UCLA Sustainability Action Research

Graduate Housing Waste Diversion
2018 Midterm Report

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ABSTRACT

In 2012, UCLA laid out a 100% waste diversion goal by 2020. Two years left in the countdown, the Graduate Housing Waste Diversion Team is in the works of developing and perfecting its previous team's "Zero-Waste Pilot Program"-- aimed at successfully implementing a composting system within the two UCLA Hilgard Graduate Housing Apartments. Over the course of winter quarter, a waste audit revealed that over 50% of waste could have been diverted to compost in one of the Hilgard complexes. In addition, multiple surveys have been conducted to assess graduate student's interest in current and future composting programs-- revealing strong interest in the program, but with the requisite to address particular resident concerns.

Within the next 10 weeks, this team will direct its attention and effort into three primary goals: 1) educate UCLA Housing residents on composting and waste diversion, 2) increase active participation in Hilgard's composting program, and 3) create a reference handbook for future efforts geared towards implementing additional composting programs in other UCLA Apartment locations. These initiatives are essential for UCLA to meet its goal within the next two years and form a resilient waste diversion system for future residents.

INTRODUCTION

When students think about ways to further sustainability at UCLA, graduate housing is not typically what first comes to mind. Our team is working to change this and show that there are ways to make all areas of UCLA more sustainable. As a team of undergraduates, working in UCLA's graduate housing has already proven to be a very unique and informative experience for each of us. Being far removed from UCLA's on-campus housing, most undergraduate students are unaware of the expansive community that lives in UCLA's graduate housing. With fourteen total buildings across Westwood and West Los Angeles, UCLA's graduate housing is a large consumer of resources and producer of waste, but what this also proves is that there is incredible potential to make UCLA more green by focusing on this community. Our team believes that if our campus is to meet its ambitious and time-sensitive environmental goals, we cannot afford to disregard graduate housing any longer.

This is the second consecutive year that a Sustainability Action Research team has worked to reduce the environmental impact of UCLA's graduate housing apartment complexes. In 2017, the first graduate housing team came in without a clear direction for a project. They worked with our current stakeholders, Daisy Oliver and Addae Jahdai-Brown, to learn the layout of the community, the projects already in motion, and the university policies dictating what would or would not be feasible.[1] The team researched past projects that were attempted in graduate housing and paid particular attention to a 2014 SAR team that worked to improve recycling in University Village, a set of complexes roughly five miles south of UCLA. This team researched ways to increase waste diversion from landfill and made several recommendations

[1] Hunter, Chris, et al. "Diverting Landfill Waste in University Apartments". *Institute of the Environment and Sustainability*, 2017, University of California Los Angeles. <https://www.ioes.ucla.edu/wp-content/uploads/2017gradhousingReport.pdf>

about the importance of diverting green waste. After several weeks of research and brainstorming, the team felt it would be useful to gain the advice of someone directly involved in sustainability, and reached out to Emma Sorrell, the Sustainability Manager of UCLA Housing & Hospitality Services. Together they discussed several ideas of what Emma thought might be feasible and time-effective projects for the team to explore. Chief among these was the idea to pursue a residential organics collection program in one area of graduate housing. Emma explained that representatives from Athens Waste Services, the company contracted to collect all of UCLA's waste and recyclables, had recently expressed interest in expanding green waste services to more of UCLA's housing complexes. The team was immediately excited by the prospect of implementing a waste diversion program, and quickly got to work coordinating several meetings with Jessica Aldridge, the Sustainability Manager for Athens Waste Services. They recognized the potential significance of this project, and felt that it was an important step towards reducing campus-wide waste sent to landfill, especially as they approached the end date for UCLA's "Zero Waste by 2020" goal.

With the help of Jessica Aldridge and Emma Sorrell, the SAR team developed the concept and timeline for a pilot food-scrap collection program in two graduate housing apartment complexes on Hilgard Avenue, which were chosen because of their relatively small size and their ability to accommodate a green waste bin in their central waste rooms. The team then got in touch with Global Green and EcoSafe, two environmental non-profit organizations with experience facilitating residential organics collection programs. They agreed to provide support and materials for the pilot program, including kitchen compost caddies for each unit at 720 Hilgard and 824 Hilgard, and a compostable bag dispenser for each building's waste room. The team pursued infrastructural change by providing each tenant with a compost bin and

educational change by sharing printed and digital descriptions of how the program was intended to operate. They hoped that this two-pronged approach would have a greater impact on the rate of waste diverted from landfill than simply adding infrastructure with the compost caddies.

This year, our team first became familiar with the past SAR team's project, and then aimed to develop our own plan for reducing the environmental impacts of the graduate housing community. In planning our research, we felt it was important to look into similar programs on other campuses,[2] the psychology at play in people's decisions when sorting waste,[3] and university policies that might impact any project we pursued.[4] We also looked into the science behind composting[5] and the steps to conduct a successful survey.[6] With this knowledge, we felt confident in our ability to design a plan of action. While our team recognizes that the previous SAR team's project was a step in the right direction, we are currently focused on rectifying the various issues we found with this program and on exploring other avenues to improve sustainability in this community.

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[2] Schmidt, Chonsa. "Implementing a Composting System in the Villa Apartment Complex: A CSIF Proposal." (n.d.): n. pag. Scu.edu. 2015. Web. 24 Jan. 2017. <https://www.scu.edu/media/offices/sustainability/programs/investment-fund-csif/CSIFProposal-(1).pdf>.

[3] Menzer, Lauren, et al. "Behavioral Economics of Waste Management: Identifying Factors That Influence Personal Waste Sorting Practices." UCSB Refuse and Recycling Research Center, 2014, pp. 1–36. <https://www.facilities.ucsb.edu/files/docs/UCSB_R3C_Behavioral_Economics_of_Personal_Waste%20Sorting_Practices.pdf>

[4] Nordby, J. Cully, et al. "UCLA Zero Waste Plan." *UCLA Sustainability,* University of California, Los Angeles, July 2012, <www.sustain.ucla.edu/about-us/publications-and-reports/.>

[5] Cooperband, Leslie. *The Art and Science of Composting*. University of Wisconsin-Madison, 29 Mar. 2002, <www.cias.wisc.edu/wp-content/uploads/2008/07/artofcompost.pdf.>

[6] Thayer-Hart, Nancy, et al. "Survey Fundamentals: A Guide to Designing and Implementing Surveys." *University of Wisconsin - Madison,* Dec. 2010, <oqi.wisc.edu/resourcelibrary/uploads/resources/Survey_Guide.pdf>

METHODOLOGY

In the short time we have had together so far, our SAR team has made significant progress, especially in the collection of data regarding the already existing composting program on Hilgard Avenue, a continuation from last year's Graduate Housing Waste Diversion team. We began the quarter by meeting with our stakeholders, Daisy Oliver and Addae Jahdai-Brown of University Apartments Residential Life, to get an idea of the program's current status. From our conversations with Daisy and Addae, we learned that there had not been much program upkeep through the summer and fall, and we decided that an onsite visual audit and door-knocking informal survey of residents of 720 Hilgard and 824 Hilgard was necessary to gather further information. After seeing what was essentially a blatant disregard for the program, whether it be from residents not knowing it existed, not understanding how to participate, or just simply not supporting it, the team decided to sit down and lay out our immediate goals for the remainder of the quarter. This included conducting an onsite waste audit to gather more quantitative data about the waste behaviors of residents, an online survey to gather qualitative data about their habits and concerns for the program, and another short in-person survey gathering data on overall support among graduate students for increased sustainability measures at UCLA in general.

Onsite Waste Audit & Results

With the help of Athens Waste Management, our team conducted an onsite waste audit in February that provided a lot of good information on the present waste behaviors of residents in the Hilgard graduate housing complexes. At 720 Hilgard Avenue, a larger 4 story complex with approximately 80 residents, we audited the landfill container and found that only 33.5% of the waste in this bin actually belonged there. 52.4% of the waste in the container could have been

diverted into compost, and 14.1% of it could have been diverted into recycling. At 824 Hilgard Avenue, a smaller 3 story complex with approximately 25 residents, results were slightly better in the sense that there was more waste in the landfill container that belonged in there, and there was less waste that should have been diverted. 46.7% of the waste in the landfill bin belonged in there while 36.3% could have been recycled and 17% could have been composted. This small difference in waste diversion rates between the two complexes could have resulted from the different scaling of residents. Other factors that are worth mentioning that may have led to this small inconsistency include upkeep of the trash room and the frequency at which the compost bag dispensers were replenished.

Hilgard Survey & Results

Our first interaction with the Hilgard residents was on February fourth when we made our first visit to the two apartment buildings. We conducted an informal door to door survey in order to gain a sense of the residents' knowledge and opinions of the composting program implemented last year. We received a lot of valuable feedback that made us aware of the specific problems students were having with the program. In order to gain a wider range of input, we created a digital survey that was emailed to the residents that asked a variety of questions concerning possible improvements and how to increase resident participation in the program. To increase the amount of responses, team members tabled in the outdoor courtyard of the 720 Hilgard on four separate evenings across two weeks in February. Team members assisted residents in filling out the survey while gaining in person interactions with the residents. From the survey we learned that only 50% of residents completely understood what composting was and how to sort their waste while only 36% actively sorted their waste. We also learned that over a quarter of residents had not been provided a compost bin in their room pointing to a

logistical problem with keeping the system in place in between years. We were also able to identify several other problems with flies, odor, and a lack of access to compost bags being the most reported. The residents also gave possible solutions that have served useful in our efforts to increase resident participation. From this data it is clear that several problems need to be addressed and that education will have to be a key part of our plan moving forward.

WHRA Karaoke Survey & Results

In the first week of March, our team was able to attend a social karaoke night hosted by the Weyburn-Hilgard Residents Association (WHRA) where we collected a lot of good insight from graduate students regarding UCLA's overall performance when it comes to green services. In return for answering some questions about UCLA's goals and actions toward Zero Waste, student participants were entered in a raffle to win meal vouchers to UCLA Dining on the Hill. Results showed that only 67% of students surveyed knew about UCLA's goal to become Zero Waste by the year 2020. However, 98% of those surveyed wanted to see UCLA's administration do more to reach this goal, and 95% thought that implementing composting programs in residential apartment complexes were an important way to do so. With just these statistics, it is clear that UCLA administration really has to take into consideration the positive impact that campus-wide organic waste programs will have on the process of meeting its Zero Waste goals.

CHALLENGES AND DIFFICULTIES

Our efforts this quarter were not completely uninterrupted by various challenges. Some of these challenges that we've faced so far have more or less been overcome, while some of them are still ongoing. One of the earliest challenges we faced was one involving significant turnover in facilities management and in the UCLA Housing sustainability department. Javier Ayala, last year's facilities manager for University Apartments North who graciously assisted the previous Graduate Housing SAR team with waste audits and the setup of Hilgard's organic waste program, transitioned to University Apartments South - about five miles away from University Apartments North - in the time between the work of last year's team and this year's. Additionally, Emma Sorrell, another valuable consultant for last year's team because of - among other assets - her knowledge of nonprofits through which composting caddies for the residents were acquired, left her position as the Sustainability Director for UCLA Housing. These two people were instrumental in the success of last year's pilot program, and though they were technically not stakeholders, their knowledge and experience provided just as much help and guidance as did that of Daisy and Addae. However, their replacements, Luis Munoz (Facilities Manager) and Erin Fabris (Housing Sustainability Director) were duly informed of the program during the transition period and were more than willing to be involved in our project this year. Luis was very helpful in providing us with all of the materials we needed for conducting our February 15th waste audits, as well as in responding to physical issues with the waste rooms (diminishing fruit fly infestations and refilling empty compost baggy dispensers) while Erin - who had experience with organic waste diversion at USC - helped us with the marketing guidelines for the educational resources that we are currently in the process of rolling out.

However, Erin and Luis's valuable help alone wasn't enough to solve the overall problem of the pilot program essentially falling into disuse during the summer of 2017. Part of this was due to the staff turnover as described, and part of it was due to the unavoidable circumstance of the 2017 Grad Housing team going their separate ways for the summer, some members far away from the campus and unable to keep an eye on the maintenance of the program. This will be something to keep in mind when summer approaches this year, as we ideally have some of our team able to make sure that our efforts in winter and spring to maintain a robust waste diversion system do not go to waste again. Still another factor for the pilot's decline was the natural turnover of graduate students that takes place quarterly and yearly within both Hilgard complexes. Upon our first visual audit of the waste room of 720 Hilgard, there were a sizable number of green compost caddies abandoned in the corner of the room. We deduced that when some of the residents vacated their apartments at the end of last year, they left their green bins in the waste room, not knowing exactly what to do with them. This left around 15 residents this year with no bins and thus no ability to compost within their apartments. We are currently coordinating with Luis to arrange a redistribution of these bins in the near future, as well as planning a way to convey to residents that it is important that they should report any absences of their compost caddies, which are included as mandatory items on their move-in checklists.

Finally, one of the conceptual challenges we faced was that we had to essentially reform the goals and the scale of our project. In general, all of our team members entered the project having read the recommendations in last year's report with the idea in mind that our goal should be to expand the existing waste diversion program in Hilgard to the Weyburn apartments this year. While this was an ambitious and admirable goal, we ran into two main roadblocks, the first of which we learned about in one of our stakeholder meetings with Luis. He explained the

logistical difficulties of - at least within the timeframe that SAR takes place - implementing a compost program in Weyburn because of its sheer size and infrastructure. The Weyburn Terrace apartments comprise nine separate buildings with 1,340 units - much more than the 100 total units we were working with in Hilgard.[7] The sheer size of Weyburn would make it illogical to perform nine separate and multiple waste audits and then track and tend to the waste habits of all the residents in each of these nine buildings. Additionally, Luis informed us that each floor in Weyburn has its own waste room rather than centralized, ground-level waste rooms that exist in 720 and 824 Hilgard, further complicating the matter. These infrastructural issues combined with the reality that the program in Hilgard had fallen into a level of disarray and disuse provided a challenge for the success of our initial goal. Therefore, we decided to allocate the limited time and resources we have to focusing on bringing Hilgard's program back up to a high standard of at least the level of participation and waste diversion that was last observed in 2017. Additionally, we hope to composing a compelling argument for UCLA Housing and other administrative branches to notice the urgency of the 2020 deadline for Zero Waste and to that end, providing them with a step-by-step guideline for selecting the UCLA Housing facilities that are most ready for a compost program and then successfully implementing them.

[7] "Weyburn Terrace Apartments." *UCLA Housing*, housing.ucla.edu/student-housing/graduate-students-and-students-with-families/single-graduate-students/weyburn-terrace-apartments.

CONCLUSION AND PLANS FOR SPRING QUARTER

Entering winter quarter, the initial goals we set to accomplish were heavily dependent on composting program participation following the 2016-17 Graduate Housing Waste Diversion team. With pre-established participation from residents at Hilgard Apartments, we were hoping to immediately work to expand to other complexes. However, it became apparent the program was lacking resident support, despite the efforts of the previous SAR team.

Upon realizing this lack of participation, we reformed our goals, aiming to first improve the system at Hilgard. Following our preliminary waste audit, we realized residents were exercising poor waste sorting habits in recycling, compost and landfill. The success of this program depended on much more than solely access to proper composting infrastructure, but alluded to a larger issue of cognizance of proper waste disposal.

Direct outreach through surveys and conversations with residents became our primary method for attempting to understand the root of this issue. Moving forward into spring quarter, we have prioritized such outreach to encourage resident participation. Spring quarter will largely determine the success of our program and we have identified three primary objectives for this time.

1. Distribute Infographics to Residents

Diana Nguyen has designed two separate infographics which will be distributed in the first week of spring quarter to all units in the Hilgard Apartments. One infographic, which will be sent through email to residents, illustrates the sorting habits of the building using data collected from our preliminary waste audit. This infographic also addresses common issues residents voiced through our surveys and in-person outreach, such as weak compost bags and strong odor, providing recommended solutions to mitigate these problems. Secondly, another infographic will

be distributed as a magnet to be placed on residents' refrigerators, which displays the separate categories of recycle, compost and landfill along with the items that should be placed in each bin. Not only will this provide an educational resource for residents, but we hope it will become a constant visual reminder to utilize the provided compost caddies and to properly sort waste.

2. Conduct Spring Waste Audit

The preliminary waste audit exposed us to the margin of sorting improvement possible at the Hilgard apartments, and we believe a second waste audit will provide insight to any changes over the course of our program. Quantitative analysis of differences between the first and second audit will illustrate the success or lack thereof with our program, and we plan to use this data to reflect upon our methods and angles we used to improve sortage. Furthermore, this audit data will be important in our goals of expanding similar programs as concrete data will help complement our ambitions in promoting the importance of waste sorting.

3. Compost Program Expansion Handbook

During the final weeks of spring quarter, our SAR team will reflect upon successes and unexpected obstacles and create a handbook for specifically implementing composting programs in student apartment complexes. This handbook will be more colloquial in comparison to our final report, giving a more persuasive and relatable angle toward compost program implementation. Coupled with our final report, this handbook will be distributed through housing administration, encouraging the future program implementation across both graduate and undergraduate complexes.

Although this process was not always easy, our team worked through challenges together, and consistently remained committed to our goal of creating lasting tangible change at UCLA.

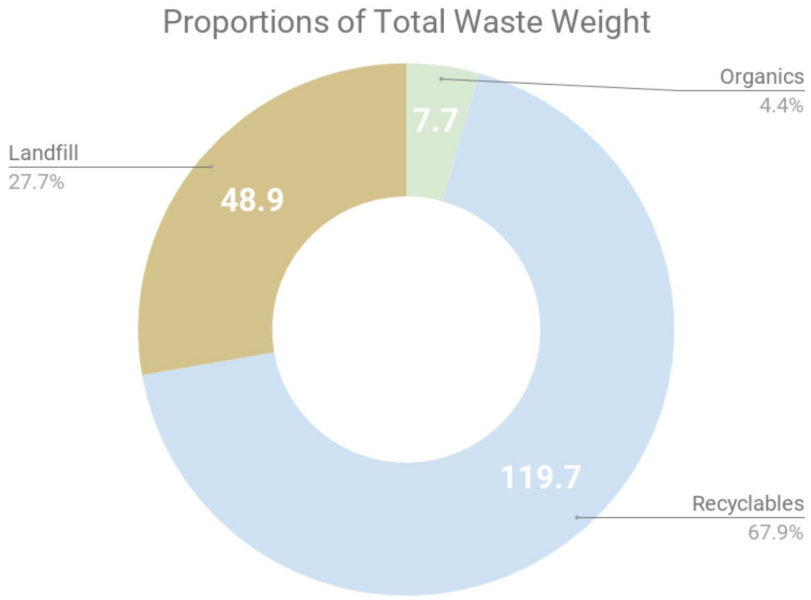
The success of our program will not only reflect improvement at Hilgard apartments, but it will have a substantial impact in aims of campus sustainability at UCLA. While we are proud of the work our team has accomplished over the past ten weeks, we plan to hit the ground running in the Spring and get straight to work completing what is left to be done. Our Zero Waste by 2020 goal will not be achieved without a cognizant effort from every Bruin, and this program would prove that student-led institutional change is possible.

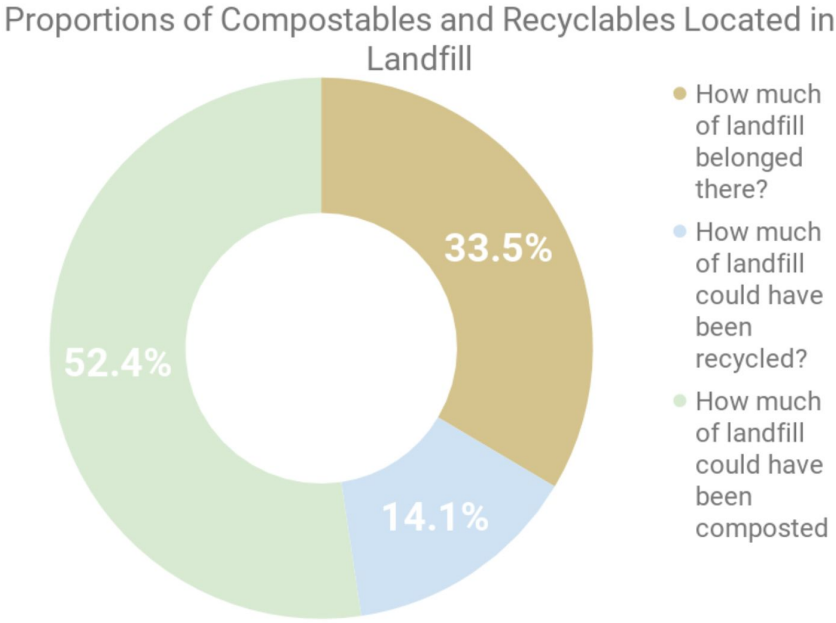
APPENDIX

February 15, 2018 Waste Audit: 720 Hilgard

	Bin / Dumpster Category (location of waste)		
Type of Waste	Organics	Recyclables	Landfill
Organics			
Food Scraps and Other Soiled Paper Products	6.6		25.6
Paper Products			
Mixed Paper & Newspaper		31.2	0.9
Corrugated Containers (OCC)		18.9	0.9
Plastics			
#2-#7, no #6: Mixed plastic		14.2	3.2
#11: P.E.T. plastic (CRV), water bottles		0.4	
#4: film		0.7	0.1
Other Recyclables			
Aluminum cans / UBS's (CRV)		0.7	
Aluminum scrap		1.6	
Aseptic Poly Carton		1.3	0.3
Glass CRV		21	0.6
Scrap Metal			0.9
Destined for Landfill			
Foam		1.4	
Textile		16.5	
Misc- Ramining Material / Landfill Only	1.1	11.8	16.4

Total Weight of Dumpster/Bin	7.7	119.7	48.9
How much of landfill belonged there?			0.3353783231
How much of landfill could have been recycled?			0.1411042945
How much of landfill could have been composted?			0.5235173824

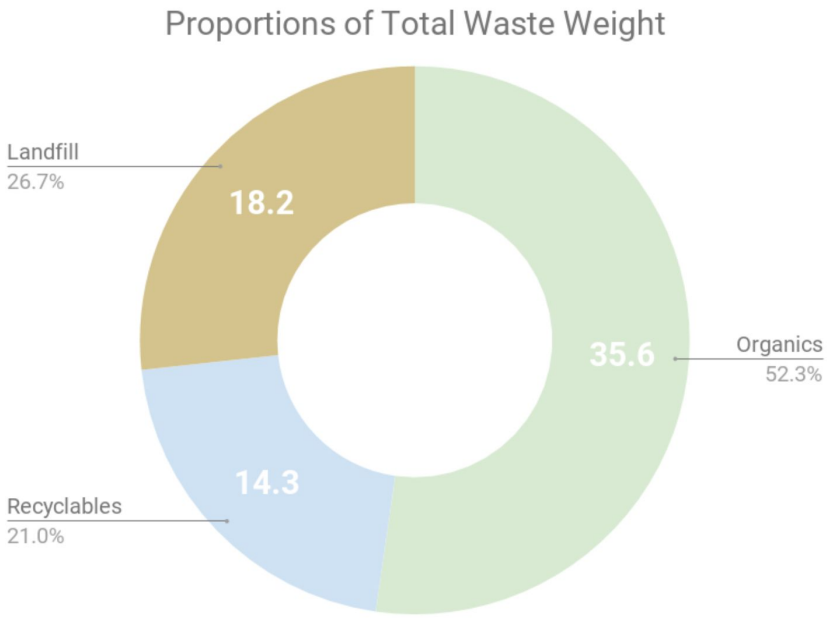


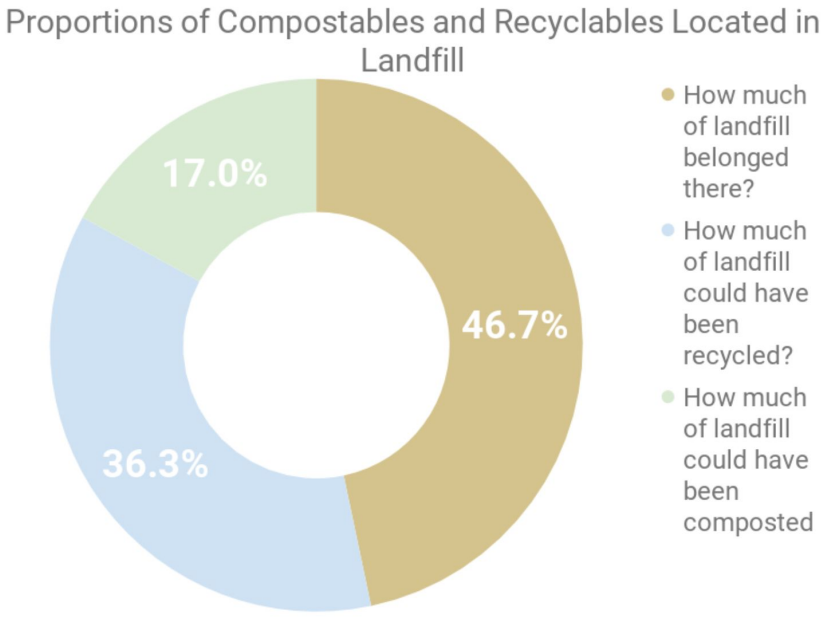


February 15, 2018 Waste Audit: 824 Hilgard

	Bin / Dumpster Category (location of waste)		
Type of Waste	Organics	Recyclables	Landfill
Organics			
Food Scraps and Other Soiled Paper Products	1.2	0.4	3.1
Paper Products			
Mixed Paper & Newspaper		2.5	
Mixed tissue plus mixed paper			0.9
Corrugated Containers (OCC)		4.1	
Plastics			
#2-#7, no #6: Mixed plastic		1.6	3.3
#11: P.E.T. plastic (CRV), water bottles			
#4: film	0.2	0.2	
Other Recyclables			
Aluminum cans / UBS's (CRV)			
Aluminum scrap		0.1	
Aseptic Poly Carton		0.3	0.2
Glass CRV		1	2.2
Scrap Metal			
Destined for Landfill			
Foam		0.2	
Textile			
Misc- Ramining Material / Landfill Only	1.7	3.9	8.5

Total Weight of Dumpster/Bin	35.6	14.3	18.2
How much of landfill belonged there?			0.467032967
How much of landfill could have been recycled?			0.3626373626
How much of landfill could have been composted?			0.1703296703

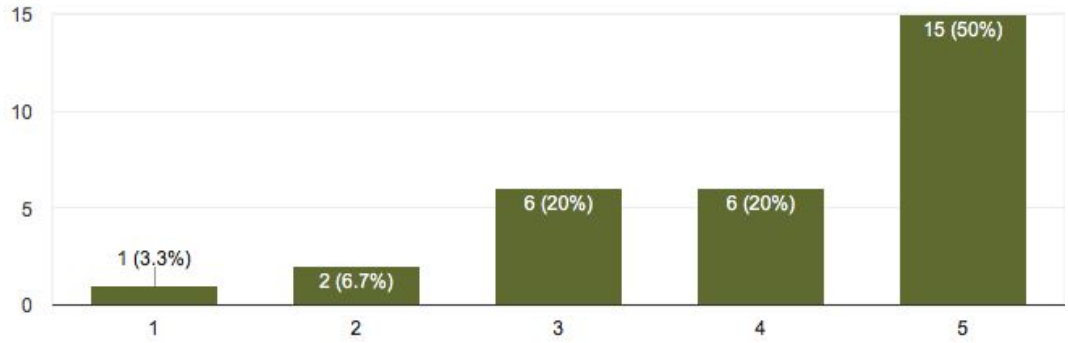




Hilgard Survey.

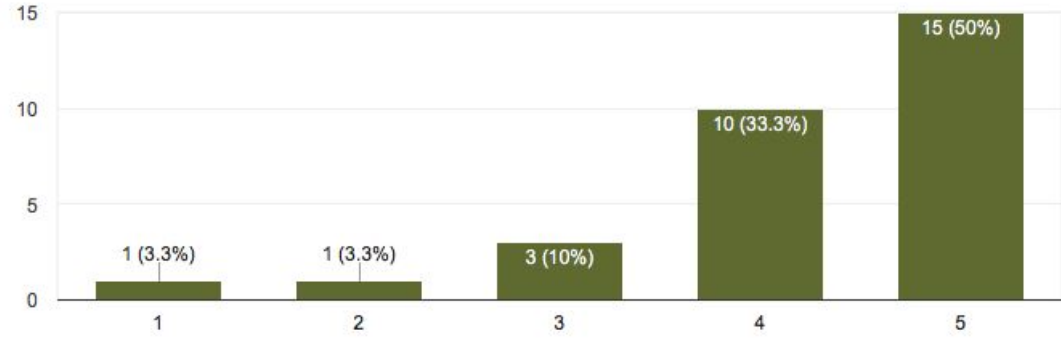
I am confident in my ability to accurately sort waste between compostables, recyclables and landfill.

30 responses



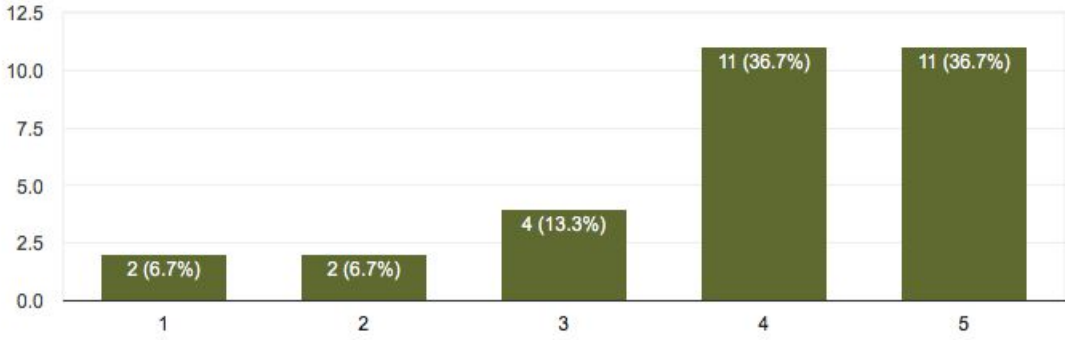
I understand what composting is and how it is important in reaching UCLA's goal of zero waste by 2020.

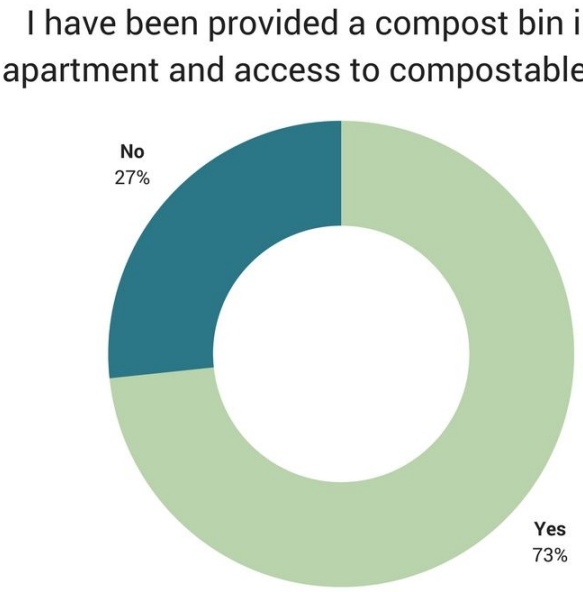
30 responses

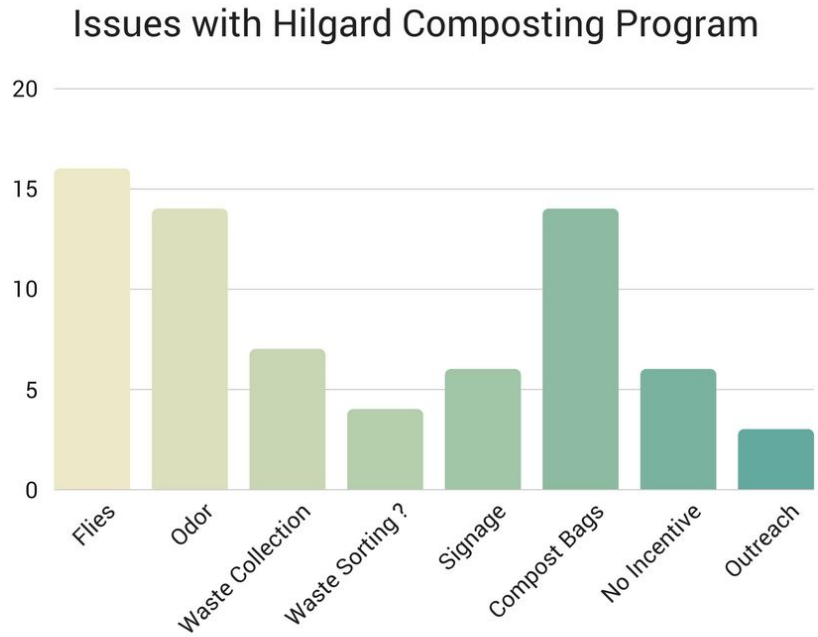


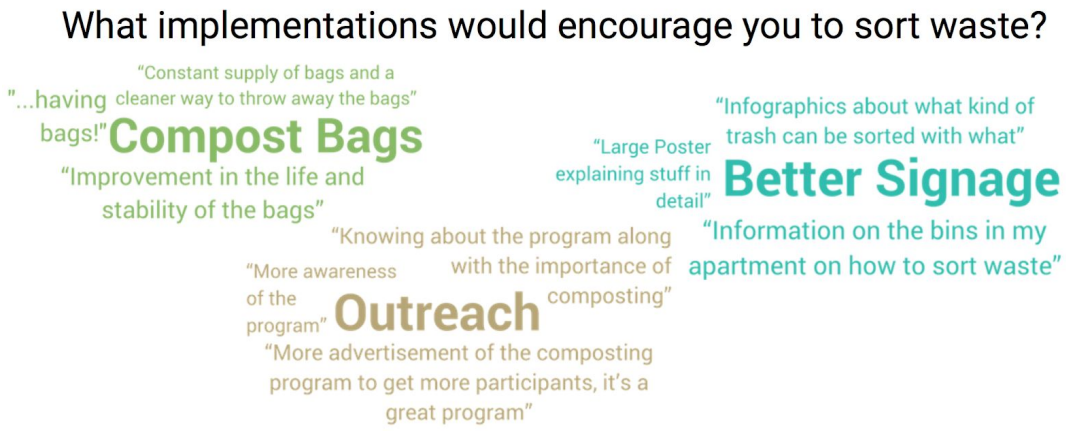
I actively sort my waste between compostables, recyclables and landfill.

30 responses

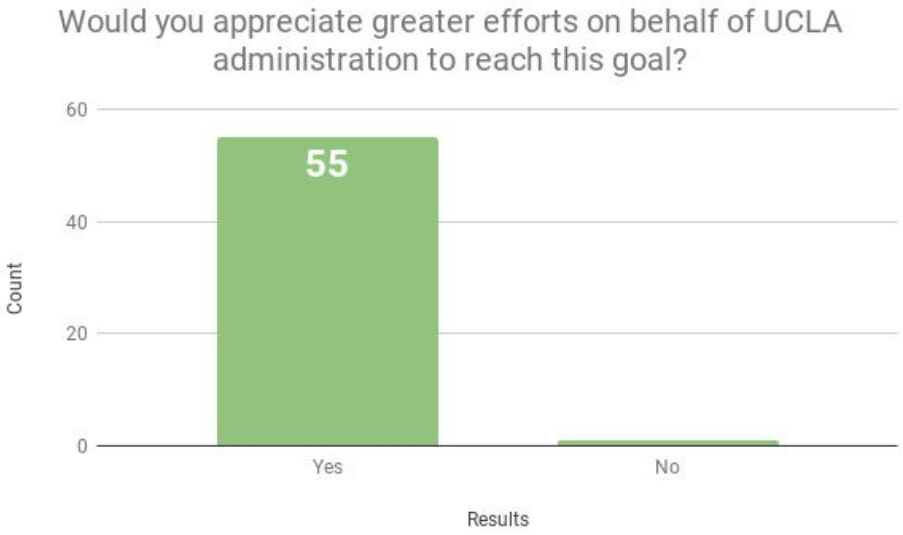


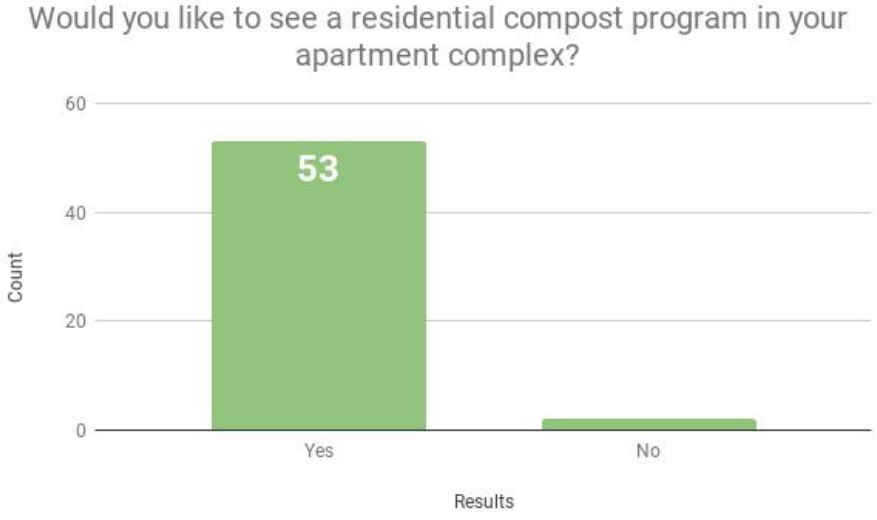

I have been provided a compost bin in my apartment and access to compostable bags.
No
27%
Yes
73%


Issues with Hilgard Composting Program
20
15
10
5
0
Flies
Odor
Waste Collection
Waste Sorting ?
Signage
Compost Bags
No Incentive
Outreach


What implementations would encourage you to sort waste?
"...having bags!"
"Constant supply of bags and a cleaner way to throw away the bags"
Compost Bags
"Improvement in the life and stability of the bags"
"Large Poster explaining stuff in detail"
"Infographics about what kind of trash can be sorted with what"
Better Signage
"Information on the bins in my apartment on how to sort waste"
"Knowing about the program along with the importance of composting"
"More awareness of the program"
Outreach
"More advertisement of the composting program to get more participants, it's a great program"

WHRA Karaoke Survey





Possible Infographics for Distribution

LET'S TALK DIRTY....

TIPS & TRICKS FOR COMPOSTING

PROBLEM	SOLUTION
BAGS TOO THIN AND TEARING?	**DOUBLE BAG IT** to add an extra layer of protection
DOES YOUR COMPOST SMELL?	**FREEZE IT** in your freezer to keep it out of sight and smell
DOES YOUR BAG RIP AND DRIP?	**BRING YOUR CADDY** when bringing your compost down to the waste room

Take the pledge to be zero waste & learn more at:
sustain.ucla.edu/MyLastTrash