UNIVERSITY OF LOUISVILLE

ZERO WASTE ATLAS CAMPUS ASSESSMENT 2020

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INTRODUCTION

In Spring 2020, the Sustainability Council at the University of Louisville hired the Post-Landfill Action Network (PLAN) to support two UofL Zero Waste interns - Lily Stewart '22 and Jacob Foushee '22 - to conduct a holistic assessment of the University's waste management system. UofL has expressed commitment to not only increasing their waste diversion rate, but also changing the ways the campus purchases and manages goods to be in the best interests of the environment and the University. The following report is intended to identify concrete steps that UofL can take to shift towards a zero waste system and continue to uphold its reputation as a leader among sustainably-minded universities.

The interns used PLAN's Zero Waste Atlas Assessment - a project designed to help campuses assess and streamline campus systems for materials management - to collect the information used to inform this report. This report offers a snapshot of existing programs, services and infrastructure, illustrates ideal material flows throughout a campus, and proposes recommendations to fill the gaps identified during the assessment. While this Atlas Assessment provides numerous suggestions based on its assessment of the capacity of existing campus systems and best practices from other campuses, campus stakeholders must ultimately decide on the exact path the University takes to achieve zero waste.

Note: This report is currently being produced during the COVID-19 Pandemic when most colleges have switched to virtual learning. All systems were assessed as they were pre-COVID-19. Concerns and questions about Reuse Programs and the COVID-19 pandemic are addressed in this fact sheet.

This report was prepared for the University of Louisville by the Post-Landfill Action Network, a non-profit zero waste advising organization based in Dover, New Hampshire. Any views, thoughts, or opinions expressed in the text belong solely to the Post-Landfill Action Network and do not reflect the views of the University of Louisville.

ASSESSMENT PROCESS

The interns were trained by PLAN's Atlas team on the findings and theories that originally informed PLAN's Zero Waste Atlas Program, and on the interview process central to the assessment. They used PLAN's Atlas Stage 1 **Campus Programs Checklist** to complete in-depth interviews with 22 representatives from various campus departments, documenting and gathering data through a series of yes/no questions on the current infrastructure, policies, and communication channels related to the University's waste mitigation and management. A complete list of the interviewed representatives can be found in the Acknowledgements section of this report.

Following data collection, the interns scored the campus checklist with support from PLAN's Atlas team. Points are awarded in accordance with the zero waste hierarchy, with **3 points** awarded for source reduction initiatives, **2 points** for reuse initiatives, and **1 point** for diversion initiatives (i.e. recycling/compost). The campus was awarded an overall score, scores for the two major scope systems of campus materials management described in the following section, and specific program scores, which are all collectively used to guide this report.

METHODOLOGY - MATERIAL MANAGEMENT SCOPES

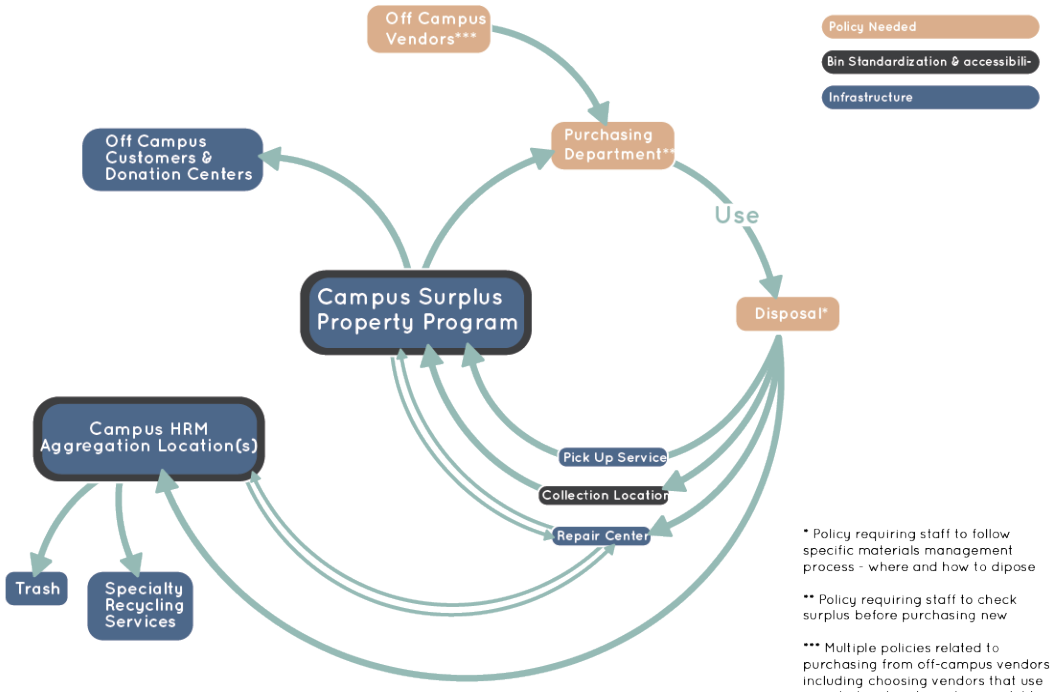
SCOPE 1 HARD GOODS Surplus Property and Hard-to-Recycle Materials Materials the campus has direct control over	SCOPE 2 SOFT GOODS Food and Single-Use Materials Materials the campus purchases, but has limited control over which bin the material is placed in
Electronics	Food Waste
Furniture	Food Packaging
Office Supplies	Disposable Dishware
Lab / Art Equipment	Disposable To-Go Ware
Vehicles/ Tires / Oil	Compostable Dishware
Chemicals / EH&S	Compostable To-Go Ware
Facilities / C&D	Reusable Dishware
	Reusable To-Go Ware

The Zero Waste Atlas Assessment is unique in that it does not simply measure waste outputs, but instead looks holistically at the entire campus materials management system from purchase to use to collection to disposal.

In **Scope 1 - "Hard Goods"** we assess the materials management system for all materials the campus has direct control over - namely, items that the campus purchases, manages, uses, and maintains ownership over, and is ultimately fully responsible for the method in which they are discarded. Below is an example of how a campus would manage materials in an ideal version of this system. You can also chart the path of this item through the idealized system map provided below.

A faculty member wants to **purchase** a file cabinet. First, per **campus policy**, they check the **campus surplus property program** and other local reuse facilities before buying a new item. When reuse isn't an option, the faculty member **purchases** the file cabinet following the campus' procurement policies. Years later, when the file cabinet is being discarded - the staff member contacts the **surplus property program** to schedule a **pick-up,** and the item is picked up for free. The item is **catalogued**, listed for sale on the **University's online surplus sale site**, and possibly also on sale at a **surplus storefront**. If the item goes unsold for weeks or months, the item is **donated to the community** or sent to the **campus aggregation point for hard-to-recycle materials** - where it is stripped into parts. In this case, the file cabinet parts would go to **industrial metal recycling**.

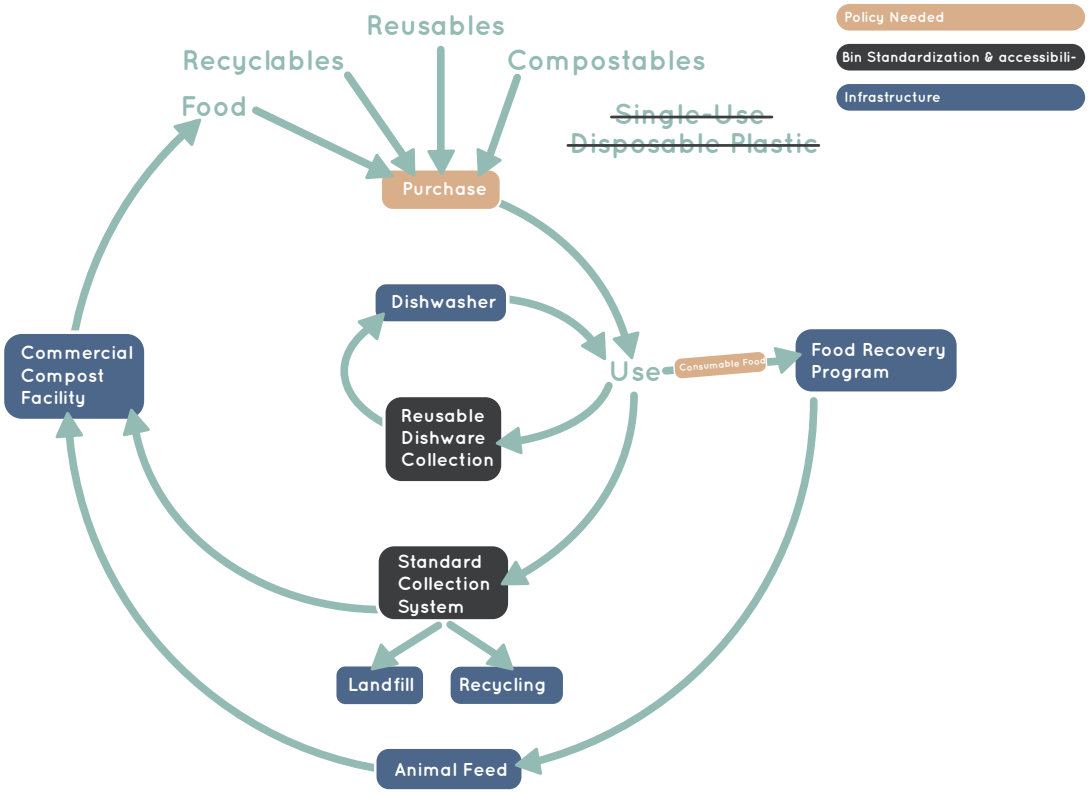
Scope 1 - An Example of Material Flow Options Through an Idealized Version of a Hard Goods System Map



In **Scope 2 - "Soft Goods"** we assess the materials management system for all materials that the campus purchases, but ultimately wind up in the hands of individual users, leading to limited control over which bin the material is placed in. Below is an example of how a campus would manage materials in an ideal version of this system. You can also chart the path of this item through the idealized example of a system map provided below:

A student purchases a coffee from a coffee vendor on campus that is required to comply with the **campus procurement policy**. The student can either get the coffee in a **reusable to-go mug** or in a **compostable cup**. The student walks across campus with their coffee, and when finished, discards their coffee container in the **standardized collection bin** for either compostable materials or reusable dishware, available in every building on campus. If compostable, the material is collected and transported to an **industrial composting facility** (either on or off campus). If reusable, the dishes are taken to a **campus dishwasher** to be washed and re-distributed back to campus food vendors.

Scope 2 - An Example of Material Flow Options Through an Idealized Version of a Soft Goods System Map



The Zero Waste Atlas project is designed to streamline campus material management systems, as illustrated by the example scenarios for Scope 1: "Hard Goods" and Scope 2: "Soft Goods." Not addressed in this systemic analysis is a proverbial "Scope 3", which would account for all items brought to campus (i.e. not purchased by the campus) by individual consumers (faculty, staff, students, visitors, etc). We do not include these items in this assessment because the campus has no control over the purchasing of these items, but the ultimate management and disposal of these items falls under the parameters of Scopes 1 and 2. Therefore, effectively-designed Scope 1 and 2 systems will ultimately be capable of capturing Scope 3 materials. Below is an ideal version of how a Scope 3 material would be captured in this system.

A student living in a residence hall on campus discovers that their lamp is broken. They bring the lamp to the **campus repair center** (a facility assessed in **Scope 1**), where an attempt to repair the lamp is made. If the lamp cannot be repaired - the lamp is placed in a **standardized electronic waste recycling bin** which can be found in most buildings on campus.

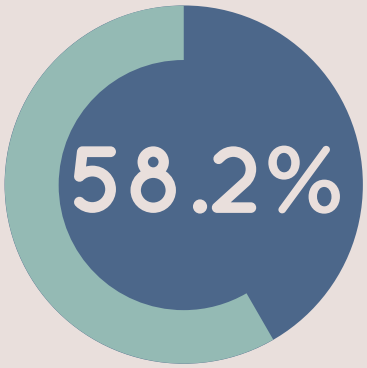
PROGRAM SCORING

In addition to the Hard Goods and Soft Goods Material Scopes, and the Additional Programs groupings, all of the questions in the Campus Programs Checklist were also categorized by specific program, as seen in the included Program Scoresheet, such as reusable to-go ware or residential hall initiatives. Program recommendations will be included in the same sections that assess Hard Goods Infrastructure and Soft Goods Infrastructure; note that these programs are generally smaller-scale projects and less so campus-wide infrastructure projects. These scores preface the assessment and recommendations in each section and are summarized in the scoresheet included on page 10. The scores preceded by a "+" at the top of each section indicate "Additional Programs," meaning that they are added as unweighted extra credit to the Hard Goods and Soft Goods scores.

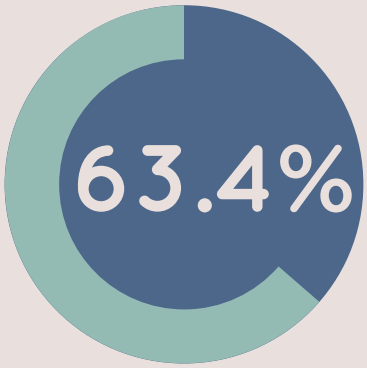
In some sections, findings are presented in the form of tables and can be interpreted as follows:

yes	full points awarded, i.e. 100% adoption across all facilities
half yes	half points awarded, i.e. facilities are still in the process of adoption
no	no points awarded, i.e. facilities have not adopted this practice and are not in the process of adopting it
n/a	question is not asked or is not applicable to this facility
+0	no extra points awarded - this is an additional credit question
+number	extra points awarded - this is an additional credit question

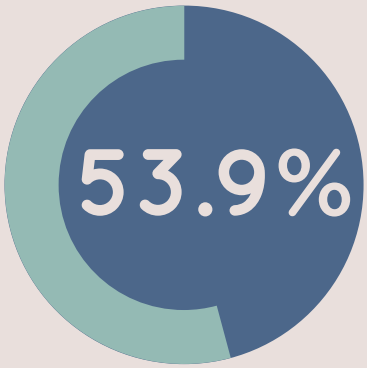
OVERVIEW OF U OF L'S SCORES



+66.25 ADDITIONAL CREDIT
TOTAL: 864.5/1600.5



+24 ADDITIONAL CREDIT
SCOPE 1: HARD GOODS
427.75/712



+42.25 ADDITIONAL CREDIT
SCOPE 2: SOFT GOODS
437/888.5

PLAN's Zero Waste Atlas project has found so far that the average campus score is between 40-50%. As we expand this project to more campuses, we will continue to update national scoring averages and standings for how campuses compare with each other.

SUMMARY RECOMMENDATIONS

We recommend that the University of Louisville gather a Zero Waste Task Force or similar working group to review this report. Following that review, we recommend working collaboratively with all stakeholders to discuss and build a strategic vision to address system-wide solutions, and create a comprehensive "Zero Waste Roadmap" for the University. The established vision may outline ambitious goals that require advanced long-term strategic planning and establishment of new campus infrastructure and systems, as well as policies and standard operating procedures that may differ from the way materials are currently managed. They may also require looking into organizational restructuring to relocate and redefine program management and responsibilities, which should be coupled with ample research to make decisions around management and costs. The Task Force should aim to develop a timeline to achieve measurable progress towards the following recommendations:

SCOPE 1

- Expand campus' capacity to track and communicate surplus property inventory to the campus community.
- Expand campus' capacity to collect, manage, and reallocate hard-to-recycle materials (HRM).
- Establish and communicate sustainable procurement policies to guide departments with purchasing electronics and other hard goods.
- Increase opportunities to share and reuse surplus and hard-to-recycle materials (i.e. packaging material, art supplies, office supplies, construction & renovation materials, etc.) across campus by establishing shared equipment/resources websites between facilities, free spaces, community repair spaces, etc.

SCOPE 2

- Explore options to limit disposable dining ware usage, such as by expanding reusable dining ware to all food service facilities on campus, expanding the reusable to-go ware program to be universally accepted, and/or developing a bring-your-own-container program that is universally accepted at all facilities.
- Increase capacity of current food recovery programs to increase on-campus food security and establish food waste minimization practices in campus dining facilities.
- Establish campus-wide procurement policies and event guidelines for soft goods

material management (e.g. dining ware) in line with what items the campus can accept in its composting stream, and better communicate existing Green Purchasing Policies.

- Limit single-use packaged items and establish systems for bulk service and bulk purchasing.
- Establish bin and signage standardization guidelines, as well as a plan for implementing this system across campus.

PROGRAM SCORESHEET

	Points Given	Points Possible
Scope 1: Surplus Property & Hard-to-Recycle Materials	**427.5**	**712**
Surplus Property	**120**	**192**
Policy That Requires Staff Send Material to Surplus	25	25
Policy That Requires Staff Purchase From Surplus	18.5	22
General Surplus Policies & Communication	10	21
Surplus Program & Managed Materials	50	90
Thrift Store	4.5	11
Res Hall Reuse & Sharing	12	23
Hard to Recycle Materials (HRM)	**95**	**209**
HRM from Specialized Facilities	70.5	132
HRM Aggregation & Clear Collection Points	24.5	77
Construction & Demolition	**42.5**	**57**
Policy Requiring Contractors to Use Surplus & Recycling	42.5	57
Electronic Waste	**116**	**181**
Policy That Requires Staff Send E-Waste to Surplus/Recycling	19.5	21
Procurement Policies for Purchase, Take-Back & Recycling	18.5	25
Electronics Repair & Recycling	50	76
E-Waste Collection Infrastructure	28	59
Hazardous Materials	**54**	**73**
Hazardous Waste Collection & Management	54	73
Scope 2: Compost, Food and Plastics	**437**	**888.5**
Purchasing	**132.5**	**299**
Adherence to Campus Procurement Policies	68.5	152
Policies That Favor Bulk Products Over Single-Use	61	127
Zero Waste Guides & Plans	3	20
Reusable Dining and To-Go Ware	**54.5**	**145.5**
Accessibility Policy	4	6
Reusable Dining Ware Provided	27.5	51.5
Reusable To-Go Container Program	8	53
Hydration Stations Available	11	16
BYO Program	2	10
Collection Locations for To-Go Ware	2	9
Food Waste Reduction & Food Recovery	**43**	**72**
Food Recovery Program	24	35
Food Waste Reduction Initiatives & Education	19	37
Compost & Bin System	**111**	**209**
Composting Program	20.5	38
Compostable Dining Ware & Disposables	25	63
Bin Standardization	65.5	108
Other Soft Goods Initiatives	**96**	**163**
Zero Waste Education & Communication	12	27
Recycling & Reuse	43.5	50
Paper Reduction Initiatives	28.5	74
Student-Led Initiatives	12	12
Additional Credit	**66.25**	**179.5**
Additional Credit - Surplus	13	31
Additional Credit - HRM	6	18.5
Additional Credit - Hard Goods Programs	5	9
Additional Credit - Reusable Dishware, To-Go Ware, BYO	7.75	28.5
Additional Credit - Food Recovery and Waste Minimization	0	8
Additional Credit - Compost	0.5	6.5
Additional Credit - Education, Recycling & Reduction	31.5	52
Additional Credit - Soft Goods Policies	2	10
Additional Credit - Liquid Collection	0.5	16

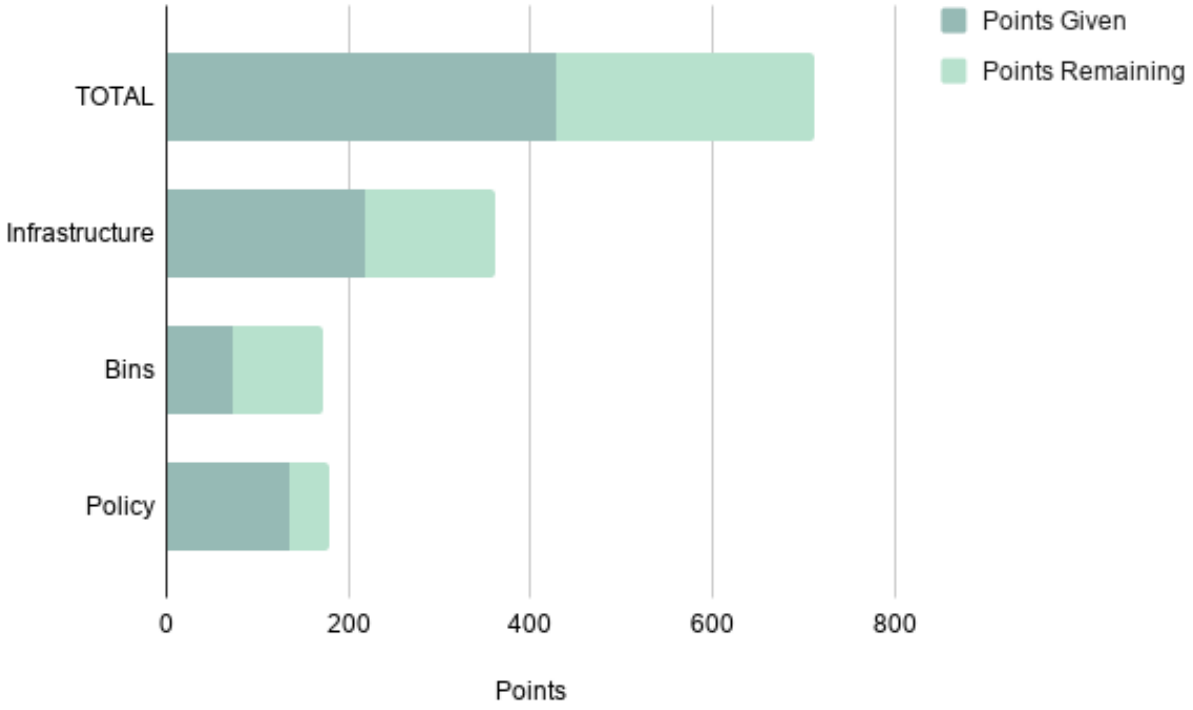
A detailed breakdown of the points that make up each category can be found in **Organized: Scope 1 Questions** and **Organized: Scope 2 Questions** in the Checklist.

SCOPE 1 - HARD GOODS: SURPLUS & HARD-TO-RECYCLE MATERIALS (HRM)

MAP OUT INTERDEPARTMENTAL MATERIAL FLOW

An important first step to better understand connections, increase communication, and identify gaps in surplus and HRM management on UofL's campus is creating a material flow map. This should outline the movement of materials throughout the stages of purchasing, use, collection, and disposal between various departments on campus. This should also outline stakeholders that interact with this process, and the logistics and infrastructure necessary throughout each stage. A simplified example of a relatively perfect system map is provided in the Methodology section - note that stakeholders are not identified in this diagram because the distribution of responsibility varies between campuses.

HARD GOODS: ASSESSMENT & RECOMMENDATIONS



HARD GOODS INFRASTRUCTURE & PROGRAMS

I. Surplus: Expand Capacity (Infrastructure and Staffing) for Campus-Wide Management of Surplus Property and Material Donation

50/90	Surplus Program (Facility, Process & Materials Managed)
+ 13	Additional Credit - Surplus

This section measures the campus's capacity in terms of infrastructure, services, and staff to fully capture surplus property from all departments and locations on campus, with the intended purpose of making those items available for reuse on-campus or donation off-campus, as well as non-electronic repair initiatives like textiles and furniture. The campus earned 50 of 90 total possible points for surplus management. The following table assesses whether the campus collects and manages the following surplus materials for reuse in any campus-wide capacity.

TABLE 1: CAMPUS SURPLUS PROPERTY COLLECTION

Table 1: Campus Surplus Property Collection

Surplus Property	Collected by Campus for Reuse
Furniture	Yes
Electronics (laptops, lab and medical, refrigerators, air conditioners, appliances, handheld devices, wires and cables)	No
Mixed media (CD's, DVD's, etc.)	Yes
Textiles (clothing, uniforms, etc.)	Yes
Construction & demolition material (doors, piping, bathroom fixtures, etc)	Half yes
Misc. household goods (dishware, decorations, school supplies, sporting equipment, etc.)	Yes
Campus vehicles	Yes
Books	No
Paint & art supplies	Yes
Miscellaneous (athletics equipment, classroom equipment, etc.)	No
Lab equipment*	Yes
Medical supplies (e.g. crutches)*	Yes
Bikes & bike parts	Yes

**can be collected for internal reuse by specific campus department*

Successes

As can be seen in Table 1, the University of Louisville's campus-wide surplus property program has the capacity to collect and manage 10 of the 13 assessed materials for reuse. All 22 interviewed stakeholders knew about the program and required their department to send all university-owned items to surplus, and free pick-up and delivery services are provided. Beyond the surplus program, most departments donate goods off-campus rather than reuse goods internally on campus. For example, Athletics donates what gym equipment they are allowed to donate off campus per NCAA rules, and the library, art studio, and childcare partner with external organizations to donate equipment and supplies. There is an administrative system for donating unsellable but still usable items to nonprofits, who can request items from the campus for free.

Challenges

There is no system for tracking inventory and collection besides the Maximo ticketing system, or for advertising inventory and collection to campus users. Students are allowed to drop off items, but are not regularly encouraged to shop from surplus.

Recommendations

We recommend that the University of Louisville consider expanding aspects of its surplus property program to encourage more effective use by staff members, and consider extending access to students. Some possibilities include:

- Creating a searchable online inventory of available items.
- Expanding the breadth of materials the program is able to collect to allow for greater on-campus circularity of items, rather than always defaulting to donating off campus.

The campus could also explore ways to increase the reuse of department-specific items, which could be supplemented by the creation of shared equipment or resources websites for labs or arts facilities. Available items could also be incorporated into a larger campus-wide online inventory.

Additional Credit

Bike Share: UofL received additional credit for its bike-sharing program, the existence of 5 universally accessible repair stations on campus, and the program's capacity to collect old or unused bike parts for reuse.

Sharing & Repairing: UofL earned additional credit for internal reuse and repairing of materials within the Printmaking Art Studio and Music Department.

II. HRM: Expand Capacity of Campus Wide Management of Hard-to-Recycle Materials (HRM)

This section measures the campus capacity in terms of infrastructure, services, and staff to fully capture Hard-to-Recycle Materials (HRM) from all departments and locations on campus with the intended purpose of aggregating those items for economical recycling of them through industrial facilities. HRMs exist in different pockets and departments of campus, and are more efficient and cost-effective to manage at campus-scale via a campus-wide system. Table 2 assesses whether the campus collects and manages the following hard-to-recycle materials for reuse or recycling in any campus-wide capacity.

70.5/132	HRM from Specialized Facilities
54/73	Hazardous Waste
50/76	Electronics Repair & Recycling
+ 6	Additional Credit - HRM

Assessment

At the campus-wide level, in terms of collection from multiple departments and central storage spaces for material aggregation, the University has the capacity to effectively capture and aggregate 33 of the 40 items assessed in this report.

TABLE 2: CAMPUS AGGREGATION OF HRM

Table 2: Campus Aggregation of HRM Hard-to-Recycle Materials (HRM)	Collected at a Campus Aggregation Point
Lab plastics	Yes
Lab glass	Yes
Plastic film & bags, bubble wrap, plastic wrap, air packages for recycling	No
Styrofoam & packing peanuts	No
Rigid plastics (e.g. tubes, pots, pesticide containers)	Yes
Rubber gloves	No
Scrap metal	Yes
Wood and/or sawdust	Yes
Concrete	Yes
Brick	Yes
Drywall	Yes
Roof shingles	No
Porcelain (e.g. sinks, toilets, tubs, etc.)	Yes
Textiles	Yes
Carpet	Yes
Mattresses	Yes
Vinyl banners	No
Wood pallets	Yes
Cooking oil	Yes
HRM for Terracycle	Yes
Electronic Recycling	
Laptops/computers	Yes
Lab & medical electronic equipment	No
Freon-containing equipment (refrigerators, A/C)	Yes
Microwaves	Yes
Household appliances (fans, vacuums, anything w/cord or battery)	Yes
Handheld electronics	Yes
Wires and cables	Yes
Mixed media (CD's and DVD's)	Yes
Batteries	Yes
Lightbulbs	Yes
Mercury-containing equipment (thermometers, fluorescent bulbs, ink cartridges, etc.)	Yes
Hazardous/Regulated Waste	
Tires	Yes
Paints and oil-based supplies	Yes
Lab chemicals or radiological waste	Yes
Waste oil	Yes
Pesticides	Yes
Fertilizer	Yes
Propane and propane tanks	Yes
Custodial chemicals	Yes
Sharps	No

- **Construction and Renovation Materials:** All non-reusable construction materials (except roof shingles) from construction and renovation projects are sent to expanded recycling; contractors are required to recycle or repurpose deconstructed materials and electronics according to campus policy. All building fixtures (lighting, HVAC, plumbing, doors, etc.) are reviewed by Physical Plant for their reusability.
- **Plastics, Films, and Styrofoam:** Rigid lab plastics and glass are recycled separately through the labs. UofL does not have any specific campus-wide programs for the collection, aggregation, and recycling of plastic film, bubble wrap, or styrofoam, because their hauler, WestRock, accepts everything in single-stream recycling. However, specialized facilities (including the campus gardens, labs, art studio, music department, the medical school and hospital, central receiving, etc.) are inconsistent when it comes to separating soft plastics from general recycling. Students in the dining halls are currently instructed to put soft plastics into the recycling stream for WestRock (the campus hauler) to sort out later.
- **Textiles, Vinyl Banners, and Terracycle Programs:** Textiles and carpet are often recycled through the art/theater department. The campus Free Store accepts used textiles, and Goodwill bins are provided in campus housing to collect all unwanted clothes. Vinyl banners are not currently accepted by their hauler, so they are not collected for recycling. The UofL Dental School recycles oral care product packaging through Terracycle and provides a recycling bin for these items.
- **Electronics Recycling and Printer Cartridges:** Electronics are collected by DEHS for recycling through an e-Stewards and/or Responsible Recycling (R2)-certified recycler. The program accepts all electronics, except for lab and medical electronic equipment. Most, but not all of the stakeholders interviewed for this assessment require their staff to send broken electronics to the campus e-waste program.
- **Regulated and Hazardous Wastes:** The University of Louisville collects all forms of regulated and hazardous waste through their Department of Environmental Health and Safety (DEHS) except for sharps, which are properly disposed of through the campus hospital. Specialized facilities are inconsistent in terms of disposal of hazardous waste - while campus gardens are organic and do not use any chemicals and so have no hazardous waste to dispose of, labs and

research facilities in the medical school do not have a chemical recycling program (but labs collect all other listed materials for proper disposal through DEHS). Used cooking oil from some dining locations is collected by Filtafry and Darpro for recycling into other products; the collection and management is overseen by Aramark.

Recommendations

We recommend that the University explore options for improving hard-to-recycle material collection systems on campus, including:

- Mapping out material flow across campus - identifying where items are already aggregated throughout different facilities, where collection points could be established across campus, and what positions could be responsible for managing these aggregation spaces and collecting these materials.
- Better communicating the proper disposal processes for hard-to-recycle materials, especially among specialized facilities.
- Exploring new contracts with specialized recyclers or investigating current hauling contracts to ensure specific items are properly recycled.
- Further exploring opportunities to collaborate with the campus surplus property program, both as a way to double up efforts on identifying an aggregation and storage space and as a way to serve the surplus property program when items sent for reuse ultimately have to be broken down into material parts and recycled. This may require identifying space on campus for storage and aggregation of materials.

Additional Credit

HRM Reuse: UofL was awarded additional credits for internal sharing and reuse systems within the labs, which have an internal chemical sharing program called Chem Cycle and access to on-campus autoclaves for hazardous equipment sanitation.

III. Programs: Thrift Store & Residential Halls

This section assesses programs that are often student-facing and can function either as part of campus-wide infrastructure assessed above or via separate programs that feed into or share components of larger campus-wide efforts.

4.5/11	Thrift Store
12/23	Res Hall Reuse & Sharing
+ 5	Additional Credit - Scope 1

Assessment & Recommendations

Thrift/Free Store:

The University of Louisville has a Free Store that is open to all students, faculty, and staff to donate and pick up items such as clothing, electronics, small appliances and household items, personal care items, books, office and art supplies, non-perishable food, and more. UofL could consider increasing the communication of this program to promote greater usage by the campus community, as well as building systems to fix broken items and to donate/recycle unusable items.

Res Hall Reuse & Sharing:

The University of Louisville has a donations-focused move-out program called Lighten Your Load that collects items for reuse/donation through Goodwill at the end of the year. Each residence hall provides collection bins that are labeled with clear signage and reused each year. The program does not feature a sale and could explore collaborating with the Free Store, the Sustainability Council, and/or a student environmental organization to re-distribute collected goods at the beginning of each semester to incoming students or to the Free Store, thereby increasing on-campus reuse of Scope 3 materials. The program could be further institutionalized by offering work-study positions to students to plan and manage the program each year. Other than the bins provided by the Lighten Your Load program, which are permanently stationed in residence hall lobbies year-round, and the extra bins that are provided during move-out once a year, residence halls do not offer free shelves/corners/spaces where students can share unwanted items throughout the year.

Additional Credit

Programs: UofL earned additional credits for the bike repair fairs regularly hosted by the biking organization. The Bookstore sells standard reusable lifestyle products such as water bottles, straws, and masks.

HARD GOODS POLICY

I. Establish Hard Goods Policies

This section assesses the campus-wide procurement policies, communication strategies, and requirements for handling and disposal of all hard goods.

16/21	Policy that Requires Staff Send Material to Surplus
13.5/18	Policy that Requires Staff Purchase from Surplus
12.5/17	General Surplus Policies & Communication
13.5/18	Policy that Requires Staff Send E-Waste to Surplus/Recycling
4.5/24	Procurement Policies for Purchase, Take-Back & Recycling
21.5/51	Policy Requiring Contractors to Use Surplus & Recycling

Surplus: Assessment & Recommendations

All 22 campus stakeholders interviewed for this assessment responded that they and their staff are required to send materials and obtain materials from the campus surplus program, and most but not all require their staff to check surplus before purchasing new items. We recommend the campus consider strengthening communication that:

- Ensure that all staff are required to check surplus property before buying new items.
- Ensure that all staff know and understand how the surplus property program works, how to access it, and how to schedule pick-up/drop-off services if applicable.

- Include preferences and incentives for purchasing new products that come with take-back, warranty, or repair programs.
- Encourage same-type campus departments to practice centralized purchasing for bulk purchase options of commonly procured materials.

Health facilities practice centralized purchasing between facilities but labs and arts facilities do not.

Electronics: Assessment & Recommendations

Most but not all of the 22 campus stakeholders interviewed for this assessment require their staff to send electronic waste to DEHS and Surplus. DEHS manages battery disposal and Surplus sends materials to a certified e-waste recycling contractor. Sometimes, the Network Department will do trade-ins with specific electronics companies; if this is not available, they will check with Surplus Property. The University does not have any specific procurement policies for electronics that prioritize environmental sustainability, but does offer a software troubleshooting service to the campus community.

To increase best practices around electronics materials management, UofL should implement campus-wide policies and communication strategies that:

- Require all staff to send electronic waste to the e-waste recycling program.
- Prioritize the purchasing of new electronics products that come with take back programs, repairable components, and full-service warranties, and/or leasing options.
- Prioritize printers that come with refillable rather than disposable toner cartridges.

Construction and Demolition: Assessment & Recommendations

The University of Louisville has a few policies in place regarding best practices around sustainable materials management for construction and demolition projects. The campus prioritizes rehabilitating existing buildings over new construction, and most buildings are deconstructed rather than demolished. Contractors are required to recycle or repurpose construction waste; Physical

Plant will sometimes take surplus items and fixtures from in-house renovations, but otherwise, the contractors are responsible for managing surplus items for contracted projects. Designers are not often encouraged to check with surplus before purchasing new furniture or equipment, due to the lack of information on surplus' inventory. New buildings are required to meet with consultants to minimize waste (but on a project-by-project basis), to install hydration stations, and to meet LEED Silver certification. For the most part, identified policy gaps should be focused on large, contracted projects - we recommend that the campus establish policies that:

- Prioritize deconstruction over demolition in order to better salvage materials.
- Better incorporate deconstructed materials into new building designs, inside and out.
- Require contractors to use the campus surplus property (for sending salvaged materials and for furnishing new buildings) and electronic waste recycling programs where practical.
- Require campus planning staff and all contractors to work with Physical Plant and the Sustainability Council on their waste management systems to minimum waste.
- Require in-house construction and renovation to recycle or repurpose C&D materials and building fixtures within reason.
- Require nylon carpet squares to be used in all new construction, because they are the only currently recyclable carpet material on the market.

HARD GOODS BIN & SIGNAGE STANDARDIZATION

This section assesses UofL's capacity to provide clear, standardized, and accessible drop-off locations and collection bins for all surplus and hard-to-recycle materials across campus. Ideally, all students and staff on campus would know where they should bring items for discard.

24.5/77	Aggregation Facility & Clear Collection Points
28/59	E-Waste Collection Bins

Assessment & Recommendations

The University of Louisville collects most campus-owned reusable materials and electronics through Surplus or DEHS, but does not have clear collection systems for collecting hard-to-recycle materials for the rest of the campus community, besides the once-a-year opportunity for students to bring in used electronics during the fall fair. While the campus might actually have well-managed collection systems for hard-to-recycle materials, there are very few clear and standardized bin or collection locations available for the hard-to-recycle materials generated within specific facilities. We recommend that UofL:

- Establish collection locations and a bin standardization guide for hard-to-recycle materials that provides clear standards for bin styles, shapes, colors, and signage designs.
- Develop a process for designating collection locations or distributing bins to collect the materials assessed in this section across campus. This process should include a plan for the logistics of collection and management of these materials if they have not already been established, and a strategy to communicate these programs to campus users.

SCOPE 2 - SOFT GOODS: FOOD, PLASTIC & COMPOST

MAP OUT INTERDEPARTMENTAL MATERIAL FLOW

Sustainable materials management for Scope 2 materials can be an extremely complex puzzle on campus that involves many different facilities. First and foremost, our goal is material reduction - what are the strategies the campus can take to effectively eliminate disposable materials from campus? This means looking at all possible opportunities to switch to reusable dishware and reusable to-go containers.

For all disposable products that are left on campus, we want to think about what steps we can take to effectively reduce contaminated streams by establishing a system that is standardized across campus, is simple to navigate, and reduces confusion. This means that **all disposable products should be switched to compostable wherever possible, all "recyclable" products should be free of food contamination, and all other single-use disposable products should be eliminated wherever possible.**

In both the reusable and compostable systems, campus-wide procurement policies could be enacted to ensure all food service outlets are in compliance, and campus-wide standards for collection bins should be followed in all facilities across campus to ensure the highest rate of successful material management.

An important first step to better understand this intricate system, identify gaps, and decrease the risk of contaminated streams is creating a material flow map for reusables and compostables. This outlines the movement of materials between departments and identifies stakeholders throughout the stages of purchasing, use, collection and logistics, and disposal. A simplified example of a system map for both reusable and compostable material streams can be found in the Methodology section.

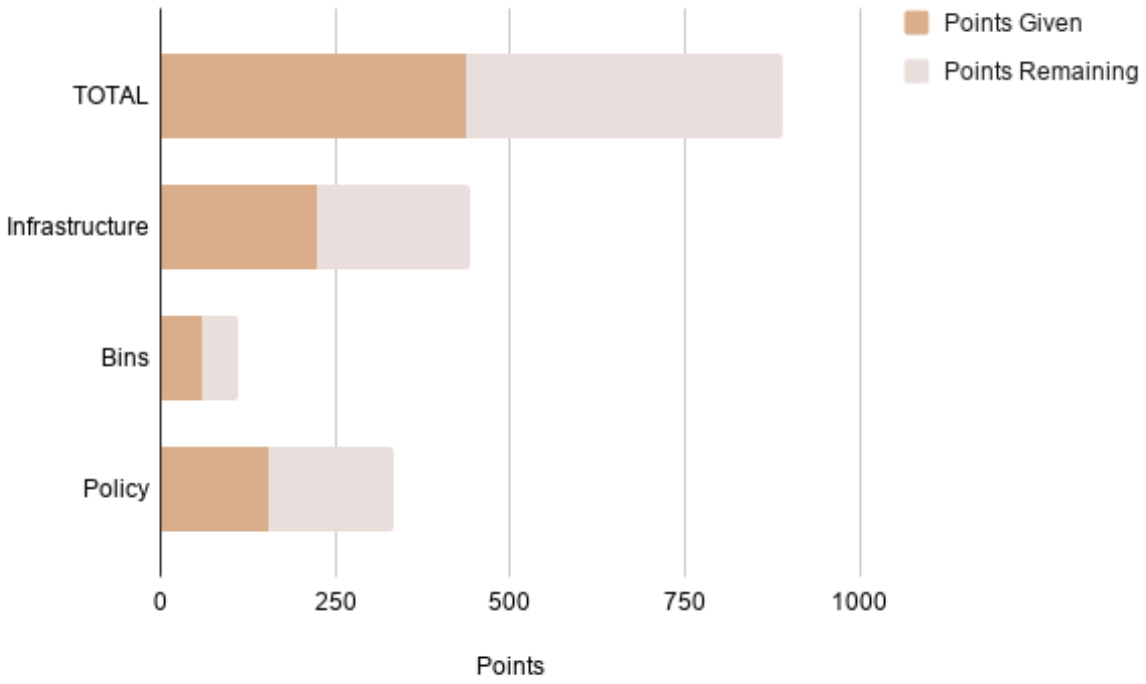
CAMPUS DINING FACILITIES & FOOD-SERVICE VENDORS

For the purposes of this report, we divided dining facilities and campus vendors into assessment categories based on management and the style of food service (dine-in vs. to-go).

Campus Dining Halls	"Unlimited" buffet style service in an enclosed setting	- Ville Grill
Restaurants	Enclosed locations with sit-down service	- University Club*
Chains	Chain locations that primarily serve food for take-out. May have some seating but most food is to-go. Each chain manages each location individually.	- Wendy's - Panda Express - Papa John's - Chick-fil-A - McAllister's - Subway - Einstein's Bagels - Twisted Taco - Starbucks (2)
Grab & Go Eateries	Locations that primarily serve food for take-out. May have some seating but most food is to-go.	- Olilo - Prime Grill - Aqua Sushi by Drakes - The Exchange
Convenience Stores	Primarily pre-packaged food	- Campus PODs
Athletics	Concessions stands within Athletics Facilities; also includes tailgates and traveling athletes	- Jim Patterson Baseball Stadium - Cardinal Stadium - Trager Stadium - Cardinal Park - Ulmer Stadium - L&N Federal Credit Union Arena - Ralph Wright Natatorium
Events	Food served outside of the above locations	- Aramark

*We were unable to reach a stakeholder from the University Club for this assessment; as a result, data from the University Club are not scored and are presented in italics in the assessment table in the following section.

SOFT GOODS: ASSESSMENT & RECOMMENDATIONS



SOFT GOODS INFRASTRUCTURE & PROGRAMS

I. Expand Reusable Dishware, To-Go Ware, and Access to Reusables

This section assesses the campus infrastructure and systems in place to eliminate disposables, namely increasing the availability of reusable dining ware and encouraging reusable container use. In this section, we look at the prevalence of reusable dishware and reusable to-go containers, the availability of campus dishwashers in various facilities, the availability of hydration stations on campus, and the prevalence of discounts for users who bring their own containers.

27.5/51.5	Reusable Dining Ware Provided
8/53	Reusable To-Go Container Program
11/16	Hydration Stations Available
2/10	BYO Discount or Program
+ 7.75	Additional Credit - Reusable Dishware, To-Go Ware, BYO

All recommendations made regarding reusable dishware and bulk bin programs may require further consideration in light of the ongoing COVID-19 pandemic.[1]

TABLE 3: REUSABLE DINING WARE INFRASTRUCTURE

Table 3: Reusable Dining Ware Infrastructure							
	Campus Dining Hall	University Club	Chains	Grab & Go	PODs	Athletics	Events
Dishwasher	Yes	*Yes*	Yes	Yes	N/A	Half yes	Yes
Reusable Dishes							
Plates	Yes	*Yes*	No	No	N/A	N/A	Half yes
Bowls	Yes	*Yes*	No	N/A	N/A	N/A	Yes
Utensils	Yes	*Yes*	No	No	N/A	N/A	Yes
Mugs/cups	Yes	*Yes*	No	No	N/A	N/A	Yes
Straws*	+0	*No*	+0	+0	N/A	N/A	N/A
Napkins*	+0	*No*	N/A	N/A	N/A	N/A	Yes
Reusable To-Go Ware							
Clamshell	Yes	*No*	No	No	No	+0	+0
Soup	No	*No*	N/A	N/A	N/A	+0	+0
Utensils	No	*No*	No	No	No	+0	+0.5
Mugs/cups	No	*No*	No	No	No	+0	+0
Containers for bulk items*	N/A	*N/A*	+0	+0	+0	+0	+0
Customers Allowed to BYO Containers	Half yes	*Yes*	Half yes	Half yes	No	No	No
Bring Your Own Discount							
Containers*	+0	*No*	+0	+0	+0	+0	+0
Mugs/cups*	+0.5	*N/A*	+0.25	+0.5	+0	+0	+0
Bags*	N/A	*No*	+0	+0	+0	+0	+0
Utensils*	N/A	*N/A*	+0	+0	+0	+0	+0
Containers for bulk items*	N/A	*N/A*	+0	+0	+0	+0	+0

*Additional Credit question - any awarded points will be added as unweighted extra credit to the final Scope 2 score.

[1]Refer to PLAN's Reusables and Sanitation Toolkit for guidance and best practices regarding reusable to-go ware and bulk bin programs during the COVID-19 pandemic.

Recommendations:

Reusable Dishes: The campus' Dining Hall and University Club provide reusable dishes and dishwashing capacity to handle the volume of dishes in this facility. The Grab & Go eateries and on-campus chains have access to dishwashing capacity, but do not offer any reusable dishes for dine-in customers. The PODs do not have access to a dishwasher nor do they offer reusable dining ware. Athletics has access to a dishwasher, but reusable dining ware is only offered for small private events; no reusable dining ware is available at concessions. Finally, event organizers may request reusable dining ware for catered events through Aramark.

In general, we recommend UofL consider transitioning to reusable dining ware as much as possible, especially in locations with already existing dishwashing capacity. To do this, we recommend exploring options to:

- Consider expanding the reusable to-do dishware program to the Grab & Go facilities and campus chains, and exclusively using this program to serve food.
- Require staff at all dining facilities with reusable and disposable options to ask customers if they want their food "for here" or "to-go" to minimize the unnecessary distribution of disposables.
- Consider expanding the to-go ware program to locations that do not have access to dishwashing facilities, such as Athletics and Convenience Stores.
- Consider expanding reusable dishware options and affordable offerings through on-campus catering and student-run events.

Reusable To-Go Ware: The University of Louisville offers reusable to-go containers exclusively in the Ville Grille, a campus eatery that caters primarily to underclassmen. The University of Louisville does not have reusable to-go ware options available at the University Club, Grab & Go's, Chains, PODs, or at Athletics facilities and campus events.

We recommend that the University of Louisville explore options to:

- Establish a reusable to-go ware program that is universally accepted at all dining locations across campus. This could involve expanding the Ville Grille program to all eateries, working with the Grab & Go's and PODs to offer pre-packaged food in reusable to-go ware, and reshuffling program management

so that the Ville Grille is not solely responsible for coordinating and providing staff labor for collection and distribution logistics, washing, and replacement of lost containers. Campuses have a wide variety of implementation strategies for reusable to-go ware initiatives, from barcoding containers to track their use and return, to either fining students for not returning them or identifying other creative methods to incentivize returns. Since many campuses struggle with container retention, it is worth exploring successful methodologies from other campuses for expansion/implementation.[2]

- Expand this program beyond the traditional clamshell container, to include reusable containers for soup/salads, beverages, and utensils.

Hydration Stations: Hydration stations allow students to refill reusable water bottles rather than buying beverages in disposable containers. The University of Louisville has hydration stations installed in most existing buildings on campus, although some older buildings have not yet been retrofitted. Hydration stations were accessible at the Ville Grille, Grab & Go's, Chains, 2 of the 3 PODs, and Athletics. We recommend the campus provide portable water bottle refill stations for outdoor events and Greek life events.

Bring-Your-Own Container: Customers are allowed to bring and use their own cups at the Ville Grill, but cannot bring their own containers for meals. During the ongoing COVID-19 crisis, we recommend relying on a campus-run reusable to-go ware program that can be controlled in terms of sanitation and handling. Under other circumstances, UofL could consider formalizing a BYO program as a campus-wide policy, and expanding it to allow students to bring their own containers to all dining locations, Athletics, and on-campus events.

Bulk Snack Bins: UofL does not offer snacks in bulk at any dining facilities on campus. We recommend UofL explore options for installing bulk snack bins in Grab & Go's, PODs, Athletics concessions, and at Events, along with expanding reusable to-go container options for bulk products in order to cut down on the number of pre-packaged snacks in non-recyclable, non-compostable packaging. This could be a great project for a student group and a Grab & Go location to pilot, with the intention of later expanding the program to be universal wherever applicable.

[2]Case studies of successful to-go ware programs can be found in PLAN's Program Case Library.

Additional Credit:

The University of Louisville earned a few additional credits in this section for offering a discount to customers who bring their own mugs and cups for beverages in the Dining Hall, Grab & Go locations, and some Chains. UofL could consider offering more bring-your-own discounts for customers that bring their own dishware or bags to various dining facilities and on-campus events, and offering reusable to-go containers at Athletics concessions and campus events. Finally, expanding bulk bin options around campus and accompanying reusable container options for those products would also earn UofL more additional credit points.[3]

II. Expand Capacity for Food Recovery and Food Waste Minimization to all Food-Service Facilities on Campus

This section assesses the campus' capacity to recover food, as well as reduce overall food waste via internal audits and external educational efforts.

24/35	Food Recovery Program
19/37	Food Waste Reduction Initiatives & Education
+ 0	Additional Credit - Food Recovery and Waste Minimization

TABLE 4: FOOD RECOVERY & FOOD WASTE REDUCTION PROGRAMS

Table 4: Food Recovery & Food Waste Reduction Programs

	Campus Dining Hall	University Club	Chains	Grab & Go	PODs	Athletics	Events
Food Recovery Program	Yes	*Unknown*	Yes	Yes	Yes	No	Yes
Food Waste Reduction							
Run audits	Yes	*Unknown*	Yes	Yes	Yes	No	Yes
Purchase gleaned	No	*Unknown*	No	No	No	N/A	N/A
Food waste education	Yes	*No*	No	No	No	No	N/A
Trayless dining	Yes	*N/A*	N/A	N/A	N/A	No	N/A

[3]Included are examples of successful, student-initiated programs at the University of California, Berkeley- they have run successful bulk snack bin programs in one of their dining-operated convenience stores and at another on-campus cafe.

Food Recovery Programs

The University of Louisville has an on-campus food pantry (Cardinal Food Pantry) for on-campus exchange of discarded but still safe-to-eat food. All retail-style dining eateries run a food recovery program, and the packaging used to transport recovered food is not usually reusable or compostable. Events and Athletics are working to donate all leftover food, and Greek housing does not donate leftover food.

We recommend the University of Louisville explore opportunities to:

- Expand the capacity of Aramark's food recovery program to be able to serve Athletics, Greek Life, and all catered events.
- Work with the University Club to expand food recovery efforts.
- Increase communication around the campus food pantry to ensure that is not an underutilized resource.
- Switch food packaging to reusable containers, trays, and pans that can be returned from on and off-campus donation partners for long-term reuse.

Food Waste Reduction Programs

All assessed dining facilities at the University of Louisville except for the University Club and Center Plate in Athletics run audits on food purchasing to examine food consumption habits and reduce food waste. In the past, Ville Grill tried to purchase gleaned products, but ran into issues with the vendor in terms of restructuring food purchased for the University; however, a new partnership with Creation Gardens may be able to accommodate a gleaning program. Besides Ville Grill, no other dining locations run food waste education programming, and all relevant facilities have gone tray-less.

We recommend that the University of Louisville explore opportunities to:

- Expand food waste audits to all facilities.
- Purchase gleaned foods as often as possible.
- Establish food waste education programs to regularly educate customers on the problems with food waste and the strategies to reduce it.

III. Expand Capacity of Compost Program and Eliminate All Single-Use Disposable Plastics

8/25	Composting Program
2.5/47	Compostable Dining Ware & Disposables
+ 0	Additional Credit - Compost

This section assesses the prevalence of compostable products at all food-service vendors on campus, the availability of compost collection and management at those same facilities, and the risk of contamination in the compost stream from the availability of non-compostable disposables. This assessment looks at each location as a holistic system, with the goal of reducing the risk of contamination in compost and recycling streams as much as possible. In many food-service facilities on campus, the majority of items are served in compostable products but serving a select few items in non-recyclable plastic packaging increases the risk of contamination. Full points are given to an assessment category only when it has full (100%) adoption; half points are awarded when a facility is still in the process of transitioning to fully compostable products.

TABLE 5: COMPOSTABLE MATERIALS

Table 5: Compostable Materials

	Campus Dining Hall	University Club	Chains	Grab & Go	PODs	Athletics	Events
Compostable Ware							
Plates/bowls	Yes	*N/A*	Half yes	Half yes	No	No	Yes
Hot bowls	Yes	*N/A*	N/A	N/A	N/A	Half yes	Yes
Utensils	Yes	*N/A*	No	No	No	No	Yes
Cups/mugs	Yes	*N/A*	No	Yes	Half yes	No	Yes
Straws	No	*No*	No	No	N/A	No	Half yes
Napkins	Yes	*Yes*	Yes	Yes	Yes	Yes	Yes
To-go ware	Yes	*Unknown*	N/A	N/A	No	No	NA
Miscellaneous packaged food items (e.g. sushi boxes)	No	*No*	No	No	No	No	Half yes
Single-use sauces, condiments, butters, etc.	Half yes	*No*	Half yes	No	No	No	No
Containers for bulk items	N/A	*N/A*	No	N/A	Half yes	N/A	Yes
Compost Program							
Back-of-house collection	Yes	*Yes*	Yes	Yes	Yes	Yes	Yes
Front-of-house collection	No	*No*	No	Yes	No	Yes	Yes
Food waste as feedstock for agriculture*	+0	*No*	+0	+0	+0	+0	+0

*Additional Credit question - any awarded points will be added as unweighted extra credit to the final Scope 2 score.

Assessment

The University of Louisville contracts WestRock Recycling to collect composting from campus eateries, Athletics, and Events and also runs an on-site community composting project for small-scale collection. All campus eateries have back-of-house compost collection, and with an increase in disposable dining ware usage during COVID-19, front-of-house collection is becoming available in some campus eateries. We recommend that the University of Louisville explore options to work with their haulers to ensure that their campus-wide system has the ability to process both food waste and compostable dining ware, as well as expand the availability of compost bins and collection across campus (see bins section below).

The University of Louisville offers compostable dining ware at varying levels of consistency in the Chains, Grab & Go's, PODs, and Athletics. As an example, coffee and tea cups at the PODs are compostable, but the lids are not, and the salad bowls and utensils that are distributed are also inconsistent in regards to whether they can be composted. In general, the lack of universal adoption of compostable products for all dining ware, miscellaneous packaged items, and sauce packets poses risks for the long-term viability of the compost program as a whole. Many compostable and disposable products look similar to the average customer, and therefore the higher the prevalence of non-recyclable, non-compostable products, the higher the risk of contamination in the composting streams.

Recommendations

We recommend that the University of Louisville explore options to:

- Standardize compostable products to all locations on campus by passing campus-wide procurement policies (see policy section below).
- Ensure that as many single-use products like snacks and condiments have been switched to bulk offerings (see policy section below) or can be served in reusable or compostable packaging.

Additional Credit:

Compostables: Additional credit in this section is awarded when specific disposable products are compostable, like gloves, hairnets, and aprons in campus dining facilities. UofL did not earn any additional credit in this section.

IV. Other Programs and Initiatives

This section covers a wide variety of mainly education and communications-based programs and practices, as well as student-facing programs and initiatives.

Education & Communication

12/27	Zero Waste Education & Communication
43.5/50	Recycling & Reuse
28.5/74	Paper Reduction Initatives
12/12	Student Programs & Initiatives
+ 31.5	Additional Credit - Education, Recycling & Reduction

Waste reduction practices and education are covered during housekeeping/ custodial and staff training, and freshmen orientation has included education for incoming students on sustainability topics, including waste reduction, since 2011. Greek life chapters do not have sustainability officers responsible for zero waste programming and education. The UofL Recycling website provides a good amount of information in terms of reuse opportunities and where to dispose of specific items; however, it is difficult to tell how widely used this resource is. In terms of academic curriculum, there do not seem to be any courses focused specifically on zero waste; UofL could consider expanding academic curriculum to cover topics relating to waste and highlighting its intersections with other topics such as environmental justice. We also recommend continually assessing the relative effectiveness of the freshman orientation in terms of educating students as the University implements new policies, programs, and practices covered in this report.

Additional Credit:

The University of Louisville received a number of additional credits in this section. Points were awarded for staff who regularly communicate with custodial services in their buildings, and for communication with the campus' waste hauler prioritizing cost savings and reducing waste and contamination rates.

The campus earned additional credits for the engagement of students around waste reduction through speakers, residence hall competitions (RecycleMania and Ecolympics). Additional points could have been achieved by establishing a more formalized program for "bin goalies" or "trash talkers" at Athletics events and other outdoor events - where individuals are placed near waste collection stations to help people sort their waste appropriately.[4] UofL also earned points for growing food that is used in campus dining services.

Recycling & Reuse

The campus's hauler accepts all typical recyclables in single-stream recycling. Cardboard boxes are often reused in the various dining facilities, and recycled by all facilities. Single serve drinks are only recyclable, not compostable, in all locations.

TABLE 6: PAPER RECEIPT ELIMINATION

Table 6: Paper Receipt Elimination							
	Campus Dining Hall	University Club	Chains	Grab & Go	PODs	Athletics	Bookstore
Transitioned from paper receipts to electronic	No	*Unknown*	No	No	No	Half yes	No
Can turn off paper receipts	Half yes	*Unknown*	No	No	Half yes	Yes	Half yes

Paper Reduction

A few programs are in place at UofL to systematically reduce paper consumption, such as transitioning to hand dryers in all new buildings, prioritizing electronic readings, ensuring that all printers are set up with a print-release function, and moving to paperless programming in performing arts facilities. UofL could further explore programs and policies that reduce paper, such as:

- Encouraging the reduction of paper receipts as standard practice, whether by turning off paper receipts at each location for customers who do not want them, or transitioning completely to electronic receipts.
- Limiting paper programming for marketing purposes, orientation, Greek Life, and other events.
- Encouraging e-signatures and digital forms over printed versions.
- Requiring professors to post course packets and other class materials online and only providing printed versions upon request.

[4] Carleton College incentivizes students to work as "trash talkers" by reimbursing their student organization or sports team for their time.

Student Programs & Initiatives

UofL earned all possible points for student-led initiatives and involvement. Numerous student organizations exist on campus that advocate for the campus to become more sustainable, with waste reduction falling under their topics of focus. The Sustainability Council includes both students, faculty, and staff, and UofL offers compensated opportunities for students to engage in zero waste work - this assessment was conducted by two UofL Zero Waste Interns! There is also a donor-funded Green Fund for UofL that allows the Sustainability Council to financially support small-scale student sustainability initiatives on an ad hoc basis.

Greek Life

20 buildings and suites fall under Greek Life, with suites managed by Residence Life and all houses managed by external housing corporation boards made up of alumni from those organizations. Greek Life earned 17 of 60 total points possible in this assessment. As a whole, Greek Life lacked guidelines and systems for minimizing waste, institutionalized positions and programming related to sustainability education within chapters, and food service systems that eliminated single-use disposable plastics. As a core component of campus life, we recommend that the Fraternity and Sorority councils/conferences act to more strongly incorporate environmental stewardship throughout their member chapters, by creating positions for a sustainability officer in each chapter, and by outlining guidelines and policies for recruitment and events that focus on waste reduction and sustainability education to be followed by all chapters.

CAMPUS-WIDE SOFT GOODS POLICIES, PLANS & GUIDES

I. Establish Soft Goods Policies

In this section we assess the existence of a variety of procurement policies related to soft goods management including the types of products purchased, requirements, or standard operating procedures for staff to use those policies, as well as the existence of zero waste guidelines.

68.5/152	Adherence to Campus Procurement Policies
61/127	Policies that Favor Bulk Products Over Single-Use
+ 2	Additional Credit - Scope 2: Soft Goods Policies

TABLE 7: PROCUREMENT POLICIES

Table 7: Procurement Policies

Procurement Policies	Campus Dining Hall	University Club	Chains	Grab & Go	PODs	Athletics	Events
Vendor required to comply with campus procurement policies	Yes	*Unknown*	No	No	Yes	Half yes	Yes
Reusable gloves/aprons/hairnets	Half yes	*Yes*	Half yes	Half yes	Half yes	Half yes	N/A
Recyclable/compostable gloves/aprons/hairnets*	+0	*No*	+0	+0.5	+0	+0	N/A
Eliminated plastic bags	N/A	*Unknown*	No	No	No	Yes	N/A
Eliminated sales of bottled water	N/A	*Unknown*	No	No	No	No	No
Bulk Procurement							
Eliminated unnecessarily wrapped single-serve items	No	*No*	No	No	No	No	Yes
Snacks and sides in bulk	No	*Yes*	No	No	No	No	Half yes
Beverages in bulk dispensers	Half yes	*Yes*	Yes	Yes	Half yes	Half yes	Yes
Eliminated K-Cups and plastic-wrapped tea bags	No	*Unknown*	Yes	Yes	Yes	N/A	Yes

*Additional Credit question - any awarded points will be added as unweighted extra credit to the final Scope 2 score.

Assessment & Recommendations

The University of Louisville's Green Purchasing Policy includes a number of sustainable procurement policies for cleaning products, electronics, and office supplies that apply to the entire campus, but very few when it comes to dining-related purchases, such as policy limiting single-use packaging and dining ware. As can be seen in Table 7, some food service vendors said they complied with campus procurement policies, while others did not; this seemed to vary depending on management. Most stakeholders interviewed for this assessment require their staff to follow campus-wide procurement policies, but communication of the Green Purchasing Policy in particular appears weak. For example, the stakeholder who was interviewed on electronics purchasing said that they require their department to follow university purchasing policies, but did not seem to be aware that the Green Purchasing Policy lists particular preferences for sustainable electronics purchasing. Janitorial services have some policies and practices around purchasing certified green cleaning products, and paper products are Green Seal or Eco Logo-certified.

General Sustainable Procurement Policies

UofL encourages vendors and contractors to prefer environmentally friendly products and services, but these preferences could be more established and more widely communicated to the general campus population as well as third parties. We recommend that the University enact a policy or policies that apply to all campus departments and vendors that state preferences for:

- Reusable, repairable, and refillable products over single-use products
- Packaging made from compostable materials or post-consumer recycled content
- Products made from compostable materials or post-consumer recycled content
- Paper made from post-consumer recycled, agricultural residue, or FSC certified content
- A restriction on disposable swag, in favor of products that are durable, reusable etc. (while suggestions are communicated for certain events, no formal guideline or policy exists)
- A restriction/guideline on plastic shopping bags
- A restriction/guideline on expanded polystyrene (i.e. Styrofoam) products

Not all of these apply to the same campus departments so standards could be taken on at an institution-wide or department specific scale.

Policies that Prefer Bulk Purchase over Single-Use Products

A little over half of the stakeholders interviewed for this assessment require their staff to purchase products in bulk whenever possible, mostly for cost saving reasons. To reduce disposable packaging and the life cycle impacts of shipping multiple orders, UofL should explore enacting policies that require this of all staff and implement more centralized purchasing practices between similar facilities. UofL could also explore purchasing policies that apply to all food-service facilities and vendors that:

- Favor bulk items over unnecessarily wrapped single-serve items (napkins, oyster crackers, individually wrapped fresh baked goods, mints, toothpicks, etc.)
- Favor snacks and side dishes in bulk rather than individually packaged
- Favor beverages in bulk dispensers rather than individually packaged (soda, juice, milk, coffee, K-cups, etc.)
- Favor bulk dispensers for all sauces, condiments, creamers, sugars, salt, pepper, butter, peanut butter, and jellies rather than individually wrapped products[5]

UofL could also explore how these policies will apply to other areas of campus including classrooms, housing, art studios, etc.

Additional Credit

Additional credits are awarded for special bulk programs on campus. In this case, UofL was awarded one extra credit for offering bulk toiletry dispensers in the locker rooms of Athletics facilities. Additional credits could also be awarded here for a similar program in bathrooms of residence halls.

[5]For a more comprehensive list of single-use products that we suggest phasing out, please refer to PLAN's Break Free From Plastic campus pledge.

II. Zero Waste Plans, Policies, and Events Guides

3/20 Zero Waste Guides & Plans

UofL has a recycling plan laid out in its 2010 Climate Action Plan, but does not have guidelines for zero waste events or zero waste athletics. In general, we recommend the University of Louisville establish an updated campus-wide zero waste strategic vision. To accomplish this, we recommend establishing a zero waste task force made up of many of the stakeholders interviewed in this report who would be tasked with analyzing this report, identifying gaps, and developing idealized versions of the system flow charts detailed in the Methodology section. The projects identified in the system flow charts may require establishing new campus infrastructure and systems, as well as policies and standard operating procedures that may differ from the way materials are currently managed at the University of Louisville. They may also require looking into organizational restructuring to reallocate and redefine program management and responsibilities. Climate Action Plans are generally high-level campus guidance documents, and revisions and updates may require decisions around management and costs in order for them to be operationalized. For this process to be successful, it is important to work collaboratively with all stakeholders to build a vision for how these new initiatives will be managed in the future, and then go through the process of "backcasting" from there to identify what resources would be required to achieve these goals.

This backcasting would lay the groundwork for a strategic plan. From there, we recommend UofL develop timelines and goals, and identify what the campus capacity is for investing in the various initiatives detailed in the plan. As these initiatives advance, we recommend the University of Louisville consider establishing specific guidelines for campus departments on how to host zero waste events, practice sustainable procurement, and otherwise institutionalize elements of the campus-wide strategic plan in their daily operations.

UofL doesn't have a set of formal guidelines for hosting zero waste events; however, it seems that they are communicated to an extent. The campus hosts some zero waste events with the help of the Aramark Sustainability Coordinator; otherwise, the event organizer is in charge of waste management. We recommend the University develops a campus-wide guide for zero waste events, which could include procedures for transporting compost bins to and from the event, having proper signage at events, and creating a volunteer waste monitoring program event staff, since the waste streams from outdoor and sporting events are always found to be very contaminated. We recommend that event procurement follow existing and recommended sustainable purchasing policies and event waste collection follow campus bin standardization guidelines. We also recommend exploring options to make mobile/temporary outdoor standardized collection stations in line with indoor collection stations (i.e. color, signage, order of arrangement) to limit confusion.[6]

III. Accessibility Policy

4/6 Accessibility Policy

We assess plastic straw accessibility in the policy section because it is imperative that straws are still available for those who need straws for accessibility reasons. Plastic straws are distributed at most campus eateries, excepting the PODs and Athletics. Thus, we recommend UofL add language on accessibility to sustainable purchasing policies.[7]

[6]See PLAN's Zero Waste Events guide for inspiration.
[7]Refer to PLAN's Break Free from Plastic campus pledge for sample language.

SOFT GOODS BIN & SIGNAGE STANDARDIZATION

I. Standardize Collection Systems, 3-Bin Systems, Eliminate Unpaired Bins, and Establish Liquid Collection

In this section we assess the existence of standardized collection stations (including compost collection) in all areas of campus, as well as ensuring that no standalone or "unpaired" bins exist on campus. We also recommend exploring the benefits of establishing additional collection bins for liquids and to-go ware.

65.5/108	Bin Standardization
2/9	Collection Locations for To-Go Ware
+ 0.5	Additional Credit - Liquid Collection

Assessment

Over half of interviewed stakeholders reported that they have access to recycling and trash bins somewhere in their building, but that the appearance and signage of bins are not always consistent. A third of the stakeholders interviewed reported that trash and recycling bins are paired together, with most reporting locations with standalone trash bins. Few locations across campus collect food waste outside of food service facilities.

Bin Standardization

We recommend creating and developing a plan to implement campus-wide standards for all types of bins and signage - including formal guidelines for bin appearance (i.e. shape, color), signage, and accessibility. Infrastructure change is a prerequisite to achieving systemic behavior changes - to see universal adoption of sustainable material management behaviors, infrastructure has to be clear, consistent, and uniformly accessible in all locations. Standardized collection stations greatly increase diversion rates, decrease contamination rates, and are the first foundational step to setting up education and communication initiatives that have high likelihoods of success. Clearly communicated standards for bins and signage will ensure uniformity across campus and decrease confusion and resulting contamination of waste streams.

These standards could be developed and clearly communicated by Facilities and Grounds in a style guide that outlines what type and color of bin should be used across campus for each waste stream, as well as specific signage that outlines what can be disposed of in each stream. The guide could also specify where bins are located, the types of bins that are used in different facilities and for on-campus events and Athletics, and guidelines like eliminating "standalone" or "unpaired" bins around campus and ensuring that landfill, recycling, compost, and liquids (where applicable) streams are always found side-by-side, in the same order.[8]

As compost collection expands across campus, large compost bins could be placed next to small landfill bins in bathrooms and other areas with high volumes of paper towel waste, marked with highly specific signage.

Expanding Compost

As mentioned in a previous section, expansion of UofL's compost program beyond collection in dining locations should occur in tandem with a decision to go full-scale compostable. While adding a composting stream to most buildings could take advantage of existing custodial workflows, labor and infrastructure may need to be reviewed if the University decides to expand collection.

[8] Example from the University of Michigan.

Additional Credit

Liquids Collection: To make compost collection more efficient and disposal less expensive, liquids could be collected separately from the rest of the organics stream to reduce the weight of the compost. As can be seen in the University of Southern Maine's case study shared as a footnote, separating liquid collection is a more efficient and cost effective method of material management because it reduces the weight of the compost, reduces the cost of managing spills and clean-up, and reduces the labor costs in the aforementioned efforts.[9]

Expand To-Go Ware Program Collection Locations

The University of Louisville's reusable to-go ware program is only available in the Ville Grill. As mentioned above in the reusable to-go ware section, we recommend that the University of Louisville expand the existing program to all food service locations, as well as the number of collection points.[10]

	Campus Dining Hall	University Club	Chains	Grab & Go	PODs	Athletics	Events	Res Halls	Library	Admin Offices & Classrooms
To-go ware collection	No	*No*	No	No	No	Half yes	No	No	No	No

[9]See page 18 in University of Southern Maine's Waste Minimization & Recycling Overview for an example of liquids collection.
[10]Check out our Reusable Dishware on Campus During COVID-19 article on reusable to-go ware container programs during COVID.

CONCLUSION

The recommendations outlined above are just the beginning in a multi-stage zero waste planning process. We have provided recommendations based on best practices from campuses across the country, but the next step in zero waste planning is to identify the feasibility of these recommendations at the University and to strategize with PLAN's Atlas team to vision and develop a Zero Waste Task Force and subsequent Zero Waste Roadmap specific to UofL. We encourage the campus to develop a goal that incorporates quantitative measurements like aversion, reduction, and diversion, as well as qualitative goals to develop campus-wide service models for sustainable materials management and program areas such as engagement and education. For the University of Louisville to achieve zero waste, there will need to be financial support behind campus-wide infrastructure changes and administrative support for campus-level policies. The University should utilize this report as a wayfinding tool to benchmark and track progress on the remaining opportunities for waste reduction.

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