



Masters of the Environment  
University of Colorado **Boulder**

Collegiate Zero Waste

# PLAYBOOK

A resource for collegiate sports teams, leagues,  
and venues to improve their waste diversion.



# AUTHORS



Lizzy Anast

Prepared by the Green Sports Alliance and the University of Colorado Masters of the Environment program, this Collegiate Zero Waste Playbook provides a resource for collegiate sports teams, leagues and venues to improve their diversion rates.

The Green Sports Alliance leverages the cultural and market influence of sports to promote healthy, sustainable communities where people live and play. The Alliance inspires professional sports leagues, sports governing bodies, colleges, teams, venues, their partners and millions of fans to embrace renewable energy, healthy food, recycling, water efficiency, safer chemicals and other environmentally preferable practices. Visit [greensportsalliance.org](http://greensportsalliance.org) for more information.



Eliza Mullen

The Masters of the Environment (MENV) Graduate Program at the University of Colorado Boulder is an innovative, interdisciplinary professional master's degree that equips students with the knowledge, skills, and experience necessary to address the complex environmental challenges of the 21st Century. This 17-month, immersive, cohort-based graduate program builds students into leaders in a wide range of careers in conservation, consulting, energy, natural resources, planning, policy, sustainability, and more.



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# INTRODUCTION

The United States produces 30% of the planet's waste while only contributing 4% to the overall world population[1]. In 2017 alone, the United States produced 267.8 million tons of municipal solid waste (MSW)[2]. MSW includes any and all waste created by homes, businesses, and institutions. Universities, stadiums, arenas, and other event centers are institutions creating the largest portion of MSW.

While the actual statistics for total waste created by these institutions is not available except on a granular level, it is still possible to estimate their impact. During the 2018-2019 National Collegiate Athletic Association (NCAA) football season, over 46 million fans attended games in person[3]. Assuming the average person produces 4.51 pounds of municipal waste per day (as the Environmental Protection Agency has calculated[4]), one NCAA football season has the potential to produce up to 207,460,000 pounds of waste, which is more than 926,000 NFL football players (weighing in on average at 224 pounds[5]). This is precisely why creating strong zero waste programs within collegiate athletics can have an enormous impact.

College athletics are situated in a unique position, in which governance is incredibly complex and spans across an entire campus. The decision-making process tends to take longer and needs input from various entities and departments. This playbook focuses specifically on college sports because of these unique challenges. Additionally, sport has the opportunity to be a catalyst for positive change in terms of waste diversion. Millions of fans attend college football games every year, creating an opportunity to teach fans and students the importance of waste diversion.

Mike Kensler, the Sustainability Director at Auburn University, reinforced the idea, stating,

***“according to the Green Sports Alliance, 17% of the world's population follows science but about 80% follow sports one way or the other. So, sport has the opportunity and responsibility to lead the way here.”***

[1] Bradford, Trash in America, Moving From Destructive Consumption to a Zero-Waste System, 2018

[2] Tiseo, U.S. Municipal Solid Waste Generation 1960-2017, 2020

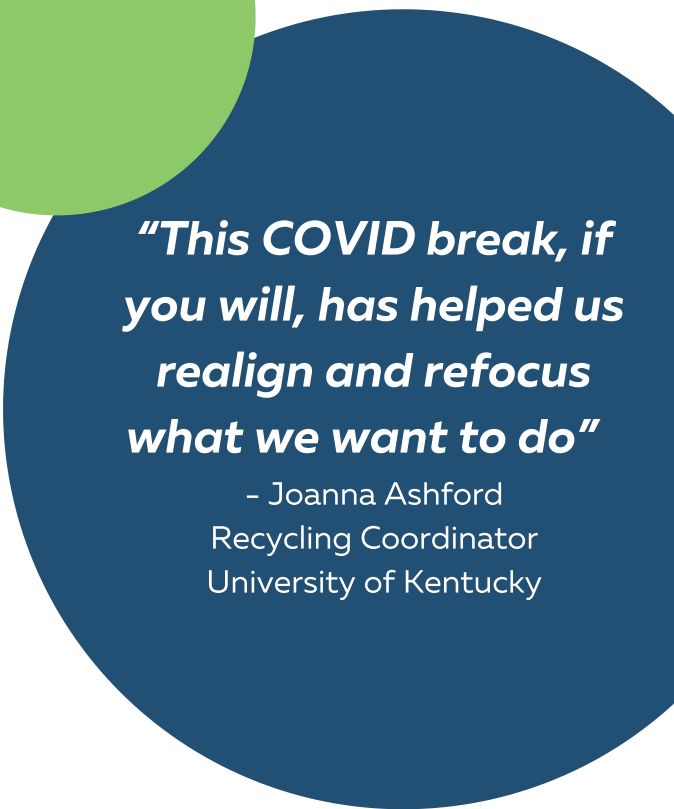
[3] Foundation, 2018-19 Report: Amazing College Football Popularity Highlighted by Impressive Ratings and Attendance Data, 2019

[4] EPA, National Overview: Facts and Figures on Materials, Wastes and Recycling

[5] NFL, Evolution of the NFL PlayerReview for passive voiceespecially within quesitonls it that these are the biggest institutions that contribute or the biggest contributors overall?



Collegiate sports have been uprooted by the impacts of COVID-19. Seasons were cancelled or shortened, athletes were not allowed on campus, many fans lost the opportunity to attend games, and athletic departments were pushed into unforeseen territory. While this has created incredible challenges, it also provides an opportunity for universities to embrace change. With changes already happening, now is a great time to focus on and implement waste diversion initiatives.



***“This COVID break, if you will, has helped us realign and refocus what we want to do”***

- Joanna Ashford  
Recycling Coordinator  
University of Kentucky

## What is Zero Waste?

## Why does it matter in Sports?

The Zero Waste International Alliance (ZWIA) defines zero waste as “the conservation of all resources by means of responsible production, consumption, reuse, and recovery of products, packaging, and materials without burning and with no discharges to land, water, or air that threaten the environment or human health.”[6] To help organizations understand zero waste and measure their progress, the ZWIA has created a set of business principles that identify indicators of success and present goals for organizations to strive towards.

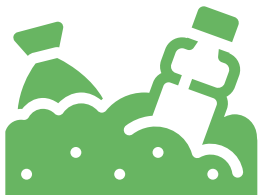


[6] ZWIA, Zero Waste Definition, 2018

**Why care about zero waste?** America tends to have a linear based economy, in which materials are produced, used, and disposed of. The disposal of materials in the United States has significant environmental and public health implications. The process of extracting resources, producing goods, disposing of waste, and transporting goods at every stage of the process is responsible for 42% of all U.S. greenhouse gas emissions[1]. There is also a plethora of other externalities to waste disposal:

## AIR POLLUTION

Incinerator emissions include contaminants such as mercury and dioxin. These contaminants can build up in the body over time and cause reproductive, hormonal, and development problems, as well as weaken the immune system[8].



## WASTED NATURAL RESOURCES

387 million trees were needed to produce the amount of paper that was landfilled or burned in 2014.

## WATER CONTAMINATION

Waste breaks down in landfills and creates a highly toxic liquid. This liquid can leach into the environment or leak into the water table. This creates unsafe and contaminated drinking water for humans and animals living close to landfills.

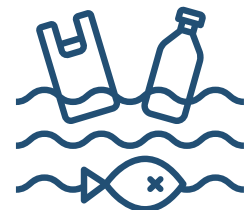


## HABITAT DESTRUCTION

Material consumption creates a constant need for materials as well as more places to dump these materials.

## OCEAN POLLUTION

In 2010 alone, 8 million tons of plastic ended up in the ocean. This is a threat to marine biodiversity, as plastic kills marine animals by entangling them, poisoning them, or blocking their digestive tracts.

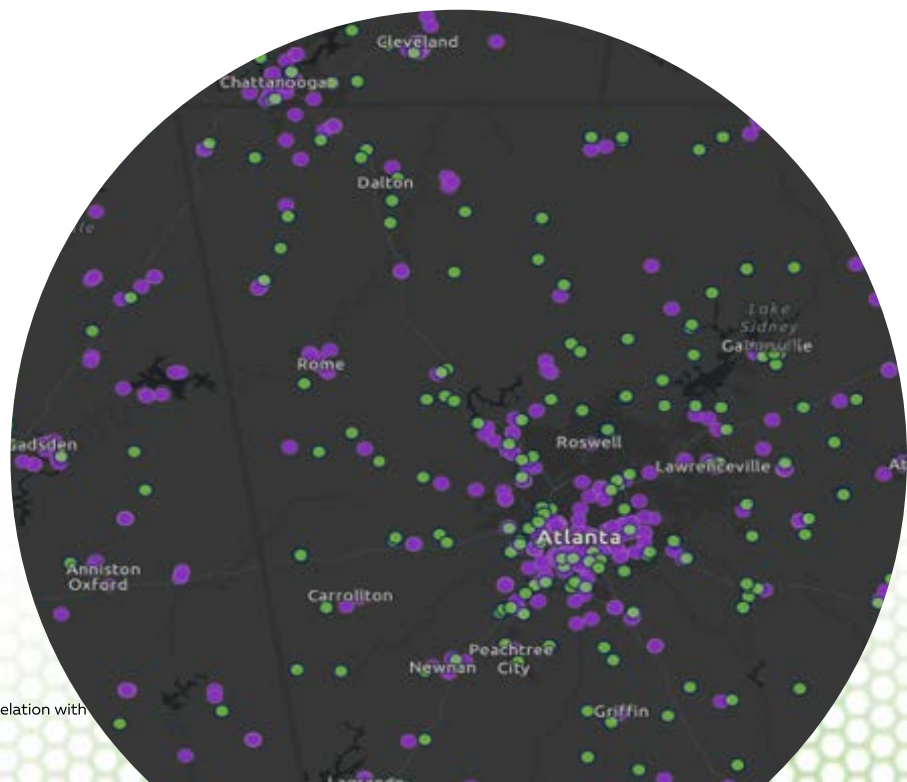


## Waste and Communities

Although waste impacts all of our lives, it disproportionately affects minority and low-income communities. Studies dating back to the 1980s show that landfills and other hazardous waste sites are primarily placed in minority neighborhoods[9]. Furthermore, 70% of the most polluted sites in the United States are located within one mile of federally assisted housing[10]. For reference, housing assistance is a federal program that caps rent costs for low-income individuals in designated communities. The individual pays 30% of their income towards rent, while the government pays the remaining balance.

Below are maps showing the connection between low income housing and the presence of municipal waste facilities (MWF) in Los Angeles, Chicago, and Atlanta. As you can see, there appears to be a correlation in which the majority of MWF are located close to low-income housing.

**Purple indicates low-income housing**  
**Green indicates landfill and other municipal waste facilities**



The placement of waste facilities near low-income and minority neighborhoods is not by happenstance. These neighborhoods often have limited resources, political clout, and finances, and thus struggle to stop or contest construction of such facilities. Nor are the locations of MWP's a historical artifact; today, communities continue to be polluted every time waste is sent to landfills.

The ongoing pollution and social impacts of waste disposal display how crucial it is for organizations and individuals to focus on zero waste goals. Universities and athletic programs have a choice in where their materials go and therefore an opportunity to make meaningful change that will improve people's lives.

## Leveraging Sports for Social Change

Collegiate games are at the heart of university social life. Fan experiences create long-lasting memories for students and alumni alike. These unique experiences make collegiate athletics an ideal place to promote zero waste and encourage environmentally responsible actions.

For years, professional sports have been a reflection and facilitator of social change with regards to environmental issues, and collegiate level athletics are no different[11]. Sports have the opportunity to influence behavior change within their fan population thanks in part to fan identification, which is an individual's commitment and emotional attachment to a specific sport organization or team. The personal attachment can be pronounced to such an extent that fans identify themselves as part of the team and feel connected to a sport organization's brand, players, coaches, facilities, logos, traditions, and even language[12]. This firmly embedded identification gives sport organizations and teams the power to influence their fans. With that power comes the responsibility to influence in a positive and beneficial way; which in this case, can be the promotion of more sustainable behaviors. Through enacting sustainable actions within facilities and traditions, prioritizing environmental responsibility, and making impact reduction a part of their mission, sport organizations encourage fans to respond in kind.

Additionally, the powerful influence of sports has the capacity to reach and engage a much broader population of individuals in environmental actions. Sports transcend political parties and other contentious issues, creating a sense of community. Sports bring people together from all different walks of life, uniting them in support of the same team on the field, and potentially, the same environmental and zero waste goals.

[11] McCullough, Pfahl, & Nguyen, The green waves of environmental sustainability in sport, 2015

[12] McCullough & Kellison, Go Green for the Home Team: Sense of Place and Environmental Sustainability in Sport, 2016

## Purpose of the Playbook

In collaboration with the Green Sports Alliance, two graduate students from the University of Colorado Boulder Masters of the Environment program created a document to cumulate the experiences and practices of zero waste programs from universities across the United States. For more detailed information on how this playbook was created, see *Appendix I. Playbook Development and Methodology*.

The playbook was created to;

- 1) Highlight unique and innovative ways universities are increasing waste diversion;**
- 2) Provide information on best practices and common themes;**
- 3) Inspire the continued development of new ideas.**

The playbook will not prescribe a one-size-fits-all solution to zero waste, as every university has a unique set of challenges and circumstances. After talking with stakeholders all around the United States, it became clear that successful programs at one university will not necessarily work at another.

The intended audience for this playbook is any university attempting to increase diversion rates. Universities can range from low levels of diversion to a full zero waste stadium. No matter where a university is on the road to zero waste, this playbook will provide creative ideas, solutions, and resources.

UNIVERSITIES ACROSS THE UNITED STATES INTERVIEWED TO  
CONTRIBUTE TO THE PLAYBOOK





# Section 1.

# MAKING A GAME PLAN

Just like any successful play in a game, identifying your key players and plan of action is a great place to start when developing a successful zero waste program. This section will highlight ways to identify key players, get them working together, and create a winning zero waste team. Successful zero waste programs take years to develop and involve multiple university departments. For those just starting the process, it will take time. The best thing to do is to build a community of individuals within all departments who are passionate enough to work towards change.

## Cultivating a Team

The path to zero waste is not one that can be taken alone – it takes passion, collaboration, and university departments working together towards a common goal. Universities vary in organization and structure. Some have departments that are siloed and independent from one another, while others work collaboratively across departments. Based on the interviews conducted, universities with siloed structures typically have a harder time getting multiple departments to the table. If presented the challenge of getting stakeholders on board, the best place to start is a baseline assessment. The following questions are not an exhaustive list, but they should provide direction as to who needs to be involved in initial conversations.

Here are what some universities said about getting stakeholders involved:

*“It is key to really think of who your key stakeholders will be, and who may play a part in your diversion efforts. Once you have those folks in mind it is a matter of getting those individuals on board and establishing a reasonable timeline and goals for the program. While strict planning is key, you want to remain flexible, making sure you are ready to make necessary improvements and adjustments as potential obstacles and developments arise.”*

– Joshua Sierra, Sustainability Specialist-  
Office of Sustainability, USC

*“One thing I like to talk to people about is that your approach needs to be specific to your own organization. ... Each college athletic space is a little different, ours is super relational. Working directly in athletics allows us to have daily relational interactions with the other staff. We’ve got trust and relationships with everyone from Gene Smith (Senior Vice President & Wolfe Foundation Endowed Athletics Director), all the way down to the boots on the ground that are making things happen every day. Having that trust with them really allows things to keep moving forward. You just got to know what the system is and try to match it versus not.”*

– Graham Oberly, former Sustainability Coordinator,  
The Ohio State University Department of Athletics

## Questions to Consider in a Baseline Assessment:

### Waste Stream

- At your university, what percentage of the waste stream is landfill, recycling, and compost?
  - Is there recycling on campus? If so, where?
  - Is there compost on campus? If so, where?
  - What university departments are in charge of waste management and disposal?
- Do you have a separate waste hauler, if so, who is it?

- Does your university have a sustainability mindset?
- Are students actively participating in sustainability around campus?
- Do student athletes engage with sustainability efforts?

### Campus Culture

### Sustainability

- Does your university have a sustainability department?
  - Is it an independent department or is it housed under another department?
- Are there student clubs or organizations focused on sustainability?
- Is your university a land grant school?
  - Does the agricultural department have composting capabilities?

- Who is your stadium food service vendor?
  - When is the concessionaire contract up for negotiation?
  - Does the stadium currently source compostable or recyclable products?
- What do the waste bin systems currently look like within the stadium?
- Who is in charge of operations within the athletic department?
- Who owns the sports venues?
- Does the athletics department have collaborative relationships with other university departments? i.e. is there an easy opportunity to work together?

### Athletics



## Starting the Dialogue

Conversations surrounding sustainability initiatives, like zero waste, can be a challenge depending on the current culture of a university and the stakeholders involved. At this stage of the process, the main goal is to seek out people across the university who could become collaborators and allies for zero waste. These are busy professionals who are juggling many responsibilities, and it may take time to figure out who to talk to and how to work together. Some stakeholders may be reluctant to make changes within their own departments and individual work. Be prepared for this work to take time. It's not going to be an easy process – **persistence is key**.

When starting a conversation with athletics, Shane Stennes, the Director of Sustainability at the University of Minnesota went to the athletics department saying,

*"I don't know anything about your business, I don't know how you run, I don't know what's important to you, I just want to learn. I'm not here to pitch anything, I'm not here to sell you anything, I'm not here to convince you that you need to do XYZ. I just want to understand what you do better because it's interesting and there could be a potential for collaboration in the future."*

Stakeholders are more likely to engage when collaboration efforts come from a place of joint interests and relationship building, rather than demanding change.

***"You have to be patient if you're going to do this. If you're going to change a culture in whatever way you need to change it, you have to have tenacity because people are going to be pushing you down and telling you no left and right."***

- Lauren Lichterman, former Sustainability Coordinator, University of Texas Athletics

***"It takes people that are passionate and build relationships anyway. I think that's something that most people in athletics have already – that relationship building part of their personality. So, I think that's one of the biggest tools we have to accomplish things."***

-Karen Baebler, University of Washington

***"All of this sustainability work, in my opinion, is about relationships, it's about creating relationships so then you can collaborate about what you want to do together"***

- Mike Kensler, Sustainability Director, Auburn



## Collaborating

Once foundational relationships with other departments are built, it's time to start shaping a program. The most successful zero waste programs have consistent and effective collaboration amongst university departments, in which each department recognizes exactly where it fits into the zero waste picture. Collaboration, in some form or another, was ubiquitous throughout the interviews which highlights its fundamental importance.

Some universities found that creating interdepartmental committees or councils focused on sustainability was an excellent way to encourage problem solving through collaboration and shared resources. Individuals working towards sustainability can reach out to other departments and determine interest in creating a committee or council. A small council is still capable of creating change, and the opportunity for growth is endless.

### **Clemson University Solid Green Committee**

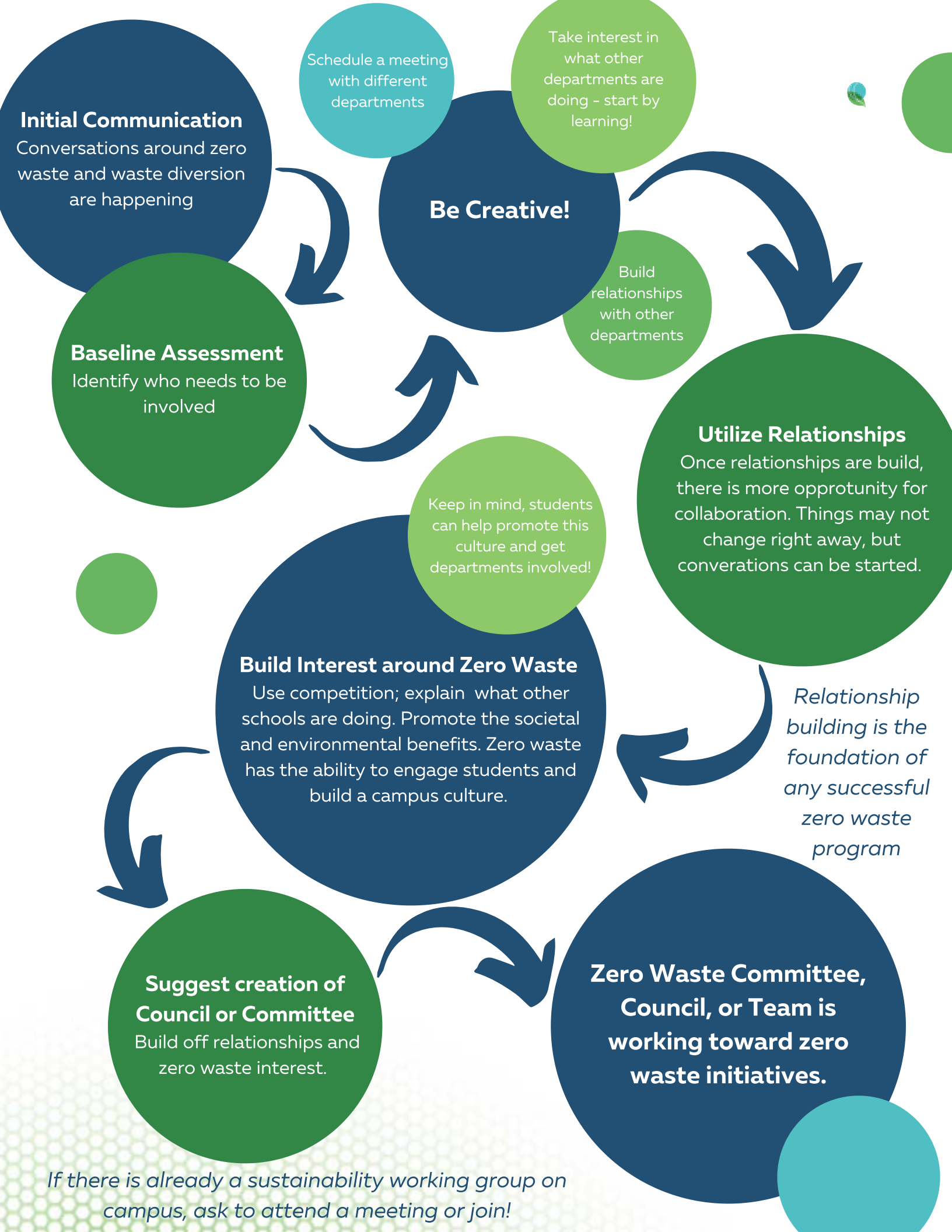
Departments throughout Clemson meet monthly as part of the Solid Green Committee. Employees from facilities, athletics, housing, and all other university departments are able to discuss sustainability goals and build strong relationships. When an opportunity for collaborations presents itself, it is easy for departments to work together and share resources.

*"We really do make an effort to collaborate, because the only way that we can get things done is to work as a unified Clemson."*

- Brittany Morra, Recycling Coordinator, Clemson

### **North Carolina State Sustainability Council**

North Carolina State University has a sustainability council that serves as the advisory committee to the Provost and the Vice Chancellor for Finance and Administration on sustainability. They are also responsible for developing, overseeing, and implementing the Sustainability Strategic Plan for 2017-2022. This council makes it much easier, and in fact encourages departments, to work together towards the common goal of sustainability.



**Initial Communication**

Conversations around zero waste and waste diversion are happening

Schedule a meeting with different departments

Take interest in what other departments are doing - start by learning!

**Be Creative!**

Build relationships with other departments

**Baseline Assessment**

Identify who needs to be involved

**Utilize Relationships**

Once relationships are build, there is more opprotunity for collaboration. Things may not change right away, but coneverations can be started.

Keep in mind, students can help promote this culture and get departments involved!

**Build Interest around Zero Waste**

Use competition; explain what other schools are doing. Promote the societal and environmental benefits. Zero waste has the ability to engage students and build a campus culture.

*Relationship building is the foundation of any successful zero waste program*

**Suggest creation of Council or Committee**

Build off relationships and zero waste interest.

**Zero Waste Committee, Council, or Team is working toward zero waste initiatives.**

*If there is already a sustainability working group on campus, ask to attend a meeting or join!*

## Section 2.

# CREATE A ZERO WASTE NETWORK IN YOUR COMMUNITY

The boundaries of a zero waste program can extend far beyond the team built within the university. Reaching beyond the confines of the university creates an opportunity to network and build a strong local or state-wide zero waste community. This section explains the ways in which outside collaboration and university competition can be used to further waste diversion goals. This section provides examples of successful zero waste collaborations and reminds readers that creative solutions are only limited to one's imagination.

### Build an External Network

A network can be built with organizations sharing similar sustainability and zero waste goals or with organizations who have complimentary services, mission statements, or activities. Networks can provide a range of benefits, such as: information sharing, adding much needed capacity, identification of grants and other means of financial support, providing critical mass for difficult initiatives, and amplifying marketing efforts. The opportunities are endless, it just takes communication and creativity to make them come to life.

Sustainability, as a whole, is a transformative concept. More often than not, individuals and organizations partaking in sustainable behavior are eager to promote this behavior in others. Consequently, creating a network with like-minded organizations and groups can be as simple as sending an email. Do not underestimate the power of passionate sustainability-minded individuals.

## State-Wide Partnerships

In the state of Washington, particularly in Seattle, professional athletic teams pride themselves on high diversion rates. The University of Washington utilized these valuable resources to help create a successful zero waste program of their own. When Husky stadium was undergoing renovations, staff members at the university reached out to the Seattle Seahawks and Mariners for support, direction, and ideas. Additionally, the venues were able to provide some levels of consistency regarding bins, signage, and other aspects of zero waste -- making it easier for patrons and fans to participate.

Universities in the Carolinas have the opportunity to join the Collegiate Recyclers Coalition as part of the Carolina Recycling Association. The association hosts conferences that facilitate networking across all colleges in North and South Carolina.

The University of Minnesota is part of the Sustainable Growth Coalition. This group includes companies and organizations who work together on projects and initiatives aimed at creating a circular economy. Each member provides individual expertise to help advance the common goals of the coalition.

***“We're also part of an external organization called the Sustainable Growth Coalition, which is 30 large and medium sized organizations in the state of Minnesota plus some nonprofits. Together the coalition is working on creating a circular economy in the state, the region, and beyond; as well as working on how they are able to provide leadership. Minnesota is fortunate to have a lot of big, private sector Fortune 500 that are headquartered here – Target, 3M, and BestBuy – which can get involved to make change.”***

- Shane Stennes, Director of Sustainability, University of Minnesota

## Other Partnerships

### Second Harvest and the University of Louisiana Lafayette

At the University of Louisiana Lafayette, food donations play an important role in the waste diversion process. At the end of each football game, student volunteers tasked with food recovery collect leftover food from concession stands. The food is compiled, evaluated for safety, and then given to a representative from Second Harvest who arrives at the stadium after each game. Second Harvest then transports the food to local food banks in need. This partnership ensures that edible food is feeding hungry mouths instead of turning into compost.

### GreenDrop Bins and Penn State University

Judd Michael, Professor of Sustainable Enterprises at Penn State, found an innovative way to pilot a three-stream waste bin system.

GreenDrop bins, a company based out of Portland, Oregon agreed to donate waste bins in exchange for academic research to determine the effectiveness of the bins on increasing waste diversion. The research was used to prove the efficacy of the bins, a big selling point for the company. This was a win for both organizations. Penn State was able to pilot a program without fronting the cost for bins, and GreenDrop was provided with excellent research.



*“The introduction of Recycling Pays to the program, in the middle of the 2018 season, was very significant for us. Before the vendor came aboard, we would have our local waste hauler come take away our recyclables at no cost to us. With the entry of Recycling Pays as our recyclables hauler, we were now not only provided a free recyclable pick up, but also received an additional off-site visual audit, as well as a rebate based on the commodity values and the content of the waste haul. So, all of a sudden, we were able to count on this other source of revenue to help support the program and gain the ability to frame the program up as not only an environmental success, but also as revenue positive.”*

- Joshua Sierra, Sustainability Specialist - Office of Sustainability, University of Southern California

## **Recycling Pays and the University of Southern California**

The waste diversion team at USC partnered with Recycling Pays to earn a buck for the recycling that would have been taken away for free otherwise.

*“We have a recycling partner called Recycling Pays, I don't know if you're all familiar with Recycling Pays, tremendous organization, they would come and collect our recyclables, haul them off to their waste compound, and they reimburse us for all of our aluminum, plastic, cardboard, etc.”*

- Mike Haick, Operational Coordinator, University of Southern California

## **Tailgate Guys and the University of North Carolina at Chapel Hill**

Tailgate Guys, a company that specializes in creating elaborate tailgate spaces, works closely with UNC fans to curate a wonderful game day experience. Since the company is in charge of bringing most of the tailgate materials, engaging with fans about sustainability efforts can be unproductive. The sustainability department has been working with Tailgate Guys over the years to help ensure the supplies being used are able to be diverted. This partnership allowed UNC to work with the source of waste to help increase diversion rates within the tailgate areas.

## Create Powerful Contracts

Vendors are incredibly important when it comes to making decisions surrounding waste diversion. Typically, vendors determine the types of products they use to sell food and drink at a game. If the products are not compostable or recyclable, it can be incredibly challenging to increase diversion rates. Procurement and purchasing guidelines are an effective way to ensure the products coming into the stadium will enhance zero waste efforts. Whether negotiations are happening with a concessionaire or a vendor, contracts with sustainable language can help launch zero waste programs to the next level.

How to create a contract with powerful language was not a topic thoroughly discussed during the interviews for this playbook. However, when the topic did come up, it appeared that most universities simply added a clause or a few words ensuring that all materials given to fans be recyclable or compostable. If unsure of where to start, try reaching out to colleagues and associates within the zero waste network. When Clemson University was trying to include localization within their contract language, they reached out to the University of Kentucky Lexington. Clemson discovered that the similarities between the two universities (both are in the southeast, both are land grant schools, and both use Aramark) made it easier to borrow contract language and develop a contract of their own. Reaching out to successful colleagues or looking towards local leaders in sustainability can help provide support and ideas on how to develop a contract to make an impact.

Additionally, after sustainability language becomes an integral part of a contract, it can be tailored for university goals. The University of Texas at Austin utilizes contract language to make it as easy as possible for fans to place waste in the correct bins. Within the stadium, fans know, if you drink from it -- you recycle it, if you eat from it -- you compost it.

***"When CU switched from Centerplate to Levy Restaurants, included in the contract was they had to have compostable cutlery, plates, and such."***

- Jason DePaepe, Deputy Athletic Director, CU Boulder

***"Centerplate-Sodexo is our catering and concessions partner. They're really key to making the whole thing work. The timing worked out nicely. We were revising some other things in the contract and we added language around zero waste football game days. This contractually required them to source compostables and fully participate in the zero waste program."***

- Paul Dunlop, Associate Athletic Director for Facility Operations, University of Michigan

## Creative ways to utilize 'contracts'

While this isn't a contract, per se, when working to get the zero waste program up and running at Beaver Stadium, Judd Michael used a letter from the university president to gain support. When faced with hesitation, Judd explained that sustainability is an increasingly important university goal that all departments should help to actualize.

Similarly, at the University of Kentucky, the president announced the goal of having a 50% diversion rate by 2022. This allowed sustainability staff members to start conversations with departments that may be hesitant to work towards zero waste goals.

Campus wide goals make it easier to start conversations surrounding sustainability or zero waste initiatives. Sustainability plans and presidential influence can and should be leveraged on the journey of creating a strong zero waste program.

**The University of Southern California's President supporting the Zero Waste Team**



## Play at the Conference Level

Conference level initiatives have the ability to bring out the competitive nature of sports in a way that benefits sustainability efforts. An example of this being the Pac-12 Zero Waste Challenge. In 2012, all Pac-12 campuses agreed to participate in the challenge with help from the Green Sports Alliance. One home game per season is chosen by each university as their competition game. The universities are scored on their diversion rates, partnerships, and innovation, and the winners receive bragging rights. This competition is taken incredibly seriously by staff members and fans!



Universities outside of the Pac-12 can utilize competition in a similar way. Creating a zero waste challenge that is less extensive is a great place to start. A challenge can be created that strictly looks at diversion rates inside of the stadium. The challenge can include less universities, or perhaps two universities have a battle instead of a challenge. Again, it may just take creativity and a conversation to get these initiatives off the ground. Once started, other universities are more likely to join, as any opportunity for a 'win' is not something an athletic department will easily pass up.

***“This is what I actually really love about the PAC-12 zero waste challenge. It has forced us to think more holistically, about what we mean by sustainability. Last spring, we piloted an effort at our gymnastics meet that I'm hoping will continue. And that was to do collection events for two local nonprofits in Salt Lake City. So, thinking about zero waste in a different way, right, so we collected things like coats and gloves and cookbooks and unopened hygiene products.”***

*- Ayrel Clark-Proffitt, Sustainability Engagement Manager, University of Utah*

The process of increasing diversion rates is full of challenges and plateaus. When feeling stuck, it's important to remember and utilize resources. Creativity, communication, and collaboration can go a long way when working towards zero waste goals. Never underestimate the power of building a strong community and network both inside and outside of the athletic space.

# Section 3.

# STUDENT INVOLVEMENT WITHIN ZERO WASTE

Students are the backbone of any university; without them, universities simply would not exist. They have the power to influence the entire culture of a university and advance involvement in zero waste efforts. As a result, accruing student volunteers should be at the forefront of zero waste program development. Students involved in zero waste programs get hands-on experience learning the ins and outs of waste diversion, which over time will contribute to a culture of conservation and waste diversion on campus. Additionally, students have the potential to help game day operations through their entire college experience, building a strong base of passionate, sustainability-minded student volunteers while also building a strong zero waste program.

## The Value of Volunteers

Volunteers are an important component of any successful zero waste program. They have the potential to educate fans, distribute zero waste materials, act as waste goalies, facilitate vendor training, sort waste, and more; all of which are necessary for successful waste diversion.

The most valuable volunteers have a passion for sustainability. They are the ones who return for multiple games across multiple seasons – allowing them to build valuable relationships with fans and encourage sustainable behavior. Repeat volunteers also become familiarized with game day operations; knowing the role they play as a volunteer which allows staff members to focus on other aspects of game day. While having repeat volunteers is the best case scenario, any volunteer provides value and labor!

## Recruiting Volunteers

Some members of the student body are inherently motivated to volunteer, but to successfully recruit consistent volunteers incentives should be provided. Most universities with successful volunteer acquisition provided volunteers with either a t-shirt, a ticket to the football game, community service hours, and/or meal compensation. Keep in mind, programs with the most successful volunteer base offered all of these incentives.

Aside from incentives, promoting volunteer opportunities is necessary to get students involved. University student forums or boards that post community service opportunities and university newsletters provide a way for students to learn how to volunteer on game day.

Another way to obtain volunteers is through promoting volunteer opportunities within sustainability classes or clubs on campus. Coastal Carolina University promotes volunteering in their sustainability classrooms. The University of Louisiana Lafayette offers a course that educates students in volunteering and encourages them to take part. Looking to different student clubs or organizations who are involved with the environment, sustainability, and social justice will likely lead to volunteers who have a predisposed passion for zero waste actions. Other student organizations or intramural/club sports teams who may be looking to raise money can be a great source of volunteers.

### Some of Clemson University's student volunteers



Community service hours are often required for many clubs and organizations on campus – an opportunity that can be leveraged when looking for volunteers. If unsure of where to start gaining volunteers, try reaching out to community service organizations around campus. Remember, while this is an easy way to get volunteers, it can be inconsistent and provide volunteers who are worried more about gaining hours than diverting waste.

## High School Volunteers

Some universities find volunteers through partnerships with local high schools. The key to high school volunteers is specificity. While there is value in reaching out to high schools, there are some special considerations that should be recognized before getting them involved. Young students typically need approval from a parent or guardian before committing to volunteer. Students (and parents) will need to know their exact tasks prior to game day. They will also likely need to be supervised to ensure they do not find themselves in undesirable situations.

North Carolina State is able to get a solid group of volunteers through local high schools with sustainability programs. The university reaches out to local high schools via email to determine if there are any environmental teachers, clubs, or organizations, or national honor societies who are willing and excited to volunteer on game day. Through this, valuable relationships with students are created. The relationships are so valuable that some students continue to volunteer even after they graduate high school.

The University of Michigan provides a fundraising opportunity for a local high school. Instead of paying a cleaning service to clean the stadium bowl, students come the morning after a game to remove waste. Using volunteers in this manner greatly reduces the cost to the university. It also provides opportunities for high school students to complete service hours and gain resume-building experience.

Some universities partner with volunteer recruitment channels to fill volunteer needs. The Ohio State University works with I Am Change Outreach, a nonprofit created specifically for Zero Waste at Ohio Stadium. I Am Change works to find high school students to volunteer at the stadium as part of the Zero Waste Team, additionally providing some leadership programming.

The sheer importance of volunteers cannot be overstated. They truly provide the labor necessary to have successful zero waste programs, and, as part of the student body, they have the ability to cultivate cultural shifts on campus. Volunteers should be valued and rewarded. Here are some examples to ensure volunteers understand their importance, feel appreciated, and develop a sense of pride and meaning associated with their involvement:

- **Provide incentives.** As mentioned above, incentives provide tangible benefits for volunteers. This could even take the form of VIP tickets or one game a season where volunteers are able to step on the field for a photo.
- **Ensure volunteers have adequate responsibility.** Volunteers should be assigned specific tasks, and then trusted to complete them. For example, the University of Colorado, Boulder assigns a group of volunteers to complete vendor training. This is an important task, as the vendor with the best zero waste practices receives a gift card at the end of the game.
- **Ask for input.** There should be space for volunteers to provide input, ideas, and feedback. Again, this gives volunteers a higher sense of responsibility, as they know their input is valuable.
- **Allow volunteers to work in teams.** Working with another person on game day allows volunteers to build a community. Additionally, this is a great way to encourage word of mouth recruiting strategies. Instead of volunteering alone, a student will encourage a friend to come, as they know they can spend the whole day together.
- **Provide postseason thank yous.** This can take the form of an email, a gift, or a banquet. Let the volunteers know the season diversion rates. Create a document and show just how much the volunteers were able to accomplish. There can even be 'mock awards' given to the student who volunteered the most often, the student who was never afraid to dig in the trash, the student who built the most relationships with fans. This should be fun and demonstrate the work that could not have been accomplished without volunteers.

## Sustainability Research Action Committee University of California Los Angeles

At the University of California Los Angeles, students play a large role in the zero waste program. The Sustainability Research Action Committee is a student organization focused on sustainability research, which offers class credits for participation. Students complete a two-quarter long research project, in which they are assigned to a campus-wide initiative and help realize and complete the project.

The club has worked with Kayla Shirey, the Assistant Athletic Director of Event Operations, for the past two years. Students help conduct waste audits at campus events and provide zero waste education for their peers. They have gathered volunteers from their classes and peers to come help during waste audit days. This speaks to an important tool for recruiting volunteers – word of mouth.



### The Ohio State University's Zero Waste Team

### The Power of Student Athletes

Student athlete involvement in sustainability initiatives is an excellent opportunity to further engage universities. Student athletes are a perfect connection from athletics to the university campus. Having this bridge connecting athletics with the rest of the student body has the power to create changes on campus and within stadiums. Additionally, at many universities, student athletes are held in high regard and respected by faculty, staff, students, and fans. This gives them the opportunity to influence a larger audience and cultivate a more sustainable campus.

### LEAFS at the Ohio State University

Student athletes at the Ohio State University wanted to participate in sustainability efforts but didn't have time to find resources that could help. Cassidy Jenney, Former Sustainability Associate at the Ohio State University, identified a need for sustainability minded student athletes to have help and guidance in creating sustainable changes. This is why she started the Leadership of Environmental Athletes for Sustainability (LEAFS). Athletes now have an easy way to find support regarding sustainability initiatives. Since the launch of LEAFS, increases in waste diversion was seen at venues used by the synchronized swim team, men's and women's gymnastics teams, and the fencing team.

## Why Campus Culture Matters

Although frequently indiscernible to the naked eye, campus culture holds enormous power at universities, and the student body is the dominant force behind that culture. With hindsight, culture appears as a capricious, unpredictable element, however, culture is very much something that can be influenced, directed, and ushered toward an ideal state. For what is culture but the slow evolution of norms, habits, and boundaries? Though culture can be elusive or even ineffable, students and visitors genuinely feel its presence through interactions as large as a football game or as small as a stroll across campus.

Conversely, waste diversion and sustainability initiatives are often judged on discrete metrics and measurables. However, intangibles such as culture are just as important to an enduring waste diversion program. The first step in creating or shifting campus culture starts with understanding the current cultural reality – observation, patience, and curiosity – as well as understanding that culture changes incrementally. What may seem fruitless or ill-advised in its first iteration may someday become a hallmark of a university – the sort of thing students sing about in stadiums. The second step involves identifying a long-term goal, such as:

*Our university is the place where students and visitors do \_\_\_\_\_ because they feel \_\_\_\_\_ about being here!*

Student athletes are key players in establishing campus culture. Successful initiatives can start by leveraging their appeal, influence, and reputation. Furthermore, student athletes have the potential to reach beyond the campus. Once momentum begins, campus culture can influence a larger body of students, transcend graduating classes, and become a source of community pride. As more individuals, students, community members, and organizations partake in a campus culture of waste diversion, their actions are reinforced, encouraging even more like-minded actions and initiatives (see graphic below).



**No student involvement in waste diversion**

**Exposure**  
What is the university doing and why? Student's cannot participate if they are unaware of the opportunities

**Get student athletes involved**

Provide information and ask SA to reach out if they are interested in promoting sustainability

Provide incentives

Education within the classroom can be extremely beneficial!

Have volunteers work in pairs, it's never as fun being alone

**How to get Volunteers**

Advertise volunteer opportunities to student sustainability groups on campus, promote incentives (pg....), and promote opportunities to a wider audience such as local high schools- be creative!

Allow volunteers to sit in a VIP section for one game

**Create a great experience that makes volunteers want to come back!**

Give volunteers responsibility

Have a dinner at the end of the season for the volunteers

*Build pride within the volunteer community!*

**Strong culture of sustainability and zero waste within the student body**



# Section 4.

## GAME DAY

This section will walk through a typical game day and elaborate on the trends for successful waste diversion both in and outside of the stadium. It also discusses ways to utilize volunteers and the importance of preparing, monitoring, and evaluating zero waste operations before, during, and after the game.

### I'm Talking about Practice

It should come as no surprise that universities with the highest diversion rates prepare for game day long before the season starts. Preparations and decisions are made to ensure all resources are being put to use in the most effective way possible. Some of these preparations include:

- (1) deciding bin systems and placement;**
- (2) conducting staff training; and**
- (3) determining whether and how to have a post-game sort.**

### Bin Systems and Placements

Fans are preoccupied with the excitement of game day, and are typically not focused on any aspects of waste diversion. Throwing waste in the correct place needs to be easy for fans.

The type of bin system provided to fans can drastically change diversion rates. There are numerous systems seen throughout stadiums across the United States, each tailored to the university's specific waste stream. Determining the best system inside the stadium involves understanding what vendors and fans are bringing. As mentioned in *Section 2. Creating a Zero Waste Network in your Community*, contracts determine what can or cannot come into the stadium. For universities looking at changing their bin system, the best place to start is looking at vendors. It's important to understand the waste coming into the stadium before making changes to bins.



### Tailgate Waste Stream vs. Luxury Box Concession Stream at the University of Colorado Boulder

For universities who have determined the best bin system, signage is the next important consideration in increasing diversion. The most effective signage shows photos that are placed as close to eye level as possible. A best practice is to include exact photos of items sold by vendors on the signs within the stadiums. Tailgating areas are a bit different. Those signs should show common tailgate items such as solo cups, aluminum catering tins, cans, chip bags, etc.



The next consideration is bin placement. Without proper placement, messy, unsanitary conditions can develop in stadiums or tailgating areas. Bins should be spaced evenly throughout the stadium, with a few extra in areas of heavy foot traffic, close to concessions, near tables or other areas where fans may eat. Bins should also be placed outside of each section making it easy for fans to drop their waste after entering the concourse.

### Looking to perfect bin placement?

A few simple observational waste audits can be conducted to help change and improve bin placement. A simple map can be created displaying all waste bins within the stadium. One or two volunteers can be assigned the task of monitoring. Volunteers can check to see if bins are overflowing or have high levels of contamination. The results can determine what changes need to be made. For example, if a bin close to concessions is overflowing with recyclables, perhaps an additional recycling bin is necessary. Additionally, bins that have high levels of contamination may need signage to be updated or moved.

Recycling bins with a circular top will reduce the amount of contamination!

## Reusable Products

One way to help eliminate waste is to provide fans with reusable items that can be used throughout an entire game or season.

Arizona State uses a Zero Waste Cup to help eliminate waste within the stadium. The cup is a one-time purchase and can be utilized all year at all sporting venues. Free refills are offered at all events, further incentivizing fans to purchase the cup. Though the refills have never been closely monitored or calculated, one football game did show that over 4,000 refills occurred!

## Waste System Success

Universities with the highest diversion rates have a two-stream waste system with bins clearly labelled as recycling or composting. It's important to note, stadiums with a two-stream waste system still have landfill waste from chip bags, gloves, candy wrappers, etc causing contamination. These universities are able to sort all waste to remove contaminants.

## Waste in Bathrooms

For stadiums with a two-stream waste system, the bathrooms can be a challenge. The paper towel may be compostable, but plenty of items brought in by fans are not, such as diapers or sanitary products. Through the strategic placement of clearly labelled trash bins, the contamination of compost bins through outside items is avoided.

## Staff Training

Vendors provide the majority of staffed personnel inside the stadium on game day. Additionally, cleaning concessions post game can generate large amounts of waste. However, staff members are often different from game to game, making training vital when it comes to outside hires as they may have little to no information on university waste management or correct processes and procedures for waste diversion. Staff training ensures consistent operations and a better understanding of the university's waste stream.

The University of Michigan works closely with their concessionaire, Sodexo, to ensure their staff have the appropriate training. Prior to the game, Sodexo sends out an online training video to the entire staff. The leader of the staff group attends an in-person training which includes a discussion of zero waste objectives. To further ensure waste gets properly managed, UM positions individuals, nicknamed the Dumpster Police, by waste bins to ensure bags of waste generated by vendors go into the correct place.

## To Sort or Not to Sort

Sorting waste is a big question that many universities face when working towards increasing diversion rates. There are many factors that go into the decision whether or not to sort waste. Some of them include the makeup of waste streams, items being sold, staff availability, and time. Waste sorts are highly effective in increasing diversion rates, but not all universities have the capacity to complete them. Top sorting is a method to monitor waste that is more manageable and still yields great results. Top sorting is done through volunteers or staff periodically picking through the top layers of waste bins to ensure there is no contamination. This method of waste sorting requires lower staffing and takes place during game day as opposed to after the game, making it more attainable for some universities.

Similar to an athletic season, preparations for a successful game day do not happen overnight. In athletics, months are spent recruiting, reflecting, studying film, adjusting plays, training, and planning. The same care and attention must be devoted to zero waste in order for programs to be successful.

## Tailgating and Trash Talking

Tailgating is an integral part of any game day. It is also responsible for a considerable amount of waste. While the waste generated in the stadium can be anticipated, the waste created or brought by fans is unpredictable. It can be hard to control what fans bring to a tailgate, meaning the waste stream and bin system cannot be narrowed. Special attention should be given to fans prior to kickoff to help encourage proper waste management.

At Clemson University volunteers have become an integral part of the tailgating experience through engaging with fans and handing out bags, talking about the substantial recycling program and diverting the waste once the game is over. Fans have become so involved with the program that they commonly send emails to athletics if their tailgating area did not receive any bags!

Stanford utilizes volunteers and staff to handout tailgating kits prior to kickoff. The kits include three different bags - black, green, and clear which correspond with landfill, compost, and recycling. The kit also includes a map of all the zero waste stations around campus and shows where fans should be placing their bags after tailgating. Convenience is key when it comes to waste diversion and making it easy for fans to recycle makes a big impact.

***"People tend to tailgate in the same place for multiple years, and after they are educated once or twice it seems to stick a little more, and fans place their bags in the right spot with less contamination."***

-Moira Zbella, Building Sustainability Performance Manager, Stanford University

North Carolina State uses this method as well, though they make it even easier for fans! Instead of having drop off locations, NC State has the staffing capacity to collect all bags from tailgaters themselves. Fans are encouraged to tie up bags when they are full, and volunteers collect them.

**Stanford's Tailgate Composting bins**



The University of Utah uses cargo bikes as a way to increase waste diversion outside of the stadium. The cargo bikes include large recycling baskets where fans can place (or shoot) their empty cans. They have named the group of bikes the RecycBike Brigade. Volunteers typically hop on the bikes two hours before kickoff and continue riding around until the game starts. This gives fans who are walking around campus a fun way to recycle. Another aspect of this initiative is that the volunteers are typically student athletes! The championship Ski Team at Utah regularly volunteers, which is a great way to get fans even more excited about recycling.

***“The response to those cargo bikes has always been exceptional. People want to climb in them, people shoot baskets into them, and they jump up and down when they see them shouting “I have recycling!”***

- Ayrel Clark-Proffitt, Engagement Manager, University of Utah

## It's a Beautiful Day for Football

Once the game begins, volunteers and staff can shift their attention to waste management within the stadium. Monitoring waste bins to reduce contamination is an effective way to utilize volunteers. Typically, universities refer to these individuals as waste goalies. In addition to reducing contamination, they can also educate fans on proper waste disposal and ensure no bins are overflowing.

When it comes to wrapping up game day, one major task to complete is waste removal. Depending on the waste stream at the university, this process will vary. Some universities will sort every piece of waste possible, some may sort bags of recycling and landfill, and some may send it with the hauler without any sorting. An important consideration is the capacity of the waste management provider. Some facilities have technology that allow them to manage higher levels of contamination. Additionally, some compost facilities (those that sell compost for food production) have incredibly strict regulations. The waste management provider should be included in conversations surrounding waste diversion.

### Common Ways to Use Volunteers

- Guard waste bins
- Distribute zero waste materials
- Provide education to fans
- Act as waste goalies
- Sort waste
- Engage with fans
- Facilitate vendor trainings

## Post-Game Debrief

As any sports organization knows, the post-game debrief is essential. The only way to make strong improvements is to expose areas of weakness. Here are some questions to consider:

- **How did the volunteers do?**
  - Did they complete all tasks asked of them?
  - Were mistakes made?
  - What changes can be made to ensure the success of volunteers?
- **What does the waste stream look like after the game?**
  - Does a quick glance inside bags indicate high levels of contamination?
  - What areas of the stadium had the most contamination?
  - Were bins overflowing and letting waste end up on the floor or in the wrong bin?
  - Does the waste management company have any complaints or comments?
- **Have a conversation with everyone involved in the process.**
  - Volunteers, vendors, waste management, facilities, etc.
  - Was there any confusion or anything that needs to be clarified?

Asking questions seems simple, but it is often overlooked after the stress of a game. It's important for every university to create a baseline of questions that can be used to review every game and identify areas of improvement.

# Section 5.

# FAN ENGAGEMENT

## Why Engage Fans?

Creating a culture that empowers fans to engage in diversion efforts can help save the university time and money devoted to sorting on the back end. Additionally, it can increase diversion rates without changing anything else in the stadium. This section will walk through the three most common trends in increasing fan engagement and provide multiple examples from different universities. Without fans in the stadium there would be no waste, and this is apparent now more than ever in the times of COVID-19. It makes sense that since fans are using the waste, they should be educated on how to dispose of it properly.

## Best Methods to Engage Fans

Throughout the interviews, there were three main themes surrounding successful fan engagement: incentives, building relationships, and making engagement fun. These three methods are by no means the only effective ways to engage fans; this is not an extensive list, but rather as a series of suggestions based on interviews.

### Incentives

Many universities attempt to increase sustainability efforts by incentivizing fans. Incentives can be an exciting and effective way to encourage fans to participate in behaviors that increase diversion rates. An incentive can be a variety of things that in some way rewards fans for their behavior. For incentives to be successful, they need to be something that fans want and/or seek out.



Jordan-Hare stadium, home of the Auburn Tigers, has a capacity of over 87,000 making it the 10th largest college stadium in the nation. Thousands of tailgaters bring their own food and their own waste. The large crowds make diverting waste a huge challenge in tailgate lots. Auburn found an incredibly effective way to encourage fans to bring sustainable products with them for tailgating. The Waste Reduction and Recycling Department coordinates the Game Day Recycling Program, an opportunity for the university to demonstrate to the campus community that recycling, and waste reduction activities are not limited to the home. Department staff place hundreds of additional recycling bins inside Jordan-Hare Stadium and around campus for fans to recycle their plastic bottles and aluminum cans. Student volunteers pass out recycling bags in tailgate areas before kick-off. Fans are also encouraged to recycle with the "Get Caught Recycling" program. At each home game, one lucky winner is caught recycling and receives an autographed football by the head football coach, as well as recognition on the video board. As you can imagine, loyal fans are excited to participate with the hopes of winning a football and time on the video board.



**Auburn University  
tailgaters**



At the Ohio State University, the fan engagement team gives out prizes to fans who are caught recycling. The prizes are small and could be anything from a shirt to a sticker for the back of your phone. The gifts are samples that have a minor inconsistency (such as logo size, color, etc.) that cannot be sold in stores. This allows OSU to give out gifts that otherwise would have been thrown away. It's a win-win for fans and the fan engagement team.



**Ohio State  
University's Zero  
Waste Team**



Incentives can truly be anything. One of the most exciting parts about sports is the passion. The passion of the players, the passion of the coaches, and the passion of the fans. Utilize that passion! There are some fans who would do almost anything to be able to set foot on the field or be highlighted on the jumbotron.

### **Incentives Shortcut**

- Giving tailgaters gifts for recycling and/or composting.
- Giving out a 'tailgater of the game' flag that gives fans bragging rights for being the most sustainable tailgate.
- Putting a photo of the most sustainable tailgate (or fans caught recycling) on the jumbotron during the game.
- Allowing ~4 or so people from the most sustainable tailgate on the field before the game for a photo.

## Make it Fun!

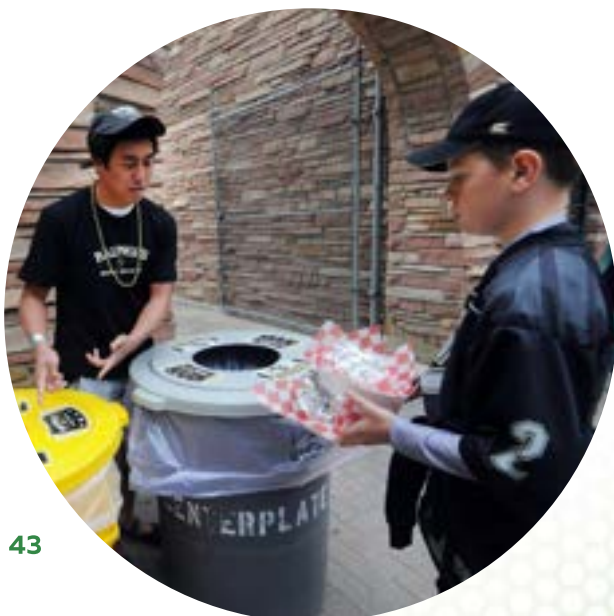
Fans are more likely to recycle and compost when doing so is fun and easy! For a short time, University of Southern California had a trumpet fanfare team! The team consisted of two trumpet players and one person in a green 'recycling' suit. They would catch fans recycling, play a beautiful fanfare, and then run away to another fan. It's almost as if a flash mob showed up to encourage recycling behavior. This is not only incredibly funny, but it's a way to make fans acknowledge where they are putting their waste and hopefully become more intentional. Additionally, during the 2018 PAC-12 Green Game, USC had 'Recycling Man' circulating the tailgate lots to educate fans about where to put their waste.



**University of Southern California's Recycling Man**

## Build Relationships

As mentioned earlier in the playbook, the importance of relationships cannot be overlooked. It's normal for tailgaters to return to the same spot year after year, and this is an ideal opportunity to leverage volunteer-fan relationships. Repeat volunteers are able to engage with the same fans game after game and year after year, building strong relationships that encourage sustainable actions and zero waste behaviors.



**A member of Ralphie's Green Stampede helping a fan sort waste**

## Engagement Beyond Game Day

Fan engagement doesn't have to be limited to game day; there are plenty of opportunities for universities to engage fans outside of the stadium and promote zero waste awareness.

## Community Plastics Roundup at the University of Oregon

Recycling is a big challenge for many communities in the United States, and the city of Eugene is no exception. As city recycling restrictions expanded, the University of Oregon and local waste service company, Sanipac, partnered to create a way for community members to recycle plastics that aren't accepted at the local waste management facility. This event, the Community Plastics Roundup, allowed fans to drop off recyclables at the University of Oregon stadium. Not only did this engage local members of the community, it also provided an exciting experience of visiting the stadium.

## Trading Posts at Arizona State University

The Zero Waste Department at ASU has been working on creative way to expand zero waste initiatives to the student body. They did this by setting up pop-up shops across campus. Students are able to bring clothes they don't wear and exchange them for new clothes at no cost! This promotes zero waste initiatives by encouraging students to – "Ditch the Dumpster" – and divert items from the landfill.

## Engagement during COVID-19

While many universities have students on campus, it is difficult to interact and engage with fans face to face. Stadiums are running at reduced capacities, if they are even allowing fans to be present, which calls for creative action when it comes to active engagement with fans. This is a challenge that universities across the United States are facing, leaving universities with no choice but to think outside of the box and develop creative ways to engage with fans.

There are universities, such as the University of Florida and the University of Colorado Boulder, that are working towards bringing the excitement of game day tailgating to their fans' homes. Ralphie's Green Stampede, the zero waste team at CU Boulder, is putting together Game Day Packs that contain necessities to run a zero waste tailgate at home – such as compostable cutlery and reusable cups. Bringing the tailgating experience to fans during COVID-19, even in a limited way, can still foster a sense of community and continued engagement.



**Ralphie's Green Stampede handing out Game Day Packs**

# Case Studies

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# FAN ENGAGEMENT AT THE UNIVERSITY OF COLORADO BOULDER

Anyone attending a University of Colorado, Boulder football game will undoubtedly find themselves on Franklin Field. This tailgate zone is directly adjacent to the main football stadium, Folsom Field, making it the most prestigious spot on campus during games. It is also the designated zero waste tailgating zone on campus. In 2008, CU Boulder became the first NCAA division 1 team to create a sports sustainability program known as Ralphie's Green Stampede. At the Franklin Field zero waste zone, fans are provided a tent, cooler, grill, chairs, and tables bedazzled with a CU logo along with compostable plates, napkins, cutlery, and anything else fans should need for their tailgate experience. Since the program's inception, CU has led the charge on sustainability initiatives within collegiate athletics.

In fact, CU Boulder won the PAC-12 Zero Waste Challenge for football in both the 2018-2019 and 2019-2020 seasons. Many factors go into successful waste diversion, fan engagement being one of the most important. CU excels at engaging fans and creating long term relationships that encourage high diversion rates.

## Ralphie's Green Stampede Mission Statement

Our mission is to create a system in CU Athletics where every trip to the game makes the world a better place and encourages fans to adopt sustainable behaviors at home, work, and play.

In addition to that, Ralphie's Green Stampede (RGS) members have a tent in the middle of the field to provide all tailgaters with the famous Ball aluminum cups to ensure no solo cups are brought into the area. A few hours before kickoff, Ralphie's Green Stampede staff and volunteers engage with fans to encourage zero waste efforts. These engagement efforts include:

## Tailgater of the Game

The most sustainable tailgate of Franklin Field gets honored with the prestige title, 'Tailgater of the Game'. They are awarded a large flag that gets planted in front of their spot for all others to see. RGS determines the winner in a few ways. First, they review the materials fans bring to the game. Fans who bring products that are primarily compostable, or recyclable become eligible to win. Second, the RGS team asks the eligible tailgaters questions about which waste stream specific items should go. The tailgate that is most sustainable and engaged wins the tailgater of the game flag.



**Ralphie's Green Stampede handing out Tailgater of the Game**



## Zero Waste Bag Toss

A fun way CU engages fans young and old is with their zero waste bag toss! Similar to cornhole, small colored waste bins are labeled as recycle, compost, and landfill, and bean bags have pictures of common waste on them. Fans are given bean bags and have to toss them in the correct bin. The pictures include items typically found in the wrong bin, making it a fun learning experience. Children and adults love participating.

## Building Relationships

The RGS team sets up a tent at every CU football game. Typically, the same staff and volunteers educate the fans week after week. This provides an opportunity for relationships to be built with the fans who also tailgate in the same spot week after week. In fact, fans competing to become the tailgater of the game will stop by the RGS tent and ask the team to come check out how sustainable they are!

Fans enjoying the Zero Waste Tailgate Zone



Young kids getting into the spirit of Zero Waste



Zero waste is truly embedded in the culture at CU Boulder. It is not just something fans do; it is how they identify. It took *time* and dedication for staff to build this culture but stepping foot onto Franklin Field shows that it was worth it.

# COMPOSTING AT THE UNIVERSITY OF KENTUCKY

It all started with a conversation.

After a decade of persistence and partnership-building, the University of Kentucky Sustainability Director finally created enough momentum to successfully turn his idea of a food composting program into reality.

The University of Kentucky had been composting wood chips and branches with the City of Lexington for the previous ten years. This was a great first step, but little was being done to compost food waste. While some of the infrastructure within the university allowed for collection of food waste with the intention of composting it, the University did not have the capability to utilize the infrastructure appropriately. The University of Kentucky is unique in that it is a land grant university with established research farms where hogs can help with waste disposal. However, the hogs were unable to handle the amount of waste being produced in the dining facilities.

## Pulpers

This equipment is utilized to break down food waste and draw out excess liquid, creating pulp which can be easily converted into compost. These were installed in the back of house at the University of Kentucky to help prepare food waste for the composting process.

In June 2019, the University of Kentucky launched The Food Waste Pilot Program through a partnership with the College of Agriculture, Sustainability Office, UK Dining, and Campus Operations. The College of Agriculture was an integral part of the program by collaborating with partners within the University to ensure the proper resources were secured and the program was launched properly. Once the program was launched, these partners met bi-weekly to ensure the operational efficiency.

A vital component to the program's success was its status as a pilot project. The College of Agriculture, including their composting facility, was open to accepting pre-consumer food waste, such as scraps from food preparation. However, they were wary of taking post-consumer food waste, such as the leftovers from the students and kitchen. By launching the program as a pilot, both parties involved experienced limited risk as well as a clear structure to move forward, scale things back, or rework areas of difficulty.

***“Our takeaway is always start something as a pilot, it always seems less scary and gives people an out, but for the champions at the table, it’s also a way of getting our foot in the door and then once we prove this concept we can then show people how it works.”***

***-Joanna Ashford, Recycling Coordinator, University of Kentucky***

To accommodate the food waste through The Food Waste Pilot Program, university research farms added a new section of composting to its preexisting composting system for animal bedding and manure. The role of the existing compost technician who was responsible for managing the facility was extended to manage composting food waste. Remarkably, the addition of food waste composting did not add significant time or costs to the farm's operations, while supporting and strengthening the program's mission.

## Windrow Composting

This is a method of composting by piling up organic matter or biodegradable waste in long rows, most commonly used on a farm scale. At the research farm, the pulped food waste from the UK dining halls is combined with animal bedding and manure in windrows for composting.

## Funding

There are a lot of pieces of equipment needed for composting, requiring funding that the university may not be able to provide. The University of Kentucky was able to build some of the required infrastructures through acquiring a local grant from the State Division of Waste Management. These grant funds were used to purchase a Perkins Lifter, which was installed on the back of the truck to assist loading of the truck.

Initially, compost produced on the farm was transported back to campus for use by the grounds crew. An issue arose when trying to determine how to transport food waste from campus to the farm. A solution was reached when the university's internal hauling decided to dedicate time and haul the food waste to the farm. However, food waste was not transported on the weekends. This caused concerns about the odor that would come from stagnant food waste. To mitigate this issue, Campus Operations worked with another sector of the College of Agriculture to obtain a microbotic bacteria that eats odors. The specialized bacteria was sprayed on the waste material before it sat out and also when buckets of waste were pulled out to the loading dock.

The ongoing successes of the composting program at the University of Kentucky took many years to make into a reality. Collaborative efforts across departments and relationship-building within the University contributed to these successes. With patience and persistence, the monumental changes of the composting program at the University of Kentucky were well worth the wait.

# VOLUNTEERING AT AUBURN UNIVERSITY

Camp War Eagle at Auburn University is more than your average freshman orientation. Along with welcoming students and providing them with important resources, the event also actively encourages students to get involved in the university's strong culture of volunteering, notably for sustainability and waste diversion programs.

Joan Hicken, Manager of Waste Reduction and Recycling at Auburn University, has made it her mission to make freshmen students and their friends and families who come through Camp War Eagle more aware of sustainability and waste diversion issues. Through 10 orientation sessions each year, Hicken estimates that she engages with approximately 11,000 individuals, 5,000 of which are students. These orientation sessions educate and provide information on waste diversion and how individuals can make a difference with specialized information focused on freshmen students. Most importantly, Hicken promotes volunteer opportunities at university football games. Thanks to this proactive, comprehensive, and targeted volunteer recruitment strategy, a larger number of interested students provide their emails which are added to a larger listserv, providing Hicken with a robust database of passionate students who will be at the university for years to come.



## How it Happens

In the week leading up to a football game, an email goes out to the listserv, explaining upcoming volunteer opportunities. As an added incentive, student volunteers are provided with complimentary tickets to the football game, which is particularly significant given that freshmen are not always guaranteed tickets. Volunteers also receive water bottles, reusable bags, and t-shirts.

At each football game, Hicken's goal of 12 volunteers is usually met. Whereas early games may have less volunteers, later games can have upwards of 30. Additionally, Hicken notes that most of these volunteers come back more than once.

***"I have students that have volunteered with me for all four years of their academic career. Most students volunteer more than once, and I think that's wonderful. A lot of the volunteers aren't even really there for the football, they're there more for the volunteerism, the sense of community, and the environmental component."***

***-Joan Hicken, Manager of Waste Reduction and Recycling,  
Auburn University***

On gameday morning, student volunteers distribute clear recycling bags to fans. Albeit brief, this interaction allows volunteers to educate and provide outreach activities to tailgaters, informing them about the waste diversion program at Auburn and answering any questions. When it comes time for tailgaters to enter the stadium for the game, an additional group of volunteers are staged outside entryways, ensuring that waste and recycling stations are properly utilized by fans. After kickoff, volunteers transition into the stadium where they help manage waste and recycling stations while enjoying the rest of the game.

In a football season, Hicken is able to acquire 125 to 150 passionate, sustainability-minded volunteers. While this number may fluctuate from 6 to 50 volunteers per game, volunteers' dedication to waste diversion and sustainability, desire to benefit the community, and passion for meaningful work ensures a positive and lasting impact on all those who attend the game.

# Appendix

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56 I. Playbook Development and Methodology

59 II. Zero Waste International Business Principles

# Appendix I.

## PLAYBOOK DEVELOPMENT AND METHODOLOGY

To create this playbook, around 37 stakeholders from a variety of positions at 22 different universities were interviewed. These interviews were transcribed and coded, serving as the basis on which this playbook is created.

The first step in creating this playbook was identifying the problem statement. Once established, it was determined that interviews would be the most effective way to collect data and gather information.

### Problem Statement

College sporting events generate significant waste. Universities are devoting more time and energy into increasing waste diversion at sporting events. However, change can be slow in the collegiate setting due to the number of stakeholders involved. Board members, athletic directors, facilities, sustainability coordinators, and more all have to be involved for waste diversion to increase. This project intends to discover the most effective way for a university to make the switch to a zero-waste stadium. The main goal is to determine trends of successes and failures to create a comprehensive roadmap for other universities to follow.

Starting in May of 2020, a list of potential interviewees were identified and emailed to determine interest in participation. Stakeholders reserved an interview block of either 30 minutes or 1 hour. Interviews proceeded via the following protocol:



# Interview Protocol

Explain how interview protocol works

- One person asks questions
- One person takes notes

Give a short bio about myself and the goals of the project.

- Please state your name.
- Are you comfortable with this interview being recorded for our personal use?

Start Recording

- Are you comfortable being quoted or cited in the Zero Waste Playbook we are putting together?
- If yes, would you prefer approval prior to publication?

Introduction

- Tell us about your role at the university.

General Questions

- In what ways is "your university" working on waste diversion?
- What different university departments have you collaborated with to get to where you are today in terms of waste diversion?
- Who have you collaborated with outside of the university to get to where you are today in terms of waste diversion?
- What are the biggest challenges you have faced in the attempt to increase waste diversion?
- What are your biggest successes in the attempt to increase waste diversion?

## Interview Protocol (Continued)

### Other Questions

- What does a typical game day look like for everyone involved in the waste diversion process?
- Does campus culture around recycling and compost behavior play a role in waste diversion on game day?
- In what ways have finances played a role in waste diversion processes?
- What role does sustainability play in athletics?

### Wrap Up

- Is there anything I haven't asked that you think would be important for me to know?
- Is there anyone else you think would be important for me to speak with?

Send a thank you note/email

The interviews were recorded and transcribed using Otter.ai software. Each transcription was edited for accuracy using the audio recordings by one of the capstone team members. Using Nvivo software, transcriptions were coded for data analysis to identify trends and develop a baseline of zero waste practices being utilized across the country.

Alongside the interviews that were conducted, academic research was utilized to gather additional data and information throughout the playbook.

# Appendix II.

## ZERO WASTE INTERNATIONAL BUSINESS PRINCIPLES [7]

### Commitment to the Triple Bottom Line

We ensure that social, environmental, and economic performance standards are met together. We maintain clear accounting and reporting systems and operate with the highest ethical standards for our investors and our customers. We produce annual environmental or sustainability reports that document how we implement these policies. We inform workers, customers, and the community about Life Cycle environmental impacts of our production, products, or services.

### Use Precautionary Principle

We apply the precautionary principle before introducing new products and processes, to avoid products and practices that are wasteful or toxic.

### Zero Waste to Landfill or Incineration

We divert more than 90% of the solid wastes we generate from Landfill from all of our facilities. No more than 10% of our discards are landfilled. No solid wastes are processed in facilities that operate above ambient biologic

### Responsibility

Take back products & packaging – We take financial and/or physical responsibility for all the products and packaging we produce and/or market under our brand(s), and require our suppliers to do so as well. We support and work with existing reuse, recycling, and composting operators to productively use our products and packaging, or arrange for new systems to bring those back to our manufacturing facilities. We include the reuse, repairability, sustainable recycling, or composting of our products as a design criterion for all new products.

## Buy Reused, Recycled, & Composted

We use recycled content and compost products in all aspects of our operations, including production facilities, offices, and in the construction of new facilities. We use LEED-certified or equivalent architects to design new and remodeled facilities as Green Buildings. We buy reused products where they are available and make our excess inventory of equipment and products available for reuse by others. We label our products and packaging with the amount of post-consumer recycled content and for papers, we label if chlorine-free and forest-friendly materials are used. Labels are printed with non-toxic inks – no heavy metals are used.

## Prevent Pollution and Reduce Waste

We redesign our supply, production, and distribution systems to reduce the use of natural resources and eliminate waste. We prevent pollution and the waste of materials by continual assessment of our systems and revising procedures, policies, and payment policies. To the extent our products contain materials with known or suspected adverse human health or negative environmental impacts, we notify consumers of their content and how to safely manage the products at the end of their useful life according to the take-back systems we have established and shall endeavor to design them out of the process.

## Highest and Best Use

We continuously evaluate our markets and direct our discarded products and packaging to recover the highest value according to the following hierarchy: reuse of the product for its original purpose; reuse of the product for an alternate purpose; reuse of its parts; reuse of the materials; sustainable recycling of inorganic materials in closed-loop systems; sustainable recycling of inorganic materials in single-use applications; composting of organic materials to sustain soils and avoid the use of chemical fertilizers; and composting or mulching of organic materials to reduce erosion and litter and retain moisture.

## Economic Incentives for Customers, Workers and Suppliers

We encourage our customers, workers, and suppliers to eliminate waste and maximize the reuse, recycling, and composting of discarded materials through economic incentives and a holistic systems analysis. We lease our products to customers and provide bonuses or other rewards to workers, suppliers, and other stakeholders that eliminate waste. We use financial incentives to encourage our suppliers to adhere to Zero Waste principles. We evaluate our discards to determine how to develop other productive business opportunities from these assets or to design them out of the process in the event they cannot be sustainably re-manufactured.

## Products or Services Sold are not Wasteful or Toxic

We evaluate our products and services regularly to determine if they are wasteful or toxic and develop alternatives to eliminate those products which we find are wasteful or toxic. We do not use products with persistent organic pollutants (POPs), PVC, or polystyrene. We evaluate all our products and offer them services if we can do so by our own company. We design products to be easily disassembled to encourage reuse and repair. We design our products to be durable, to last as long as the technology is in practice. We phase out the use of unsustainable materials and develop the technology to do so. Our products can easily be re-made into the original product.

## Use Non-toxic Production, Reuse, and Recycling Processes

We eliminate the use of hazardous materials in our production, reuse, and recycling processes, particularly persistent bioaccumulative toxins. We eliminate the environmental, health, and safety risks to our employees and the communities in which we operate. Any materials exported to other countries with lower environmental standards are managed according to the Best International Practice as recommended by ZWIA.

