



Striving for Circularity at SUNY ESF: A Case Study

ESF • CSMM • TRUE • Rheaply • PLAN • Zabble

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Overview

The State University of New York College of Environmental Science and Forestry (ESF) became the nation's first institution of higher education to achieve campus-wide Total Resource Use and Efficiency (TRUE) Precertification for zero-waste operations in January 2024. The Post Landfill Action Network (PLAN) named ESF the [#2 Zero Waste Campus](#) in October 2024 and Rheaply recognized ESF and its Center for Sustainable Materials Management (CSMM) with its [Innovator Award](#) in January 2025.

This case study will detail each of these accomplishments and partnerships and invite readers to better understand a portion of the circularity programs implemented at ESF. The college-wide diversion rate has increased from 29% in 2018 to 56% by the end of 2024. The weight of material sent to landfill and incineration college-wide has decreased by 22% over the same time.

ESF is working to reach the diversion rate necessary (90%) to achieve full TRUE Certification at its Syracuse campus first, and then eventually at all ESF campuses.

Certify Circularity New York (C2NY) is a partnership between the Center for Sustainable Materials Management (CSMM) and the U.S. Green Building Council. Through the C2NY program, businesses receive technical support to achieve TRUE Certification and Precertification for zero waste.

Total Resource Use and Efficiency (TRUE) Precertification

Achieved: January 2024

TRUE precertification recognizes projects and organizations that have implemented the fundamental actions and policies needed to effectively pursue zero waste and have demonstrated a commitment to achieving TRUE certification. Precertification does not include a minimum diversion requirement, whereas full TRUE certification requires a waste diversion rate of at least 90% from landfill, incineration (waste-to-energy), and the environment. ESF has not yet achieved this high bar, and classic definition of achieving zero-waste, so it opted to pursue TRUE Precertification to assess its readiness to achieve full certification in the future.

Precertification requires that a subset of TRUE Minimum Program Requirements (MPR) and credits be achieved. The following section will provide an overview of ESF's TRUE Precertification submittal.

TRUE (Total Resource Use and Efficiency)

certification is a leadership standard that helps facilities, organizations, events, and construction sites to measure, improve and recognize zero waste performance. Administered by Green Business Certification Inc. (GBCI), the TRUE rating system encourages the adoption of sustainable resource management and reduction practices, which contribute to positive environmental, health, and economic outcomes. TRUE projects divert 90% or more of their waste from landfill, incineration (waste-to-energy), and the environment.

Minimum Program Requirements Overview

01 Company or project seeking certification has a zero-waste policy in place

ESF's [Zero Waste and Circularity Policy](#) formally adopts and expands the informal zero waste goals set by the institution in 2019. It also builds upon related policies adopted by the College in November 2021 ([Green Purchasing and Break Free From Plastic Policy](#) and [Sustainable Facilities Maintenance and Renovation Policy](#)). The Zero Waste and Circularity Policy applies to all operations, across all ESF campuses, properties, and field stations, including food service and retail operations. It sets measurable and achievable College-wide zero waste and circularity goals, procedures for the management and diversion of materials, and expectations for monitoring and reporting.

02 Provide waste diversion data for a minimum of one month

During December 2022, ESF sustainability staff input all available historical zero waste related data into the TRUE diversion tracking template. This consistent formatting enables the College to easily track programmatic progress and trends. ESF continues to use the TRUE tracking template to this day, and the data contained within feeds ESF's [Zero Waste Dashboard](#), powered by Zabble.

The Office of Sustainability collaborates very closely with the Division of Sustainable Facilities & Operations to track and maximize diversion of materials resulting from construction and renovation projects. This process requires constant proactive training and follow up, as campus projects are awarded to multiple consultants and sub-contractors. Steps have been taken to build an expectation for reuse, recycling, and overall diversion into every facilities renovation/construction project. Office of Sustainability staff are oftentimes invited to project kickoff meetings to help set expectations of contractors and to introduce themselves as a resource to lean upon.

The Office of Sustainability continually updates and manages a detailed list of all materials recovery facilities in the area that accept various types of construction and renovation materials. The Office of Sustainability has developed a Construction & Renovation Material Diversion Plan & Tracking Log and worked closely with Facilities leadership and project managers to incorporate zero waste, and other sustainability goals, into its Division 1 General Requirements for contractors.

03 Project meets all federal, state/provincial and local solid waste and recycling laws and regulations. Project complies with all air, water and land discharge permits required for collection, handling or processing of materials.

The Office of Sustainability manages a list of material hauling contracts held by the College. This list is verified and/or updated at least annually. The Environmental Health & Safety Office manages all chemicals that are deemed ready for disposal. Electronics recycling collection bins contain clear signage indicating which items should be placed in the bin, those that should be brought to Computing and Network Services for recycling or reuse, and which should be managed by the grounds crew for recycling via Work Order.

04 Describe the strategies that will be used to achieve less than 10% contamination for all materials that leave the site.

Building level trash and recycling audit results are analyzed and outreach actions are taken as needed. For example, one trash audit showed that the building containing the campus cafe had a very large amount of food prep scraps in the trash. Sustainability staff reached out to cafe staff, and it was determined that the catering food prep area lacked a clearly labelled compost bin. One was immediately added, and future audits showed a vastly reduced quantity of food prep scraps.

During the summer of 2023, the Office of Sustainability collaborated with the Office of Communications to redesign bin messaging to more clearly depict proper sorting habits. These signs were installed on campus during the Fall 2024 semester.

The SUNY College of Environmental Science and Forestry (ESF) is part of the largest comprehensive public university system in the United States. Founded in 1911, ESF is the nation's oldest, and one of the most respected, institutions dedicated to the study of the environment and to building a sustainable future. ESF's main campus is in Syracuse, New York. The College also has regional campuses, field stations, and facilities throughout Central New York, and the Adirondack Mountain and Thousand Islands regions of New York State. The College is committed to providing high-quality instruction, research, and service at its facilities, which encompass 25,000 acres in New York State and other locations worldwide. The College enrolls approximately 1,800 undergraduate and 400 graduate students.

Redesign Credit 1

Evaluate collection container sizing and service levels and develop a periodic review strategy

The Office of Sustainability and the Division of Sustainable Facilities & Operations conducted a dumpster right-sizing and pick-up frequency evaluation during the spring and early summer of 2019. Staff conducted a review of existing hauling contracts, spoke with operational staff assigned to trash/recycling collection and performed visual inspections of dumpster fill levels to determine if the College was being overserved by its hauler.

A member of the sustainability team, a member of the student affairs team, and a student volunteer also conducted a building-by-building interior bin audit at the same time to better understand why the Syracuse campus recycling rate was so low compared to the national average. The audit showed that campus was plagued by unlabeled and mismatched office and hallway trash and recycling bins. One building alone featured 28 different types of unlabeled bins!

Based upon results from similarly timed trash/recycling audits, staff created a projection detailing expected reductions in trash service levels, if the campus community were better able to sort trash and recyclables and added compost bins across campus. The College leadership approved the purchase of standardized hallway trash and recycling bins and the addition of compost bins.



All hallways have a set, or multiple sets, of trash, recycling and compost bins. The decision was also made to remove lined trash bins from all offices and to replace them with linerless 1.15 gallon trash minibins. Custodial staff would empty these bins once a week moving forward, and would not wash them. This action would invite members of the campus community to think about how much trash they were producing and to compost materials in the hallway (due to office bins now lacking a liner). As a result of the interior bin audit, the number of bins was dramatically reduced, but locations were optimized.

As a result of these changes, the hauler that serves the Syracuse campus was able to drop trash collection during the semester from five days a week to two. It retained 5 days a week recycling collection during the semester. During the summer months, when campus is less populated, trash collection is oftentimes dropped to once a week and recycling collection is dropped to 3 times a week.

The New York State Center for Sustainable Materials Management (Center) was established at the State University of New York College of Environmental Science and Forestry (ESF) in the spring of 2020 through a NYS Environmental Protection Fund (EPF) grant administered by the NYS Department of Environmental Conservation (DEC). The Center places ESF, DEC, and their partners in a leadership role regarding materials (waste) reduction, reuse, and recycling in New York and the US.

The Center's mission is to inspire, lead, and connect a diverse group of people and organizations that will collectively challenge the concept of "waste," through redefining and reimagining how we procure, produce, consume, manage, and market materials.

Redesign Credit 3

Review all nine points of generation

Only seven points of generation were applicable to ESF's Syracuse campus precertification efforts:

- Warehousing & distribution
- Food services
- Offices
- Grounds
- Construction
- Vehicular maintenance
- Retail
- Manufacturing,
- Housing & hospitality

The Director of Sustainable Operations interviewed key stakeholders in each corresponding area to discuss how a multitude of materials were being managed and potential opportunities to divert materials, as applicable. Examples of materials discussed included: pallet shrink wrap (recycled), thin film plastic packaging (trash), pallets (recycled), food scraps (composted), food service ware (majority composted or reusable containers), condiments (shifted from individually packaged to bulk), packaging from food vending machines (trash, exploring alternatives to traditional vending), hardcover books (recycled), organic material (composted), wide variety of construction and demolition materials (mixture of recycling and trash), car batteries and oil (recycled), and tires (recycled).

ESF *Know Before You Throw*



Zero Waste ESF | Questions? Email sustainability@esf.edu

Zero Waste Purchasing Credit 1

Indicate strategies that will be used to develop an Environmentally Preferred Purchasing guideline or policy

ESF's [Green Purchasing and Break Free From Plastics Policy](#) was adopted in November 2021. It reiterated the College's commitment to then NYS Executive Order 4 (now Executive Order 22) and associated green purchasing specifications. It also banned many types of single use plastics on campus. ESF's [Green Purchasing Guide](#) was created and serves as an implementation tool accompanying ESF's Policy. ESF developed a case study describing how the Guide was created, so as to encourage replication across other SUNY campuses and NYS agencies.

Zabble Inc. is a B2B company founded in 2016 to enable organizations to achieve zero waste using AI. Its patented software-as-a-service (SaaS) platform, Zabble Zero™, includes Mobile Tagging™ and Invoice Analytics™. Mobile Tagging™ uses AI to identify bin fullness and contaminants via mobile and web apps, streamlining waste tracking and stakeholder engagement. Invoice Analytics™ extracts and analyzes invoice data to flag billing anomalies and reduce hauling costs. Together, these tools provide end-to-end visibility into waste operations and progress toward zero waste. Zabble serves over 35 U.S. clients—including haulers, jurisdictions, and institutions—has enabled over 1 million bin inspections, processed millions in invoices, and prevented 500 tons of contamination from landfills. Recognized as a top AI startup in the circular economy, Zabble has received multiple EPA grants and awards for advancing U.S. recycling infrastructure.

Leadership Credit 1

Adopt zero waste goal at upper management level

The College's Executive Operating Officer adopted a college-wide [Zero Waste and Circularity Policy](#) on behalf of college leadership in the Office of the President during December 2023.

Furthermore, ESF participated in the [Post Landfill Action Network's \(PLAN\) Atlas](#) program during the Fall 2023 semester. An ESF student was hired to work with PLAN staff and the Director of Sustainable Operations to perform a detailed zero waste/circularity benchmark and gap analysis at part of the Stage 1 program. This process included a multitude of stakeholder interviews to assess the current state of ESF's materials management programs. ESF was awarded a Bronze Atlas rating and an overall score of 68.9%, which ranks second highest among all Atlas participants.

Training Credit 1

Provide zero waste goal/policy to all employees

At the time of its adopting, ESF's zero waste and circularity policy was posted on ESF's sustainability website, featured in the weekly ESF News email, and posted on social media. Furthermore, ESF's peer-to-peer educators, Sustainability Ambassadors, were asked to share the policy and related information with their "home" units. The Director of Sustainable Operations also discussed the policy during an "all hands" staff meeting that included all facilities and operations staff.

The **Post-Landfill Action Network (PLAN)** is a national nonprofit that equips students with the resources and tools necessary to holistically understand the Waste Crisis and lead solutions on their campuses.

Zero Waste Analysis Credit 1

Conduct annual physical waste audit

Waste audits were conducted in October 2022, April 2023 and October 2023. They were open to all members of the campus community. The Office of Sustainability manages the audit process. The College's Environmental Health and Safety Office approved the waste audit safety plan, which was also reviewed and approved by the College Institutional Bio-Safety Committee. The Office of Sustainability provides PPE and safety training to all participants.

Grounds crew members collect trash from all building trash rooms and label each bag with the corresponding building name. Each building's trash is weighed separately and then each bag is opened (buildings remain separated) and dumped out for analysis. Three piles are made for each building – items that belong in the trash, items that should have been recycled, and items that should have been composted. Each pile is then weighed, and photos or videos of contaminants are taken. Materials collected are placed in the proper bin upon the conclusion of each audit. Results are compiled and sent via email to all participants. High level results are then posted on ESF's sustainability Instagram page and shared with the entire campus community during that week's edition of ESF News.

Zero Waste Analysis Credit 2

Analyze results of annual waste audit

Weights are obtained in real time during each audit - both trash and recycling. Care is taken to document contamination at the time of the audit. After each audit, results are analyzed to obtain the percentage of materials that were properly and improperly sorted. Notes are immediately added to this data to capture the building-by-building nuances and possible reasons for high levels of improper sorting (ex: major campus event or office clean out). A recommendation plan is then created to address concerns. The Office of Sustainability leads these efforts and is responsible for implementation of the recommendations.

Zero Waste Analysis Credit 3

Complete annual physical audit of recyclables

Recycling audits were conducted in October 2022 and April 2023. They were both open to all members of the campus community. The process and analysis for recycling audits mirrors that of trash audits, as outlined in the corresponding credit above.



Hazardous Waste Prevention Credit 1

Properly handle hazardous materials

All waste materials at the College are characterized to see if they meet the definition of hazardous waste, as determined by the Environmental Health and Safety Office. Laboratory chemicals submitted to EH&S that are unopened and in good condition are offered to other departments or researchers. If materials are accepted, they are transferred to the new owner, avoiding costly and unnecessary disposal. The same process is utilized for large chemical cleanouts, such as when faculty members retire. In addition, certain universal wastes (such as mercury containing devices) are no longer permitted on campus. If it is found that a waste material is hazardous, then these wastes are collected and stored in temporary locations known as satellite accumulation areas. Waste is labeled, and the containers are kept closed at all times. In addition, hazardous wastes are segregated to ensure chemical compatibility.



ESF Resource Exchange

Powered by Rheaply

Launched: June 2024

90"x2"x40" Green Chalkboard

Used – Good

1 available

Syracuse Campus > Bray Hall > Floor 4 > 415

10'x2'x32" Long Woodworking Table with Drawers

Used – Good

1 available

Syracuse Campus > Bray Hall > Floor 4 > 415



The goal of the current ESF, larger SUNY system, and New York State agency surplus property program is to keep state assets in circulation, for state purposes, for as long as possible and to recoup some monetary value at the end of the asset's useful life at a state agency. A series of complex processes must be followed to offer state owned property, such as furniture, to other campuses, municipalities, and state agencies, prior to property being posted on a public auction website.

Many of these processes rely heavily on email communication and are not particularly efficient or user friendly. The entire process is poorly understood, relatively unknown by many, time intensive, may require asset storage for extended periods of time and oftentimes results in state assets being prematurely sent to landfill or incineration.

Through funding provided by the [Center for Sustainable Materials Management](#) (CSMM), ESF partnered with Rheaply to digitize its surplus assets and create a virtual resource management and exchange marketplace. This marketplace, named the ESF Resource Exchange, can be accessed by ESF faculty, staff, and graduate students. Users can upload surplus property to the marketplace, and claim posted items for free, for reuse on campus. Posts and requests to claim materials must be approved by Exchange administrators. The Office of Sustainability, Office of Business Affairs, and Environmental Health and Safety Services jointly manage this effort, with the Office of Sustainability serving as project lead.

A kickoff call with key members of the College leadership took place in early May 2024. The goal of this call was to achieve a high-level familiarity with the soon-to-launch marketplace. A virtual training and listening session was then held with staff "early adopters" who would gain access to the marketplace prior to its formal launch. These early adopters were those who the planning team felt were most apt to interact with the platform and those who were known to have a high level of buy-in and excitement for sustainability. Rheaply staff arrived on site to assist with inventory digitization in early June. A marketplace soft launch to early adaptors took place in mid-June, followed by a virtual training session/platform demo open to the campus community in early July. A second big outreach and training push happened in early-mid September, coinciding with the start of the Fall semester.

Rheaply is the leading platform for asset management and circularity, helping organizations unlock the value of their physical resources through better visibility, reuse, and exchange. From office furniture and lab equipment to construction materials and fixtures, Rheaply enables organizations to keep assets in use longer—saving money, and supporting business resiliency sustainability goals. With Rheaply, clients from higher education, government, healthcare, and the private sector build circular economies within and between organizations, optimizing resource use while minimizing environmental impact.

As of mid-September 2025, the ESF Resource Exchange has facilitated the reuse of 357 items weighing 11,013 pounds, generated \$66,610 in avoided costs (that would have been incurred from purchasing reused items new), and offset 13,677 kgCO₂e. The Exchange has enabled the Office of Sustainability to quantify reuse on campus for the first time! The platform has been embraced by the campus community and has completely replaced the formerly relied upon surplus property email listserv. The Exchange is an exciting and integral component of ESF's quest to earn full TRUE certification!

The Office of Sustainability manages the Exchange platform and spends an hour or two a week maximum to keep it running smoothly. The Office hired a student employee to assist with inventory digitization and to help deliver small items to those who claim them. Larger items are moved by ESF's grounds crew, who receive instructions via the campus work order system.

The Center for SMM is currently exploring opportunities to expand this pilot project to additional campuses in the SUNY system, with the goal being to create an intercampus network that would facilitate material reuse on individual campuses and between campuses across the SUNY system.

Project Partners

