it is listed twice—once for liberal education, once for broader learning outcomes.

SUSTAINABILITY INITIATIVES: ENGAGEMENT

VISION

Colby-Sawyer's website, external marketing materials, and internal programming clearly communicate the college's commitments and values with regard to its culture of sustainability, resilience, and innovation. Ongoing trainings and campaigns, including orientations for students and employees, provide multiple opportunities for the campus community to embody and engage in healthy and sustainable behaviors. Students discover their life's work and gain competency in teamwork and leadership, by engaging in cocurricular activities within the vibrant living-laboratory that is their campus, and in real-life, project-based learning with community partners.

SHORT-TERM (NEXT 5 YEARS)

- Strengthen and create new ongoing, inclusive, community partnerships, which support social equity and wellbeing, economic prosperity, and ecological health in the region. ([EN 10](#))
- Engage and support a peer-to-peer student education program, which infuses a sustainability ethic across campus, deepens understanding of the concepts, and develops leadership skills. ([EN 1](#))
- Implement sustainability-related outreach campaigns directed towards employees and students that yield measurable, positive results in advancing sustainability awareness and behavior. ([EN 5](#))
- Produce outreach materials and/or publications that enhance student learning about sustainability outside the formal classroom. ([EN 4](#))
- Include whole-systems sustainability in new employee orientation and/or materials to help establish sustainability as an institutional priority and part of the campus culture. ([EN 8](#))
- Engage students to address sustainability/resilience challenges through community service, which develops leadership skills and deepens understanding of practical, real-world problems. ([EN 13](#))
- Conduct an assessment of the sustainability culture within the campus community (including personal wellbeing, social justice, financial stability, and ecological balance), which evaluates the impact of outreach and education programming upon values and beliefs, as well as awareness of college initiatives. ([EN 6](#))

MID-TERM (6-10 YEARS)

- Administer and support ongoing staff/faculty peer-to-peer sustainability outreach and education programs to help disseminate sustainability messages and encourage broader participation. ([EN 7](#))
- Offer and support professional development and training to all staff members, which equips them to implement sustainable practices and model sustainable behavior for the campus. ([EN 9](#))
- Develop orientation activities and programming that prominently include the principles and practices of the college's four foundations, which encourages sustainable/resilient behaviors and sets the tone for the campus experience. ([EN 2](#))
- Provide multiple cocurricular programs and initiatives that engage students by integrating sustainability/resilience into their lives, experiential learning opportunities, and campus culture. ([EN 3](#))

LONG-TERM (16+ YEARS)

- Participate in inter-campus collaborations to share best practices and realize efficiencies, which accelerates the movement to greater sustainability/resilience within the higher ed community. ([EN 11](#))
- Provide continuing education courses and programs in sustainability to the community, which build knowledge about the subject and/or offer training to obtain and perform green jobs. ([EN 12](#))
- Promote health, safety, and secure livelihoods for domestic and global workers by joining a monitoring and verification organization that ensures Colby-Sawyer branded apparel is produced under fair conditions. ([EN 15](#))

- Promote sustainability/resilience through public policy advocacy on the local, regional, national, and/or international level by endorsing legislation or participating in campaigns. ([EN 14](#))

SUSTAINABILITY INITIATIVES: OPERATIONS

VISION

Colby-Sawyer has significantly reduced its water consumption and carbon and nitrogen footprints through comprehensive conservation efforts, campus-wide efficiency measures, investment in on-site renewables, and the purchase of offsets. The procurement of sustainable and non-toxic products offers a healthy working and living space for employees and students, and several alternative transportation options including bike share program, EV charging stations, and campus shuttles reduce vehicle miles travelled. The college continues to move towards zero waste through rigorous purchasing policies and aggressive landfill diversion programs. Campus dining has developed strong partnerships with local farmers and vendors and continues to expand the percentage of local, healthy, and sustainable food offered.

SHORT-TERM (NEXT 5 YEARS)

- Support sustainable food systems and minimize the impact of dining services through published procurement policies, preventing and diverting food waste, offering low-impact dining options, and educating customers about more sustainable options and practices. ([OP 8](#))
- Support the development and use of energy from clean and renewable sources, via on-site generation of heat, on-site or custom-built off-site generation of electricity, and/or purchase of Renewable Energy Certificates. ([OP 6](#))
- Reduce total building energy consumption by 50% as compared to an internal institutional baseline and/or to 90% below the minimum performance threshold of 65 Btu per gross square foot per Fahrenheit degree day. ([OP 5](#))
- Purchase office paper that contains post-consumer recycled-content, agricultural residue, and/or Forest Stewardship Council certification. ([OP 14](#))
- Encourage alternative modes of transportation for students, such as walking, bicycling, van/carpooling, public transportation, riding motorcycles or scooters, and/or using campus shuttles. ([OP 16](#))
- Encourage alternative modes of transportation for employees, such as walking, bicycling, van/carpooling, public transportation, riding motorcycles or scooters, and/or using campus shuttles. ([OP 17](#))
- Minimize and safely dispose of all hazardous, universal, and non-regulated chemical waste and offer a certified electronic waste recycling/reuse program that protects both workers' safety and the environment. ([OP 21](#))

MID-TERM (6-15 YEARS)

- Support sustainable food systems by prioritizing the purchase of environmentally and socially preferable food and beverage items which are third party verified and/or local, and minimizing the purchase of industrially produced animal products. ([OP 7](#))
- Purchase green, non-toxic cleaning and janitorial products, which reduce exposure impacts for building occupants and the environment, thereby promoting clean and healthy, work, living, and learning spaces. ([OP 13](#))
- Divert all non-hazardous construction and demolition waste from the landfill and/or incinerator. ([OP 20](#))
- Conduct an annual greenhouse gas (GHG) inventory and reduce net GHG emissions as compared to an internal baseline, as well as to be less than the minimum performance threshold of 0.02 MtCO₂e per gross square foot. ([OP 1](#))

- Minimize waste production, conserve resources, and divert materials from landfills/incinerators by implementing source reduction strategies and maximizing the efficiency of recycling, composting, and donation/resale programs. ([OP 19](#))
- Implement policies and programs to reduce stormwater runoff and resultant water pollution, and treat rainwater as a resource rather than as a waste product. ([OP 23](#))

LONG-TERM (16+ YEARS)

- Incorporate environmental features into building design, construction, and renovation in accordance with published green building codes or third party certifications. ([OP 4](#))
- Practice sustainable landscape management, which integrates economic, social, and ecological considerations to meet human needs and maintain healthy ecosystems. ([OP 9](#))
- Reduce potable water use (per user and per gross square foot) as compared to a baseline, as well as its total water use (potable and non-potable) on campus (per acre of vegetated grounds compared to a baseline). ([OP 22](#))
- Author and operationalize sustainable procurement guidelines across commodity categories institution-wide, employ “Life Cycle Cost Analysis” when evaluating energy- and water-using products and systems to assess total cost of ownership, and publish sustainability criteria to be applied when evaluating products and services. ([OP 11](#))
- Support markets for environmentally preferable computers and other electronic products by purchasing exclusively EPEAT Gold registered products. ([OP 12](#))
- Develop and implement policies to improve outdoor air quality and minimize air pollutant emissions from mobile sources (vehicles, powered lawn equipment, etc.) and inventory significant air emissions from stationary sources on campus or verify no such emissions are produced. ([OP 2](#))
- Operate and maintain buildings in ways that protect the health of occupants and the environment, which are in accordance with certified or published sustainable operations and maintenance guidelines. ([OP 3](#))
- Provide and encourage more sustainable modes of transportation for students and employees, and offer programs to reduce commuting to decrease air pollution and greenhouse gas emissions. ([OP 18](#))
- Employ biodiversity management strategy designed to identify and protect endangered and vulnerable species as well as environmentally sensitive areas on campus. ([OP 10](#))
- Utilize fuel-efficient and alternative fueled vehicles for the institution’s motorized fleet, which creates demand and enhances visibility of cleaner fuels that reduce emissions and improve air quality. ([OP 15](#))

SUSTAINABILITY INITIATIVES: PLANNING & ADMINISTRATION

VISION

The college has achieved leadership status as an innovative and resilient institution that provides a healthful and welcoming environment for students, faculty, staff, and visitors. Its policies and operations are aligned with the college’s four Foundational Commitments of personal well being, social justice, financial stability, and ecological balance, and it has achieved recognition for its efforts within the community and among its peers in higher education.

SHORT-TERM (NEXT 5 YEARS)

- Appoint at least one committee, office, and/or officer tasked by the administration and Board of Trustees to advise on and coordinate policies and programs related to institution-wide sustainability. ([PA 1](#))
- Ensure that lowest paid workers on campus (including institutional employees and employees of regular on-site contractors) receive a “living wage” so that individuals can contribute positively and productively to the community. ([PA 11](#))

- Provide wellness programs and/or employee assistance services that enhance the health and wellbeing of the entire campus community, including students, faculty, and staff. ([PA 13](#))
- Publish comprehensive sustainability/resilience plans with measurable objectives and include sustainability in the institution's strategic plan and other guiding documents to signal commitment and infuse an ethic of environmental, fiscal, and social responsibility throughout the campus community. ([PA 2](#))
- Adopt frameworks for engaging internal and external stakeholders in participatory governance, which empowers groups to work collaboratively on shared decision-making and address sustainability challenges within the institution. ([PA 3](#))
- Implement and document strategic programs and policies to improve accessibility and affordability and promote greater equity for low-income and/or non-traditional students. ([PA 7](#))
- Conduct regular surveys or evaluations to assess employee satisfaction and engagement with regard to areas such as learning/advancement opportunities, work culture, and work/life balance, to help the institution gauge its performance as an employer and identify strengths and areas for development. ([PA 12](#))
- Form a diversity and equity committee, office, and/or officer to advise on and implement policies and programs related to diversity, equity, inclusion, and human rights on campus and make cultural competency trainings and activities available to the campus community. ([PA 4](#))
- Engage in structured assessment of diversity and equity to identify strengths and areas for improvement, which can help foster an inclusive and welcoming campus culture and ensure the academic and social success of all campus community members. ([PA 5](#))
- Support underrepresented groups and foster a more diverse and inclusive campus community through policies, programs, or initiatives that empower underrepresented groups to thrive academically and socially. ([PA 6](#))

MID-TERM (6-15 YEARS)

- Ensure workplace health and safety by reducing the total number of recordable injuries and occupational diseases per full-time equivalent (FTE) employee as compared to a baseline and by having fewer than 6 recordable workplace incidents annually per 100 FTE employee. ([PA 14](#))
- Disclose investment holdings to the public, including amount invested in each fund and/or company, in order to promote transparency and accountability, and serve as a learning tool for students and other stakeholders. ([PA 10](#))

LONG-TERM (16+)

- Establish active committee on investor responsibility with multi-stakeholder representation to foster dialogue on investment decisions across asset classes and make responsible investment decisions that promote social and environmental responsibility. ([PA 8](#))
- Promote a more just and sustainable financial system by making positive investments which support socially and environmentally responsible practices, products, and services and/or engaging with investors to align the institutions investments with its values and protect itself from the financial consequences that may result from unsustainable corporate behavior. ([PA 9](#))

SUSTAINABILITY INITIATIVES: INNOVATION & LEADERSHIP

VISION

The college demonstrates exemplary leadership and a culture of high performance in the implementation of its Sustainability Initiatives. College leadership responds proactively to opportunities and anticipates disruptions, and seeks innovative solutions that improve the sustainability and resilience of the institution and its stakeholders.

MID-TERM (6-10 YEARS)**

- Demonstrate exemplary practice and sustainability leadership by instituting one or more of the programs listed below. ([IN](#))
 - Provide sustainable compensation to adjunct faculty members. ([IN-Adjunct Faculty Compensation](#))
 - Achieve third party recognition as a bicycle friendly institution, providing safe and welcoming infrastructure for cyclists. ([IN-Bicycle Friendly Institution](#))
 - Earn four stars or higher on the Campus Pride Index, reflecting its commitment to LGBTQ-inclusive policies, programs and practices. ([IN-Campus Pride Index](#))
 - Assess water withdrawals against a calculated natural water balance for the campus. ([IN-Campus Water Balance](#))
 - Use third party certified green cleaning programs and services. ([IN-Certified Green Cleaning](#))
 - Institute best practices for engaging local community members in decision-making. ([IN-Community Stakeholder Engagement](#).)
 - Achieve and maintain Fair Trade designation. ([IN-Fair Trade Campus](#))
 - Use athletic programs to improve campus sustainability performance and engage the broader community around sustainability challenges and solutions. ([IN-Green Athletics](#))
 - Leverage high profile of events like institution-hosted conferences to both improve campus sustainability performance and engage the broader community around sustainability challenges and solutions through green event certification program. ([IN-Green Event Certification](#))
 - Engage laboratory users and minimize the often considerable energy, water, and waste impacts of labs by participating in green laboratory benchmarking or certification program. ([IN-Green Laboratories](#))
 - Achieve third party certification(s) for land management practices, (Bee Campus USA, Tree Campus USA—Arbor Day Foundation, etc.) ([IN-Grounds Certification](#))
 - Participate in healthcare networks to improve the sustainability performance of hospitals, by affiliation with a facility that is a member of (Global Green and Healthy Hospitals Network and/or Healthier Hospitals Initiative.) ([IN-Hospital Network](#))
 - Implement innovative and sustainable wastewater systems. ([IN-Natural Wastewater Systems](#))
 - Conduct the National Survey of Student Engagement to assess the level of participation in activities that contribute to their sustainability knowledge, skills, and personal development. ([IN-NSSE Sustainability Education Consortium](#))
 - Achieve a sustainable level of pay equity between workers and administrators. ([IN-Pay Scale Equity](#))
 - Employ third party certified integrated pest management. ([IN-Pest Management Certification](#))
 - Conduct a comprehensive analysis of the sustainability impact of procurement activities and prioritize areas for improvement. ([IN-Spend Analysis](#))
 - Assess the impact of green infrastructure and Low Impact Development (LID) practices on stormwater run-off. ([IN-Stormwater Modeling](#))
 - Formalize sustainability course listings for current and prospective students. ([IN-Sustainability Course Designation](#))
 - Achieve third party certification(s) for dining operations. ([IN-Sustainable Dining Certification](#))
- Implement unique, extraordinary, ground-breaking initiatives that seek innovative solutions to sustainability challenges in ways that are not otherwise captured in any of the **Sustainability Initiatives** or programs described above. ([IN](#))

*** These general categories both fell into the mid-term time frame based on their ranking from the Senior Leadership Team.*

RESILIENCE STRATEGIES: OVERVIEW

Headings and goals within the **Resilience Strategies** section parallel the five dimensions of resilience outlined by [Second Nature](#) and the [Community Resilience Organizations](#): Ecosystem Services, Financial, Human Health & Wellness, Infrastructure, and Social Equity & Governance. The specific indicators and metrics in the *Blueprint* were determined in partnership with key members of the Community Resilience Advisory Committee and are based on existing recommendations in the Town of New London's *Hazard Mitigation Plan Update 2018* and in the New London Hospital Association's *2018-2020 CHNA Implementation Plan*. Each **Strategy** is prefaced by its scope (as defined by Second Nature), and the timelines listed for individual goals align with those utilized in the **Initiatives** section above.

These actions below support enhanced self-reliance and capacity building for the campus, community, and region, and are meant to be accomplished collaboratively, with one organization typically taking the lead. Those partner organizations currently include: New London's Hazard Mitigation Committee, New London Hospital, Dartmouth-Hitchcock Medical Center, Lake Sunapee Region Visiting Nurse Association & Hospice, Emergency Medical Services, Kearsarge Area Council on Aging, Healthy Eating Active Living, New London Outing Club, New London Conservation Commission, Greater Sullivan County Public Health Network, Franklin Stakeholders, Lake Sunapee Protective Association, Ausbon Sargent Land Preservation Trust, and Colby-Sawyer College. (Scroll down to Colby-Sawyer's Climate Action Plan for 2019 on the [Second Nature Reporting Platform](#) to view more detailed information about these Resilience Indicators.)

RESILIENCE STRATEGIES: ECOSYSTEM SERVICES

SCOPE

"Ecosystem Services refers to the environmental systems and services present in the campus-community. This may include the natural and geographic features of the region, city or town, and neighborhood. Campuses should consider natural assets such as tree canopy, undeveloped floodplains, air quality, and biodiversity. Campuses should also consider systems in place to govern or protect these assets, such as conservation easements, recreation parks, and rainwater management systems." ([Second Nature](#))

ECOSYSTEM SERVICES - IMPROVE STORMWATER MANAGEMENT

Resilience Strategies	Goal Year	Goal Value	Unit of Measurement
Generators for Municipal Sewer Systems	2023	2	# of generators online
Provide Surge Protection for Town-Owned Sewer Management Equipment	2023	1	# surge protectors
Implement Required Measures for Regional Dam Failure Prevention	2023	100	% of required measures
Stockpile of Potable Water for the Community	2033	100	% population w/ water
Require Water Conservation Measures Year-Round in New Construction	2033	1	# of easements
Community Programs/Policies to Reduce Stormwater Runoff and Pollution	2050	5	# of programs/policies

ECOSYSTEM SERVICES - PROTECT AND INCREASE PROTECTED LAND (ESPECIALLY FLOODPLAINS, WETLANDS AND FORESTS)

Resilience Strategies	Goal Year	Goal Value	Unit of Measurement
Maintain Milfoil Mitigation Programs in Regional Water Bodies	2023	100	% water bodies staffed
Develop Forest Management Plans for New Forest Areas	2023	100	% of acreage w/ plans
Encourage Drought Tolerant Landscape Design in New Properties	2023	100	% qualifying designs
Implement CSC Sustainable Landscaping Plans (biodiversity, invasives)	2033	5	# implemented
Comprehensive Wetlands Conservation	2050	100	% wetlands conserved

RESILIENCE STRATEGIES: FINANCIAL

SCOPE

"Economic refers to the financial ability of the campus and community to proactively adapt to changing climate conditions and to respond positively to climate change events. This may include high-level trends such as GDP and unemployment rates, and more campus-specific indicators such as the existence of a climate adaptation fund. Campuses should consider the diversity of the campus-community's local economy, availability of tax or other financial incentives to increase resilience, and levels of financial planning for emergencies." ([Second Nature](#))

FINANCIAL - INCREASE INVESTMENTS IN RESILIENCE/ ADAPTATION (INCLUDING GREEN REVOLVING FUNDS)

Resilience Strategies	Goal Year	Goal Value	Unit of Measurement
Triple NL Emergency Management Budget	2023	300	% increase in budget
NL Master Plan Initiatives to Support Resilience and Robust and Diverse Economy	2033	3	# of initiatives
College Endowment Focused on Socially Responsible Investments	2050	100	% of investments in SRI

RESILIENCE STRATEGIES: HUMAN HEALTH & WELLNESS

SCOPE

"Health and Wellness refers to the ability of different groups on campus and in the community to fulfill their basic needs. This includes access to healthcare, food, water, housing, and sanitation. Campuses should consider the availability and affordability of healthcare, including emergency medical care capacity, food and potable water, and secure housing. Campuses should consider indicators for health & wellness both on an ongoing basis and in the case of emergencies or severe climate-related impacts." ([Second Nature](#))

HUMAN HEALTH & WELLNESS - INCREASE FOOD SECURITY & RESILIENT FOOD DISTRIBUTION AND STORAGE SYSTEMS

Resilience Strategies	Goal Year	Goal Value	Unit of Measurement
Support Free Nutrition Education (HWWS, DPP)	2023	100	# participants
Support Regional Food Hub, Commercial Kitchen, Flash Freezing, Storage	2033	1	# of facilities w/in 30 miles
Implement NE Food Vision Local Food Procurement & Menu	2050	60	% food w/in 250 miles

HUMAN HEALTH & WELLNESS - IMPROVE HEALTHCARE ACCESS & AVAILABILITY (INCLUDING MENTAL HEALTH)

Resilience Strategies	Goal Year	Goal Value	Unit of Measurement
Support Free Regional NAMI Connect Suicide Prevention Trainings	2023	2	# classes per year
Provide Education for End-of Life Issues/Advance Directives Prior to Crisis	2023	1000	# residents served
Expand CSC Wellness Programming (Stress Reduction, Mindfulness, Nutrition, etc.)	2023	5	# of programs
Support Substance Misuse Prevention Programming	2023	15	# of programs
Collaborative Stress Reduction Programming w/Wellness Connection	2033	3	# of collaborative efforts
Availability of Stress Reduction/Work-Life Balance Resources for CSC Community	2050	100	% of population w/ access

HUMAN HEALTH & WELLNESS - IMPROVE SUPPORT OF DIVERSE POPULATIONS (INCLUDING MINORITIES, DISABLED POPULATIONS, ELDERLY & NON-ENGLISH SPEAKERS)

Resilience Strategies	Goal Year	Goal Value	Unit of Measurement
Welcoming CSC Environment for Underrepresented Groups (LGBTQ+, internationals)	2023	5	# of initiatives
Implement Integrated Mobile Health Model with Home Visits on Discharge Day	2023	400	# home visits
Expand Home Safety/Falls Programming for Elders Independence at Home	2023	4	# of classes per year
Behavioral Health Care for Medicaid Recipients via Integrated Delivery Network	2023	1	# of collaborative efforts
Establish Warming & Cooling Center at Council on Aging (COA) to Protect Vulnerable Populations	2023	1	# of warming centers
Collaborate on Construction of Senior Living Community	2033	1	# of communities
Programs and Resources for Aging in Place	2050	5	# of programs

HUMAN HEALTH & WELLNESS - INCREASE ACCESS TO AND USE OF RECREATION AND FITNESS FACILITIES

Resilience Strategies	Goal Year	Goal Value	Unit of Measurement
Launch Collaborative Community Bike Share Program	2023	1	# of programs
Healthy Eating Active Living & Wellness Connection Coalition	2023	4	# of collaborative efforts
Recreation as Centerpiece in NL Master Plan w/Partnerships	2033	5	# of new initiatives
Construct Recreation Building/Community Center in NL	2050	1	# of centers
Biking and Hiking Friendly Infrastructure (Funded by TAP Grant)	2050	1	# of grants

HUMAN HEALTH & WELLNESS - IMPROVE EDUCATION OUTCOMES AND INCORPORATE RESILIENCE INTO CURRICULUM (ON CAMPUS AND IN COMMUNITY)

Resilience Strategies	Goal Year	Goal Value	Unit of Measurement
Lib Ed Program Focused on Wicked Problems and Resilient Solutions	2023	20	# of classes
Community-Based Service Learning in First Year Seminar (FYS) Classes	2023	100	% of FYS w/ projects
Minors in Health Science and Resiliency Topics	2033	3	# of minors
Sustainability & Resilience Outcomes Integrated across Curriculum	2050	50	# of classes w/ outcomes

RESILIENCE STRATEGIES: INFRASTRUCTURE

SCOPE

"Infrastructure refers to the physical structures built, owned, managed, and/or used by the campus-community. It also includes systems such as communication and public transportation. Infrastructure is often the most intuitive dimension of resilience, and many resilience assessments and plans tend to focus on physical infrastructure.

Campuses should consider transportation systems, buildings, communication technology, and key features in the area such as bridges and dams." ([Second Nature](#))

INFRASTRUCTURE- IMPROVE ENERGY RELIABILITY

Resilience Strategies	Goal Year	Goal Value	Unit of Measurement
Tree Canopy Mitigation by Utilities	2023	100	% lines w/o infringement
NL Energy Committee to Implement Conservation/Efficiency Measures	2023	30,000	# dollars spent
Research Grants for Generators at TBD Secondary Shelter	2023	1	# of grants
Community Household Investment in Standby Generators	2033	50	% w/generators
NL and CSC Carbon Neutral Energy Production/Procurement	2050	100	% carbon neutral
Solar PV Battery Backup Systems on Campus	2050	100	% of PV w/batteries

RESILIENCE STRATEGIES: SOCIAL EQUITY & GOVERNANCE

SCOPE

"Social Equity and Governance refers to the systems of governance on campus and in the community, levels of engagement among campus and community members, and the capacity of different groups to adapt and respond to climate change. This includes leadership, transparency and accountability, and communication across stakeholders both on campus and in the community. Campuses should consider the social fabric of the campus-community, education levels and opportunities, active networks among different groups in the campus-community, and social justice dynamics." ([Second Nature](#))

SOCIAL EQUITY & GOVERNANCE - ESTABLISH, ENHANCE, AND/OR UPDATE INTEGRATED EMERGENCY MANAGEMENT PLANS (INCLUDING SEVERE WEATHER PLANNING)

Resilience Strategies	Goal Year	Goal Value	Unit of Measurement
Operationalize 2018 Emergency Management Plan	2023	1	# plans operationalized
Aggregate Resilience Initiatives into Appendix of Emergency Plan	2023	1	# of resilience appendices
Outreach on Resiliency & Disaster Preparedness	2023	5	# of outreach initiatives
Establish Town Emergency Shelters	2023	2	# of new shelters
Build New Police Station	2023	1	# new stations built
Community Emergency Response Team Stakeholder/ Partnership Meetings	2023	5	# of meetings
Submit 5-Year Update of Emergency Management Plan	2023	1	# of updated plans
Local Emergency Operations Plan (Continuity of Operations/ Government)	2033	2	# of continuity plans
Enhance Community Awareness (Able to Shelter-In-Place for 72 Hours)	2033	6000%	% of population aware
CSC Capstones & Internships w/Emergency Response Director	2033	15	# of internships/ capstones
Establish Regional Emergency Response Team	2050	100	% of towns represented
Author Regional Resiliency Plan	2050	1	# of plans

SOCIAL EQUITY & GOVERNANCE - INCREASE COMMUNITY ENGAGEMENT (ON CAMPUS AND WITH OFF-CAMPUS MUNICIPALITY)

Resilience Strategies	Goal Year	Goal Value	Unit of Measurement
Roadmap to Resilience—Research Community Best Practices & Strategies	2023	1	# of documents
Request NL Master Plan Includes Resilience and Hazard Mitigation Plan Actions	2023	1	# of plans with resilience
Support Local Community Education Via Wellness Fairs and Programming	2023	4	# events per year
Offer First Aid & CPR Trainings to Public	2033	3	# of trainings per year
Student Involvement in Community Partnerships w/Sustainable Learning Initiative	2033	600	# of students to-date
Community Resilience Lifestyle Programming (research, workshops)	2033	10	# of programs
Resilience Communication (Outreach re: climate initiatives, social cohesion, etc.)	2050	5	# of outreach initiatives
NL Plan for Individual Resilience	2050	1	# of plans
Collaborate on Resiliency Efforts/Infrastructure (Generators, etc.)	2050	3	# of collaborative efforts

CONCLUSION & NEXT STEPS

Colby-Sawyer College has made significant progress toward its long-term goals of carbon neutrality and whole systems sustainability since becoming a charter signatory of the American College and University Presidents' Climate Commitment in 2007. A decade later it became the 100th institution to sign Second Nature's revised Climate Commitment, which prompted the college to generate this addendum to its 2010 *GreenROUTES Climate Action Plan*. The *Blueprint for Resilience and Innovation: Laying the Foundation for Personal Wellbeing, Social Justice, Financial Stability, and Ecological Balance at Colby-Sawyer College*, was developed with support from college administration, faculty, staff, students, regional experts, and our community partners. Ongoing cooperation among stakeholders will be essential to the rapid and successful implementation of programs, as well as to their long-term viability—and that collaboration also has the added advantage of strengthening the social fabric, by building connection around a shared sense of meaning and intent.

The *Blueprint* moves the college beyond its original focus on internal carbon emission reductions within the campus (mitigation) to include resilience and capacity building alongside regional stakeholders (adaptation). The **Sustainability Initiatives** and **Resilience Strategies** identified within the *Blueprint Action Plan* align with the mission, vision, commitments, values, and goals of the *Colby-Sawyer College Strategic Plan (2018-2023)*. In fact, achieving the ends and outcomes in one plan requires the means and methods of the other. The actions set forth here further enable the college to keep its promises to students for a personalized and holistic learning experience and transformative education that is rooted in a deep and enduring sense of place.

Change and uncertainty have become commonplace within higher education, and around the globe, and to survive and thrive in that unpredictable context individuals and organizations must strike a balance between tradition and innovation. Colby-Sawyer's long history is an embodiment of that flexibility and resilience. Over and over again it has demonstrated a commitment to the essential aspects that give the college its familiar identity, as well as a willingness to embrace unfamiliar approaches that have redefined its future. During this process the college can also become a model for the integration of self and service, as it deliberately designs opportunities for students and employees to realize their unique purpose and potential, while simultaneously helping them to understand the vital role they each play in the achievement of the local, and global, common good.

Colby-Sawyer has always been guided by the answer to one question, "How will students benefit?" As the college's original *Climate Action Plan* states, "Our students, and their children and grandchildren, all benefit as we progressively model global citizenship in our infrastructure, operations, culture, and curriculum. In that mindful setting they begin to learn first-hand how to find satisfaction and success in a society that is moving towards a clean energy economy and responsibly addressing the origins and impacts of climate change and other social and environmental issues. As we embody the skills and characteristics that reflect the real changes occurring in the world, our students become the very people that the world needs."