



**Zero Waste Pauley
Final Report
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Executive Summary

Pauley Pavilion, one of the finest all-around collegiate facilities in the nation, is the host of numerous illustrious events with a seating capacity of up to 13,800 spectators. As the ESLP Zero Waste Pauley ART team, our goal was to mitigate and reduce the amount of waste created during these events as much as possible, ultimately making Pauley Pavilion a zero waste facility. We wanted to divert 100% of the waste generated away from landfills to recycling and composting facilities instead.

A main goal of ours was to eliminate concession items sold during events that were not recyclable or compostable. Unfortunately, that was a long process and not something we were able to do in 20 weeks. Instead, we looked towards observing spectator behavior and how we could better educate people on their trash habits.

In order to see how much waste was being produced, the team conducted a behavioral audit during a UCLA men's basketball game. We analyzed the data and found that the trash and recycling bins were not the most ideal in reaching our overall goal of zero waste. As a result, we created and tested new signage at UCLA's Dance Marathon event to see how effective they were and found that good signage is very important. We tested the effectiveness of signage a second time at UCLA Earth Day fair and our observations supported our previous conclusion.

Our team agreed that new waste bins with effective signage were needed in Pauley Pavilion and we applied for and received funding from TGIF to buy new bins. We have been working with various people from ASUCLA, UCLA Recreation, and purchasing to create a waste bin design and are working to finalize and buy them before the school year is over.

Additionally, we created a Green Events Guideline more geared to UCLA Recreation space to help implement more sustainable events. For the next team, we recommend they help familiarize Pauley Pavilion attendees with the new waste bin islands so that they learn how to properly dispose of their waste. We also recommend the next Zero Waste Pauley team helps UCLA Recreation implement the new guidelines required to rent out UCLA Recreation space. We have not quite reached the goal of zero waste in Pauley Pavilion, but we are confident we are headed in the right direction and look forward to see what next year's team has in store.

Significance/Background

The Zero Waste Pauley project began in 2013 on the basis of the UC system-wide goal of reaching zero waste by 2020. Under the policy enacted by the Capital Resource Management Office as part of the UC Sustainable Practices Policy, last year's zero waste team was formed to make Pauley a zero waste model for the rest of the UCLA campus, and this year's team continued on the path they started. Other schools have successfully implemented zero waste facilities and UCLA started with Pauley Pavilion to tackle this system-wide task.

The action research team plays an unparalleled role in making the campus a better place. When people think of UCLA, they think of Pauley Pavilion and the legacy John Wooden left behind. Pauley Pavilion is not just any building on campus; it serves as an iconic home turf for Bruins of all ages. If Pauley, a major sports facility, can reach zero waste, then the rest of the campus can as well. Many people are not aware of what zero waste actually means, nor are they aware of recyclable products beyond bottles and cans. By implementing sustainable practices in a building such as this, students, alumni, staff and the Los Angeles community are exposed to these practices and can learn how to dispose of their waste properly. Education is key and the spread of knowledge will only help increase the sustainable practices of our community.

Project Goals

Our overall goal was to reach zero waste, with 100% of the waste stream diverted to recycling or compost. To achieve this, we started with addressing concessions and food items sold at the facility, as they compose a significant portion of the waste stream. We then wanted to implement permanent signage and bins that allowed for proper sorting between recycling and compost waste. Lastly, our team wanted to draft a Green Events Guideline for UCLA Recreation that clients who want to use Recreation-owned space would have to abide by. In order to move towards our ultimate goal, we conducted research at various events to assess Pauley's waste stream, test signage effectiveness, as well as observe attendee behavior. We attended a UCLA men's basketball game, Dance Marathon, and the Earth Day Fair.

Methodology and Results

Behavioral Audit

One of our main goals was to attend a sporting event at Pauley and conduct a behavioral audit to identify waste problem areas, observe spectator behavior and waste patterns in general. Specifically, we wanted to know what items were being purchased at concession stands, the general composition of waste collected in trash and recycle bins, and to observe which bins had high traffic. We chose to perform the behavioral audit at UCLA vs. Colorado men's basketball game.

To prepare for this event, we met with our stakeholder Rich Mylin at Pauley Pavilion 2.5 hours before the game started. We wanted to get a general understanding of the layout of the facility as well as the trash and recycle bin placement. We each had a clipboard with a map of Pauley Pavilion and we walked around the entire stadium, marking and numbering all of the trash and recycle bins in the facility on our maps. We found that there were 28 trash bins and 15

recycle bins in total. There were 6 trash bins and 1 recycle bin on the floor, and the rest were distributed fairly evenly around the concourse. We then divided up the trash and recycle bins amongst the team so that we were each in charge of monitoring certain bins.

Our plan for the audit was to do three rounds of visually watching spectators to see how often they used the bins in addition to what they threw away. We would each observe a bin for 5 minutes and during that time we tallied what type of item was thrown into each bin. For example, if someone threw away a soda cup and its lid into a recycling bin, we tallied that as compostable (the cup), recyclable (plastic lid), and landfill (straw) under the recycling bin category. In addition, we planned to do three rounds of trash examinations, where we opened the lids and estimated how much of its contents were either compostable, recyclable, or neither. The behavioral observations occurred half an hour before the start of the game, the start of halftime, and right at the end of the game. The trash composition observations occurred 10 minutes into the game, 10 minutes into the second half, and after our last behavioral audit. During the rounds, we each examined the bins we were assigned.

During our behavior observations, we found that not very many people used the bins as they quickly bought food from the stands and went directly to their seats. Similarly, during our trash observations, we noticed that more people were using the bins as the game went on, but only to mostly dispose of straw wrappers and napkins. Finally, during our last behavior observations, we noticed that hardly anyone was carrying their trash from their seats to the garbage bins.

Upon analyzing our collected observations, we were able to form several conclusions and reported them to Rich Mylin. Attendees all seemed to understand that bottles go in the recycling bin, as a majority of the recycling bins were full of plastic bottles. However, we suggest that

more recycling bins be placed around the stadium, especially on the southeast side by concessions since that side had more traffic. Around the concourse, we noticed that the janitorial team made their rounds and took out the trash much too often. The bags were not even 50% full when they took out the trash and changed the garbage bags. By gathering our visual observations of the waste stream, we concluded that majority of the trash thrown away was compostable - necessitating compost bins in the facility. There was a significant amount of compostable material in the recycling bins as well.

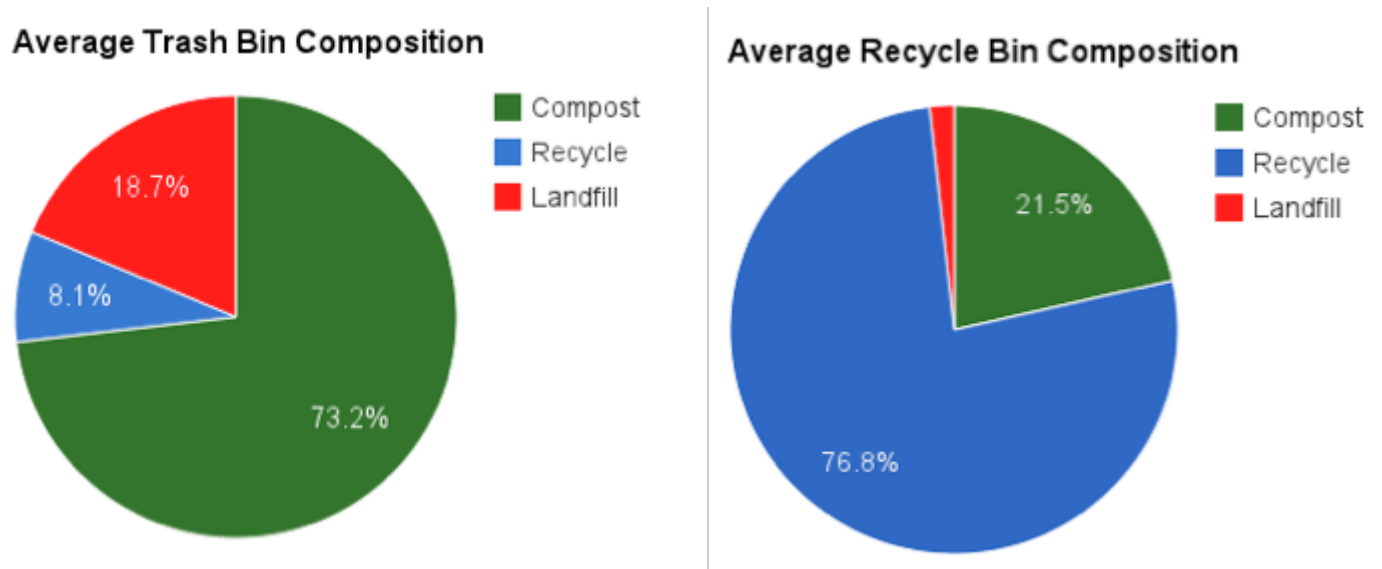


Figure 1: Waste stream composition based on visual observations in Recycle and Trash bins

Dance Marathon

We learned from the Colorado basketball game audit that a lack of bin labeling hindered us from reaching zero waste. We decided that Dance Marathon, held in Pauley Pavilion for the first time this year, would be the perfect opportunity to test new signage. We thought it would be a great educational opportunity as well, as Dance Marathon is a 26-hour annual event at UCLA

to which thousands of students have attended over the past 13 years. To prepare, we collaborated with a graphic designer from UCLA Recreation. We made sample compost, recycling, and landfill signs. Each sign listed items that were in its corresponding category and included images of concessions that are sold at Pauley.

During the dinner period, dancers were sent to the Pavilion Club in five shifts of approximately 200 people. During this time, we measured how our signs affected the students' abilities to sort their waste. There were six bins each for compost, recycling, and landfill. The first dinner shift was the control, as we had no signage on the waste bins. The Clearstream bins were simply labeled, "recycle" and "compost," and the black landfill bins had no labels whatsoever. During the control shift, dancers relied on their own knowledge of how to separate the items. When the bins were filled, we weighed each bag individually on a bathroom scale. For the remaining four shifts of hungry dancers, we placed our signs onto the front of each waste bin. Unfortunately, there was no distinction between the last four shifts of dancers but instead there was a steady stream of people throughout the meal period. Therefore we totaled the weights of these shifts and then divided the total sum by four, to calculate the average weight of waste captured by each waste bin category.

As people were eating, we also visually observed dancers' sorting behavior. A majority of the dancers noticed the signage and put in effort to properly sort trash, though many were confused. A handful separated their food into compost but placed their compostable paper plates into the landfill bin. Our compost signs did not specifically list paper plates, however, they did list "food-soiled paper." Some dancers walked straight towards the landfill bin without even trying to sort their trash, but as stated earlier, a majority of students were responsive to our signs and made an attempt to accurately dispose of their trash.

Upon analyzing our data, we found that our signage was very effective. When our signs were used, there was less trash in the landfill bin and more waste in the compost bin. There was a slight increase in recycling as well, but many dancers threw away full bottles of Powerade, skewing weight data. Also, during the first few shifts, portion sizes of the dancers' meals were larger than later shifts. The last shift's portion sizes were much smaller than the first. By the end of the meal period, catering had completely exhausted its food supply. The smaller portion sizes could have altered how much dancers threw away, altering results.

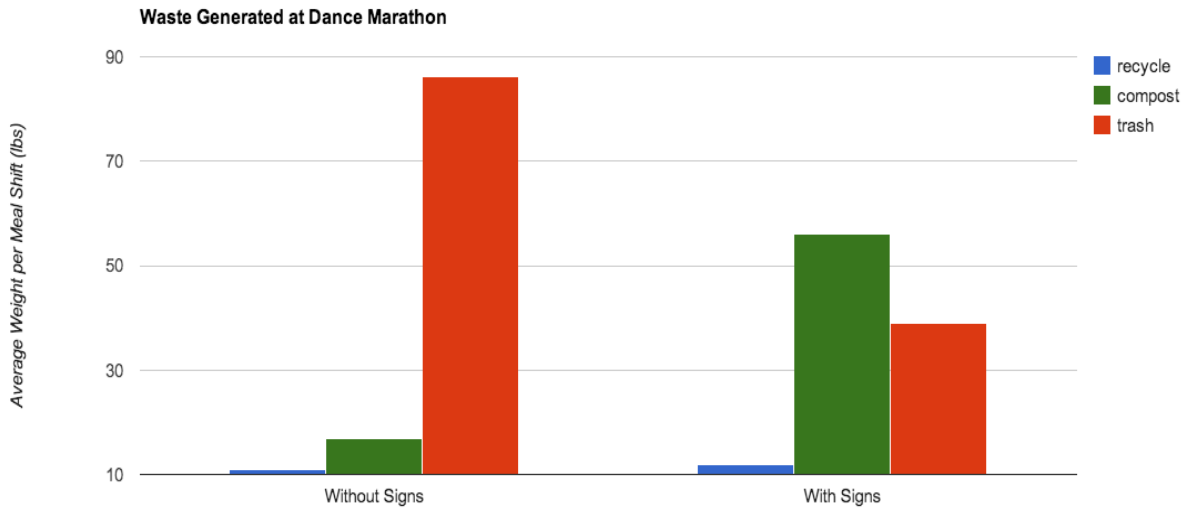


Figure 2: Average weight totals of waste generated by dancers at Dance Marathon

Earth Day Fair

As part of our education and outreach efforts, the Zero-Waste Pauley Pavilion ART team teamed up with the Recycling ART team to table at E3's annual Earth Day Fair in April. We

created an interactive activity that would engage fair attendees while teaching them about correct waste sorting methods. We hosted a trash sorting game, in which participants were asked to sort various waste items into landfill, recycling, and compost bins. We obtained two sets of Clearstream bins from UCLA Facilities, with each set including a portable, wire-hanging recycling and compost bin. We used cardboard boxes for the landfill bin.

Between the two ART teams, we collected various waste items from places around campus. We tried to make the assortment of items representative of what waste items students would encounter in Pauley Pavilion, as well as throughout campus. For example, we could not obtain the exact fry trays sold at Pauley concessions, but we found similar cardboard food containers. In addition, we tried to include equal amounts of landfill, recycling, and compost, with some items more confusing than others. The final array of items included: orange peels, a ball of foil, empty pizza boxes, a clean plastic food container, a food-soiled plastic food container, potato chip bags, water bottles, cans, paper fry trays from Carl's Jr., plastic forks, corn-based compostable forks, Styrofoam, a plastic grocery bag, printer paper, Ziploc bags, a coffee cup with a plastic lid and cardboard wrap, a soda cup with a plastic lid and straw, a wrapped straw, and plastic coffee stirrers.

We had two sets of all of these items, one for each of the Clearstream waste stations. Players raced to sort as many items as quickly and accurately as possible within a one-minute time frame. We measured accuracy by having an ART team member go through all of the "disposed" items with the participant after the race was over. The accuracy portion of our activity was also the most educational. As we went through each item with the participant, we explained why or why not certain items belonged in each bin.

There were many common mistakes amongst participants. For example, most people did not separate the different components of a coffee cup into separate bins. Many people threw the entire cup into the compost bin, while the correct way to dispose of it is to separate the plastic lid into recycling, and the rest into compost. Other recurring mistakes included throwing away foil into the landfill bin, while it is actually recyclable. Perhaps the most confusing and therefore least accurately sorted waste items were materials with food waste on them. Many people threw food-contaminated plastic into the compost bin or recycling bin, but these items actually have to be separated with food thrown into compost and plastic into recycling.

Other problems we encountered included insufficient labeling of our table and activity. Many Earth Day Fair attendees thought our Clearstream bins were actual waste containers, so our bags got a bit contaminated from people's actual trash. We also had planned to place our team-designed labels onto the waste bins, but the UCLA Recreation office was under construction and we were unable to obtain printouts in time. Besides this minor confusion, our activity was a great success. We used this opportunity to educate students about how to decrease their landfill contributions, and our participants were excited to play and learn about accurate waste sorting practices. Throughout the fair, we were able to reach a large audience, and many students were surprised to find that certain items did not belong where they thought they belonged. Hopefully, this new knowledge will influence their future behavior and will help campus locations such as Pauley Pavilion reach zero-waste.

Project Outcomes

Through analysis of our results at the basketball game, Dance Marathon, and the Earth Day Fair, we concluded that Pauley Pavilion needs new waste bins and effective signage. After analyzing our data from our behavioral audit, we decided there was a surplus number of trash

bins throughout the concourse and that compost bins are essential to reach our ultimate goal of zero waste. The current waste bins do not have a compost component, therefore new bins are needed to facilitate sorting. Rich and the team came up with the idea of “trash bin islands” where all categorized trash bins are grouped together in specific locations within the Pauley concourse. This way we direct patrons to a limited number of areas where they must sort their trash because all options are given to them in that single area. If we leave bins as they are, patrons are less likely to sort trash and instead are more likely to throw everything they have into the nearest receptacle, regardless of where those items should actually go. We want to streamline our waste stream by streamlining patron behavior.

Additionally, we concluded that new waste bins would provide an opportunity for permanent signage. Since our signs were noticeably effective at Dance Marathon, and the Earth Day Fair further proved that signs are necessary for proper sorting, we decided to implement the signs we created on new waste bins inside Pauley.

We chose to purchase new bins from the company Max-R, since they are highly customizable and are made from recycled milk jugs. Other universities have used this company to much success, such as UC Berkeley and the University of Mississippi. The company as a whole is committed to using sustainable business and manufacturing practices. Aside from their bins being made from recycled milk jugs, they use energy efficient lighting, renewable wind power, and source over 50% of their raw materials within 200 miles of their facility. The team applied for and was granted nearly \$20,000 of funding through The Green Initiative Fund (TGIF) to purchase new bins from Max-R. If the funds from TGIF are not sufficient to cover the final cost however, UCLA Recreation will provide the remaining funds so that all the bins needed are purchased. The team walked around the Pauley concourse to determine how many bin units need

to be ordered. We are currently working with the company to determine the final design. Once the final design is completed, we will be ready to purchase and the bins and they should be ready for the fall 2014 season.

Green Events Guideline

Our stakeholder, Rich Mylin, liked the idea of having a green events guideline specific to UCLA Recreation space that is rented out to various groups and organizations both inside and outside of the UCLA community. Rich asked us to create a list of items we felt were important to holding a sustainable event. Each item is given a certain number of points depending on how “green” it makes the event. Items that are harder to implement receive more points and the purpose of the guideline is to attain as many points as possible. Clients wanting to rent Recreation-owned space will have to comply with a minimum number of sustainable practices in order to use that space, whether that space is a conference room, field, or even Pauley Pavilion. We have created a ranking system of three levels - Bronze, Silver and Gold. The Bronze level is the minimum number of points at which each client is granted access to Recreation space. There will be an incentive to reach the next highest threshold as there will be a monetary prize or discount awarded to the event. We hope that this will incentivize people to hold the most sustainable events as possible.

We based our guideline on the UCLA Green Event Certification process from the UCLA Events Office, which upon passing its online quiz, gives event organizers a seal that can be placed on all promotional materials. Though we were not able to find out exactly how the quiz is scored, it is based on the honor system and there is no one to hold an organization accountable for the pledges it makes, nor are there any repercussions for not passing the test. We also divided the guideline into events with food and without. We took energy, waste, and transportation into

consideration, as well as practices to be used before, during and after each event. For example, during an event, organizations are given more points for using silverware, less for using compostable utensils, and zero points for using plastic utensils. This guideline still needs to be piloted, which will have to be implemented next year.

Recommendations

If there is a follow-up Zero Waste Pauley team, we have several recommendations, as we still have not fully reached our ultimate goal of zero waste. First, there needs to be a strong push toward more sustainable concession items. We were not able to switch out landfill items this year, as it is a long, arduous process that requires new contracts and negotiations with ASUCLA. However, it is imperative that we have compostable or recyclable items sold within the facility in order to decrease landfill waste. Nacho chip bags, straws, candy wrappers, plastic utensils and fountain drink cups are currently the pressing items that need to be changed. Fountain drinks especially compose much of the waste stream generated at the facility. There is currently a debate throughout campus on whether or not these cups are recyclable, so we urge the next team to finalize where they are to be disposed.

Though we are in the process of purchasing new bins with signage, there are silver bins in the walls of bleachers that need signage. We nicknamed these the “Harry Potter Bins,” as they are bins hidden under the stairs, embedded in the walls. We suggest placing permanent appliques on the bins, using the signage we designed with Recreation’s marketing team.

We learned that attendees leave a lot of trash by their seats, none of which will be sorted. As a team, we learned that becoming a zero waste facility is much more than simply the type of items being thrown away - we are trying to instill a behavioral change. Before waste can even be sorted, it needs to be carried out into the concourse area by each individual. Our team had the

idea of producing a 15-second spot on the large screen at the game to remind patrons to throw away and sort their trash into the correct bins. We determined that the best time to put on this announcement would be after the Bruin shuffle because spectators would already have their attention focused on the large jumbo-screen.

In this short audio and visual announcement, we would remind event attendees to: 1) take their trash with them when they leave their seats to minimize the amount of waste left in the stands and on the floor, 2) head towards the trash islands located on the upper concourse and to take a look at the new and improved signage if they have any questions, and 3) recycle or compost their waste when possible. This short and simple reminder may be an effective way of reducing the amount of waste left in the stands by reminding attendees to be aware of their actions, the resources available to them, and the goal of zero waste at Pauley Pavilion.

After the new waste bin islands are implemented, we highly recommend a student volunteer team to stand by the bins for the first few season games to help attendees familiarize themselves with the new signage. While signage and recycling bins provide means of disposing recyclable and compostable materials in Pauley Pavilion, it is equally as important that event attendees are aware of these resources and are taught how to dispose of their waste properly. Student volunteers will be in charge of directing event attendees' attention to the appropriate signage, and explaining how confusing items should be disposed of, such as food-contaminated paper or foil. Though there are new patrons at every event, we hope that season ticket holders and returning clientele will learn how to properly sort and dispose of their trash. We want students and other attendees to be equipped with new knowledge about zero waste initiatives, recycling, and composting, and will utilize the signage and eliminate the facility's landfill waste.

With the implementation of the new bin islands, the existing single grey trash bins in Pauley need to be repurposed. We suggested to Rich Mylin that they be used in outdoor Recreation space, but definite locations have yet to be determined. Depending on their utilization, proper labeling should be considered as well.

Conclusion

The Zero Waste Pauley Action Research Team has come a long way this year, but there is still further to go. Through our research of patron behavior, we were able to move forward with establishing the infrastructure within Pauley Pavilion that would make zero waste possible. Successful signage on bins that allow for proper sorting are key in reaching our ultimate goal. New bins and new signs is great progress. The issue of the items sold within the building prevented us from reaching our target this year, but our future outlook is highly positive – we are well on our way towards zero waste.

References

UCLA Green Event Certification. UCLA Events Office, 2012. Web. 29 April 2014.

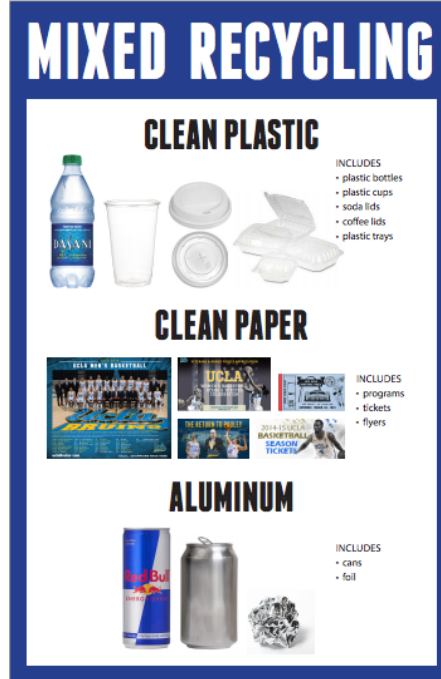
<http://green.uclaevents.com/green-event-certification-application/>

Waste and Recycling Bins. Max-R, 2014. Web. 26 February 2014.

<http://www.max-r.net/store/waste-and-recycling-bins.asp>

Appendices

Signage designed by the team and UCLA Recreation:



Team at Dance Marathon:



Signage on Clearstream bins at Dance Marathon:



Preliminary mock-up of bins from Max-R:



Team photo at UCLA vs. Colorado:

