

Project MUG & Incentivizing Reusables

A Paper Cup Waste Reduction Proposal



Winter Quarter 2013

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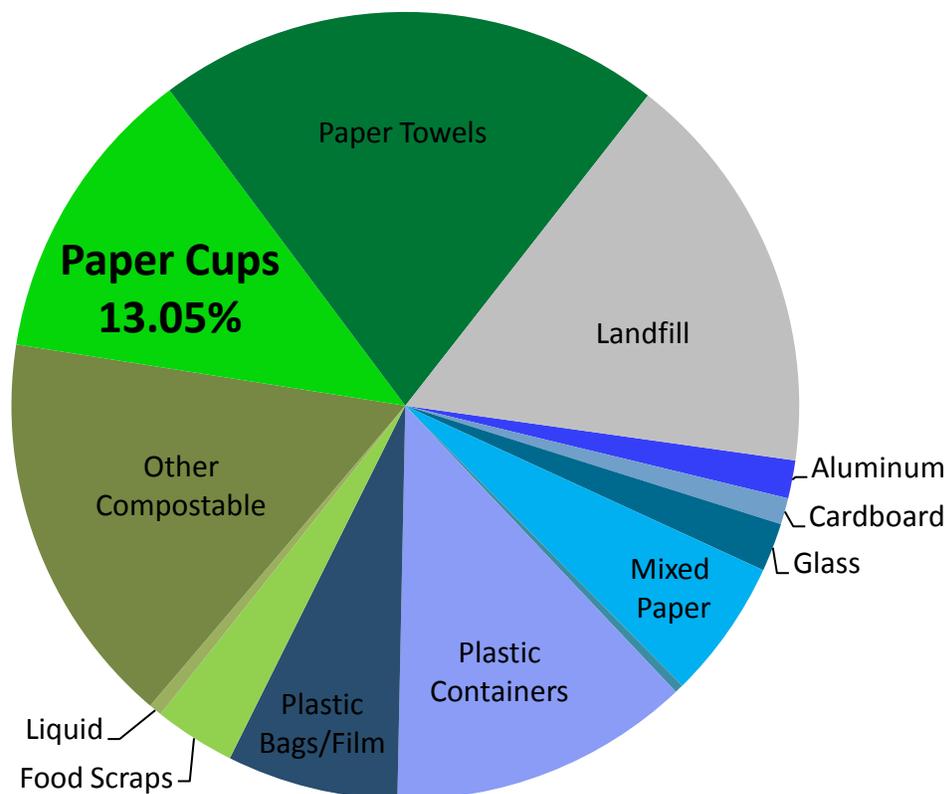
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1. Executive Summary

1.1 Problem

In 2012, Western Washington University (WWU) threw approximately 395,000 single-use hot beverage cups into the garbage¹. This is enough to fill 24 dumpsters to the brim². Despite the fact that the single-use paper cups WWU currently uses are compostable, they make up just over 13% of Western’s landfill-bound waste³, as shown in Figure 1. At this rate, Western is spending approximately \$22,000 per year to dispose of paper cups⁴. In all, the heavy usage of single-use disposable paper cups on the WWU campus is not in line with the school’s devotion to sustainability.

Figure 1. Paper cup waste as a percentage of total waste at WWU



¹ Dining Services correspondence

² $395,000 \text{ (cups)} \times 16 \text{ oz (average cup size)} \times 1 \text{ gallon} / 128 \text{ oz} \times 1 \text{ yd}^3 / 202 \text{ gallons} = 244 \text{ yds}^3 \text{ single-use cup waste.}$
 $244 \text{ yds}^3 / 10 \text{ yd}^3 \text{ sized dumpsters} = 24.4 \text{ dumpsters}$

³ 2011 WWU Waste Audit

⁴ 2011 WWU Waste Audit & WWU Refuse Collection Cost for Fiscal Year 2011/12

1.2 Solution

Single-use cups can be kept out of WWU's waste stream by increasing the use of reusable mugs on campus. To promote the use of reusable mugs, we are proposing two systems.

Firstly, we are proposing the implementation of a reusable mug rental system in the Viking Union Café, making it convenient for participants to act sustainably with reusable mugs. The pilot phase of the rental system, Project MUG, will be run in the VU Café where participants can check out, use, and return their MUGs. Used MUGs returned to the VU Café will be washed by Dining Services employees and subsequently redistributed to the café. The Project MUG pilot will begin Spring Quarter 2013.

Participants in this program will benefit by not needing to remember to bring their own reusable mug to campus, having the ability to drop off a used mug (and therefore not carry it with them all day), and not needing to wash their mug themselves. The availability and accessibility of Project MUG will enhance the convenience of using reusable mugs over disposable cups, thus significantly reducing single-use cup waste at WWU.

Secondly, we are proposing a change in the pricing structure at WWU cafés. Our proposed price structure separates the prices of hot beverages and single-use paper cups, making them separate menu items. This separation acts as a price signal to customers and lets them know that not only are they paying for a beverage, they are paying for a paper cup as well. The price signal will increase consumer awareness and incentivize the use of reusable mugs, be it is their own or MUGs from the Project.

1.3 Funding

For Project MUG, the majority of the money needed will be for purchasing MUGs. There are other costs associated with the program, such as advertising, which are further discussed in the budget section. The total budget for Project MUG amounts to \$1,926. This money will come from WWU's Green Energy Fee Grant Program Small Projects Pilot, for which Project MUG has recently been approved.

For the cost separation component, the costs are solely in advertisement and marketing, which will be largely determined by the infrastructure in on-campus cafés at WWU, such as menu boards and signage. If implemented, it would be optimal for Dining Services to provide funding in this area.

2. Statement of Need

Western Washington University is currently spending \$21,780.52 each year on paper cup disposal from main campus buildings, not including residences halls (WWU Refuse Collection Cost Fiscal Year 2011/12). This cost does not reflect the disposal of paper cups that properly end up in the compost bins. To put this into perspective, this could send an in-state student to WWU for a full year, including tuition, room and board⁵. In a time when funding for higher education is limited, we believe there are more beneficial ways WWU could be spending this money.

As mentioned earlier, a large percentage of WWU's landfill bound waste is single-use cups, despite the fact that they are compostable. When these cups break down in landfills, they generate methane, a greenhouse gas twenty times more effective at trapping heat in the atmosphere than carbon dioxide⁶. In addition, disposable cups require expansive transportation to get to WWU's campus, and ultimately landfills, generating additional greenhouse gases along the way.

Our two part proposal ties into WWU's goal of becoming a zero waste university and supports the President's Climate Commitment. The long-term goal of the President's Climate Commitment, which was signed by WWU, is for universities to become climate neutral by 2050. As our proposal will reduce the amount paper cups used and sent to landfill at WWU, it will reduce WWU's emission of greenhouse gases and support these goals.

As we have found no other institutions that have implemented a mug rental system like Project MUG and only one university putting a price on disposable cups, these projects are excellent opportunities for WWU to take the lead in this type of sustainability initiative. Doing so will enhance WWU's reputation as a university focused on sustainability, while saving significant money on paper cup purchase and disposal.

⁵ WWU Admissions. Retrieved from: http://admissions.wwu.edu/tuition/t_tuition.html

⁶ EPA. (2012). *Greenhouse Gas Emissions*. Retrieved from: <http://epa.gov/climatechange/ghgemissions/gases/ch4.html>

3. Objective

The main objective of the proposed projects is to motivate sustainable behavior and reduce waste through convenience and incentivization. Furthermore, advertisements and marketing for both projects would serve to educate campus members about the environmental benefits of reusable mug use.

4. Project MUG Pilot

Rent a reusable, reduce waste! Project MUG will reduce single-use cup waste generated at Western Washington University by implementing a system allowing students to check out, use and return reusable mugs. The planning for this component of the project began in fall 2012 and is presented in its updated form.

4.1 Details of the Pilot

Pilot Size

The pilot system will start with 40 participants, 144 MUGs, and will be run solely from the VU Café. The limited size of 40 participants in the pilot will give us a fair idea of the system's strengths and weaknesses without overwhelming the operations of the VU Café. Multiple MUGs per participant will ensure that if a participant were to get multiple beverages a day, there would be a sufficient amount of cleans MUG available. While this may not be the exact number of MUGs needed for efficient turnaround, the pilot will help determine if this ratio is adequate.

Pilot Duration

The pilot of Project MUG will run through Spring Quarter 2013, after which the results and feedback will be examined. If the collected data is not sufficient to make decisions about the future of Project MUG, the pilot phase will continue in Fall Quarter 2013.

Sign up

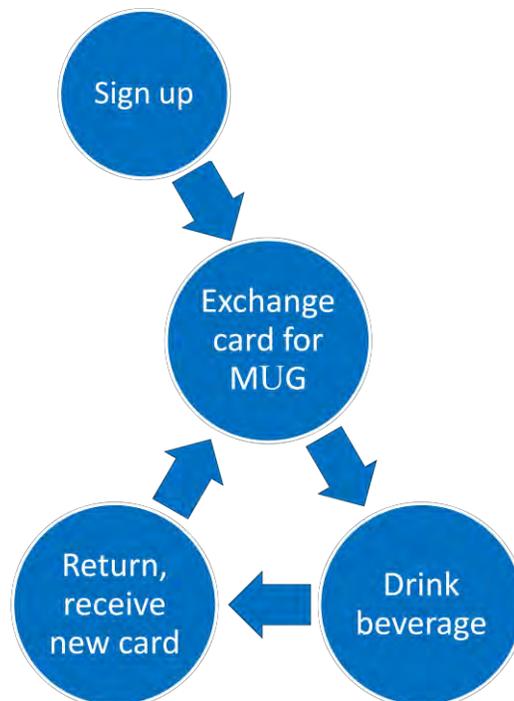
To participate in the pilot of Project MUG, interested students should contact Project MUG via email; the Project MUG email address will be set up prior to the beginning of Spring Quarter 2013. In the

message, students will be asked to include their beverage purchasing habits as well as their current use of reusable mugs. Respondents who buy beverages frequently and who do not have habits of bringing their own mugs will be given priority to participate in order to have the largest impact on waste reduction. Once selected, participants will be asked to provide contact information, student number, and to sign the terms of use. These terms include agreeing to pay a \$15 fee if they lose or do not return a MUG by the end of Spring Quarter 2013. After the terms are signed, the student will be issued a laminated Project MUG logo card (card) with their name on it.

Exchange

When the student has received their card, they can begin using the system shown in Figure 2. At the VU Café, the card can be exchanged for a MUG to be used immediately for a purchased beverage, or to receive a clean, empty MUG to be used elsewhere. After the student is finished, they may return their used MUG to the VU Café and get their card back. (Note: The card is taken by the VU Café employee when a MUG is checked out. A student would either have a MUG or a card, but never both at the same time.)

Figure 2. The process of Project MUG



This is convenient for participants in that they will not need to remember to bring a reusable mug to campus, carry it around all day, or have to wash it themselves. To track MUG use, a tally sheet will be

provided by the register that the café employee will mark to show how many MUGs are checked out and returned each day.

MUG Cleaning

Dishwasher employees at the Viking Union will collect used MUGs from the VU Café at least once a day, not including weekends. The MUGs will be washed in the VU dishwashing facility (this is separate than the dishwashing facility for the Viking Commons). Once clean, the MUGs will be redistributed to the VU Café by the dishwasher employees. Dining Services has been consulted and is on board with this system.

The MUG

The 144 MUGs to be used in the pilot will be purchased through Planetary Design. Figure 3 shows an example of a MUG. The MUGs are 16oz, stainless steel, and dishwasher safe⁷. A 16oz size was chosen as this is the most common size for beverage purchases as determined by personal observation and input from a VU Café employee. The MUG features a push-on butterfly lid to help prevent spills. It is also safe for both hot and cold beverages. The Project MUG logo will be etched on each MUG to distinguish them from other reusable mugs on campus. The logo will be in chrome, as the etching will expose the chrome underneath the black finish. The color black was chosen for the MUG as it was recommended as a dishwasher durable color.

Figure 3. The MUG⁸ chosen for the Project MUG pilot



⁷ Planetary Design: <http://www.planetarydesign.us/products.html?paction=121620tumblers>

⁸ This is a sample of the MUG model that was sent to us. It will be tested in the VU dishwashing facility.

To ensure that using reusable mugs is more beneficial than using single-use cups, we researched cup lifecycle analyses. We found that in order for a stainless steel mug, like the MUG for our pilot project, to be more efficient than paper cups in terms of the material input, it must be used 24 times⁹. There are other factors involved, such as cleaning and ultimate disposal, which would also need to be assessed for a more definitive life cycle analysis.

We do know however that the commercial dishwashers at the Viking Union are energy efficient. Considering this, it is fair to conclude that after 24 uses stainless steel mugs will be more sustainable than paper cups. Given the durability of stainless steel, this use quota can be easily met and exceeded through Project MUG.

VU Café Involvement

The VU Café will serve as the pilot location. This cafe was chosen because of its close proximity to the VU dishwashing facility. An area for clean MUGs and a box for used MUGs will be designed in the café space. A Rolodex for the Project MUG logo cards will be provided near the register as well as a tally sheet to track MUGs in and MUGs out each day. Dining Services will train employees at the VU Café on the rental system with additional guidance from the Project MUG team members. This training will allow employees to effectively carry out the pilot system. Employee duties will include tallying MUGs in and out, exchanging cards for MUGs, and providing the proper card to its owner upon the return of a MUG.

Lost Cards and MUGs

If a participant loses their card, they will be able to receive a new one once the proper steps are taken. When a card is reported missing to the Project MUG email, project team members will check with the VU Café to assure the card is not present. This will help ensure a participant does not claim a missing card when it is the MUG they lost; if they lost a MUG their card would be present in the Rolodex at the VU Café. Once this is assured, a new card will be printed for the participant. Because students will have their names printed on the cards, lost cards will not be able to be used by those who have not agreed to participate in the system; the second print of a student's card would have a noticeable "2" on it and VU Café employees would be informed of the change and instructed not to accept the first card.

⁹ Paster, P. (2007). AskPablo: Disposable Cups vs. Reusable Mugs. *TriplePundit*. Retrieved from <http://www.triplepundit.com/2007/12/askpablo-disposable-cups-vs-reusable-mugs/>

If a student loses or does not return a MUG, they will be asked to pay \$15, as they agreed upon signing up for the program. This money would be placed back into the WWU Green Fee. If the student reports a lost MUG during the pilot, they may pay their fee and get their card back to continue using the system. Failure to pay the fee will result in exclusion from further participation in the pilot.

End of Pilot

On the last day of Spring Quarter, participants will be asked to return either a MUG or their card to the Project MUG team. Project members will record who has returned their card or a MUG. All MUGs will then be collected from the VU Café and counted. If any MUGs are missing, the participants who do not have a record of returning a MUG or their card will be contacted and asked to return the MUG or pay the fee. Since there will not be any records on student accounts, there is no real way to guarantee students who lost MUGs will pay the fee. However, an honor system could be effective if the list of who has and has not returned MUGs or cards is shared with all participants. In addition, the financial risk of lost MUGs is minimized by the fact that the project is a pilot.

Advertisement

Project MUG advertisements in the form of posters and information cards by the registers would be put up in campus run cafés to target hot beverage drinkers. Information sheets would also be put in the napkin holders around campus. Additionally, emails with information about Project MUG would be sent to student list serves. A Facebook page advertising Project MUG would also be created. Flyers would be distributed throughout campus bulletin boards. These advertisement techniques would be to recruit the 40 participants. Included in the Project MUG advertisement would be information on the current use and disposal of single-use cups to raise students' awareness about the impacts of disposables and the need for Project MUG.

4.2 Assessment of the Pilot

Quantitative

We will track the use of MUGs through tally sheets located next to the register. When a Project MUG participant exchanges a card for a MUG, the café employee will put a tally mark on the sheet showing that a MUG was checked out. Another tally sheet would be used to track MUGs that were returned for cleaning. These two records would provide an indication the frequency of MUG turnaround.

Additionally, the total number of MUGs checked out every month could be used as an indicator of how many disposable single-use cups were not used, and the volume of disposable cups that was kept out of landfills. (This assumes that without Project MUG, the participants would be using disposables.)

Qualitative

Project MUG participants would be given surveys at the beginning of the pilot to assess their current hot beverage and reusable mug habits, as well as their presumption of how Project MUG will impact them. At the end of their participation in Project MUG, they will be given an exit survey to assess how their habits have changed, how they used the system, and their overall satisfaction with the way the system worked. VU Café employees will also be given a survey prior to the implementation of the pilot to determine their views of reusable mug use and its effect on the café. After the pilot, the café employees will be given a survey to see what they liked and did not like about the system and how/if it changed café operations. VU dishwasher employees would be given a survey at the end of the pilot to assess how it effected operations and the time spent cleaning and distributing MUGs.

4.3 Fall Focus Group Feedback

Two focus groups were conducted in fall to gain general student feedback and to see if students would be willing to participate in Project MUG. Each focus group had five participants. Overall, we found that the majority of participants were excited about the project. Many of them said they often feel guilty when they buy beverages on campus but forget their reusable mugs at home. They also were very interested in the convenience of not having to wash their own mug and remember to bring to campus. Although we originally explored a few different options for a token, like a carabiner, our focus group unanimously agreed that a laminated card would be best. Students almost always have their WWU card on them when on campus, and a laminated card could easily be stored with the WWU card.

At the time, we were planning to ask for a deposit and service fee to participate in Project MUG. This has since changed, but the following response may be useful when considering future expansion if the pilot is successful. The focus group participants decided a \$2 non-refundable service fee per quarter would be appropriate; \$2 is low enough where students would be willing to pay it and it is cheaper than buying their own reusable mug.

5. Cost Separation

In addition to the MUG rental system, we propose the implementation of a new pricing structure at all on-campus cafés at WWU. Currently, paper cups are automatically included in the purchase of a beverage on campus. This new pricing structure will separate the costs of hot beverages and paper cups on café menus by making disposable paper cups and hot beverages separate menu items with separate prices. Customers would have an incentive to use a reusable mug because they will not have to pay for a paper cup, making their beverage purchase less expensive. The added paper cup menu item would also create a price signal, encouraging customers to use reusable mugs.

According to correspondence with Dining Services, the cost of an individual paper cup and lid is about \$0.10. This \$0.10 would be subtracted from all current hot beverage prices on the menu. The “paper cup” menu item to be added to the café menu would then be priced at \$0.10.

If a customer provides a reusable mug at the time of purchase (either their own mug or a MUG from the project), their purchase will be \$0.10 less than if they do not provide a reusable mug. This incentive will encourage customers to use a reusable mug over purchasing a disposable paper cup.

Customers who do not provide a reusable mug will not be paying more for their beverage and cup in comparison to the current café price structure; the \$0.10 cup price is subtracted from what the beverage prices were beforehand (see Table 1). Customers will be purchasing two items— a disposable paper cup and a beverage, which were previously combined into one purchase.

Table 1. An example of a \$3.00 beverage before and after cost separation

Current Menu Structure		Proposed Menu Structure	
Beverage (with cup)	\$3.00	Beverage	\$2.90
		Paper Cup	\$0.10

The new pricing structure creates a price signal for customers in that the \$0.10 disposable cup menu item will signal an additional economic commitment that could otherwise be avoided with the use of a

reusable mug. Knowing and seeing that there is a price on the paper cup is likely to be more effective at encouraging customers to bring their own reusable mug than a discount. This is because a discount would only induce a response when you had remembered your own mug and received money off, rather than the price on a paper cup being a constant reminder that it is not necessary.

5.1 Assessment of Cost Separation

To measure the impact of price separation on reusable cup habits at WWU, the number of purchases made with a reusable mug should be recorded before price separation goes into effect. Adding a key to the register to be pressed when a customer uses a reusable mug for their beverage purchase could easily account for this. For an adequate assessment, reusable mug use should be recorded for a three week period prior to the price separation implementation. The data from this period would be compared to a record of beverage purchases made with a reusable mug for a three week period after the price separation is implemented.

5.2 Case Studies

Bellingham Plastic Bag Ban

The Plastic Bag Ban ordinance in Bellingham, WA took effect August 1, 2012 and prohibits retailers in the city from using single-use plastic carryout bags in an effort to reduce plastic litter and waste. In addition to the ban of plastic bags, customers have to pay \$0.05 for each carryout paper bag they need for their purchased items. Though \$0.05 is a very low cost, this price signal has successfully motivated customers to bring reusable bags. A survey conducted by Environment Washington Research & Policy Center in December 2012 shows that businesses saw an 85% increase in the use of reusable bags by customers since the implementation of the ordinance. The survey also showed a 67% approval rating for the ban of plastic bags and the \$0.05 fee for paper bags.¹⁰

¹⁰ Krehbiel, R. & Jornlin, E. (2012). *Cutting Down on Plastic: Bag Bans Prove Popular and Successful*. From Environment Washington Research & Policy Center. Retrieved from <http://environmentwashingtoncenter.org/sites/environment/files/reports/Cutting%20Down%20on%20Plastic.pdf>

Thesis Project at Tufts University

The cost separation system we are proposing is based off of a thesis project completed by a student at Tufts University in 2008.¹¹ At a cafe on Tuft’s campus, the cost of disposable cups was separated from the cost of beverages, and a \$0.17 “hot cup” item was added to the menu. This café already had a discount for purchases made with reusable mugs, but was only making 3% of sales without cups. After the separation was introduced, sales without cups increased to 8%. This is a 163% increase in purchases made without a disposable cup. A survey conducted to garner student reactions to the new system showed that 80% of respondents were either happy or indifferent about the price change. Additionally, 44% of respondents said they would try to bring a reusable mug more often. Through contact with Tufts University and the student who championed the system, we know the café is still currently using this pricing system and Tufts is looking to expand the system to more on-campus cafés.

5.3 Surveying Student Reactions to Cost Separation

To get a sense of how students would feel about the cost separation technique, we issued a survey online and in-person to Western students with questions related to our proposed plan.¹² A total of 258 campus members completed to the survey, and results show overwhelming support for cost separation.

Two of the six survey questions were specifically aimed at garnering student reactions to the cost separation technique. One question asked how the respondent would feel about the price of a disposable cup being separated from the price of the drink, with the possible answers being *supportive*, *neutral*, and *opposed*. The other question asked if the cost separation would encourage the respondent to bring his/her own reusable cup, with the possible answers being *yes* and *no*. For examples of all questions asked on the survey, please refer to Appendix A.

Figures 4 and 5 on the following page show the results for the two cost separation-specific questions. Of the 258 student respondents, 97% said they were either supportive or neutral to the idea of a cost separation. Additionally, 80% of the total respondents said that the cost separation technique would encourage them to bring their own reusable cup.

¹¹ Fisher, L. (2008). *Signaling Change: Studying the effect of price signals on disposable hot beverage cup consumption*. Honors Thesis at Tufts University. Retrieved from <http://www.aashe.org/files/resources/student-research/2009/Fisher2008.pdf>

¹² Online surveys were conducted through SurveyMonkey and GoogleDocs and were sent out to students through different academic departments’ email master lists. Hard-copy surveys were distributed at random to students waiting in line at cafés and sitting in common spaces near cafés on campus.

Figure 4. “How would you feel about the price of a disposable cup being separated from the price of the drink?”

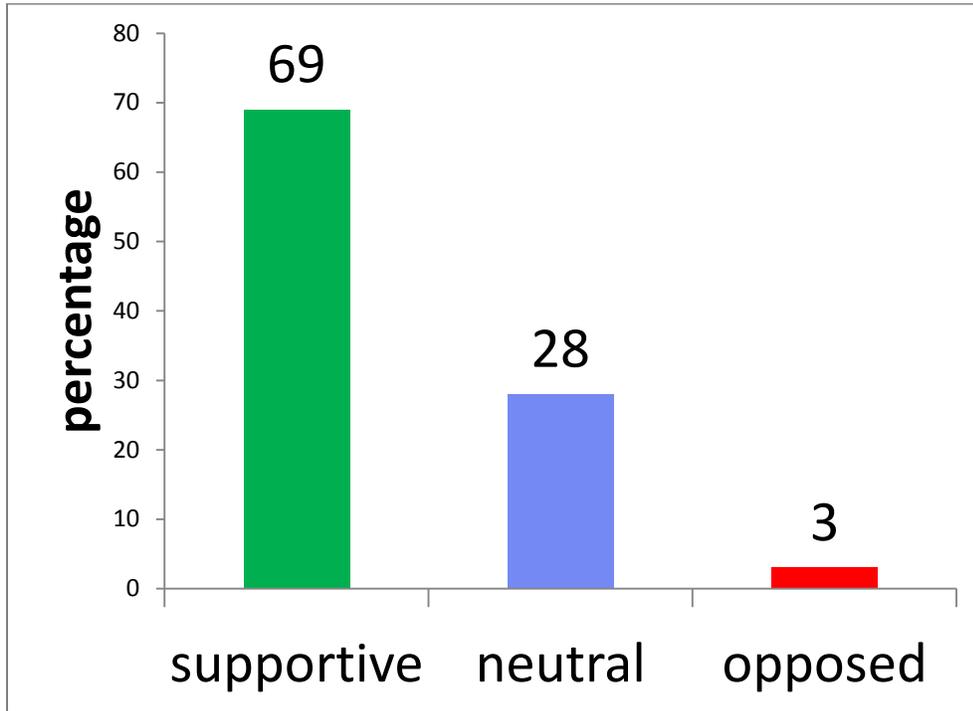
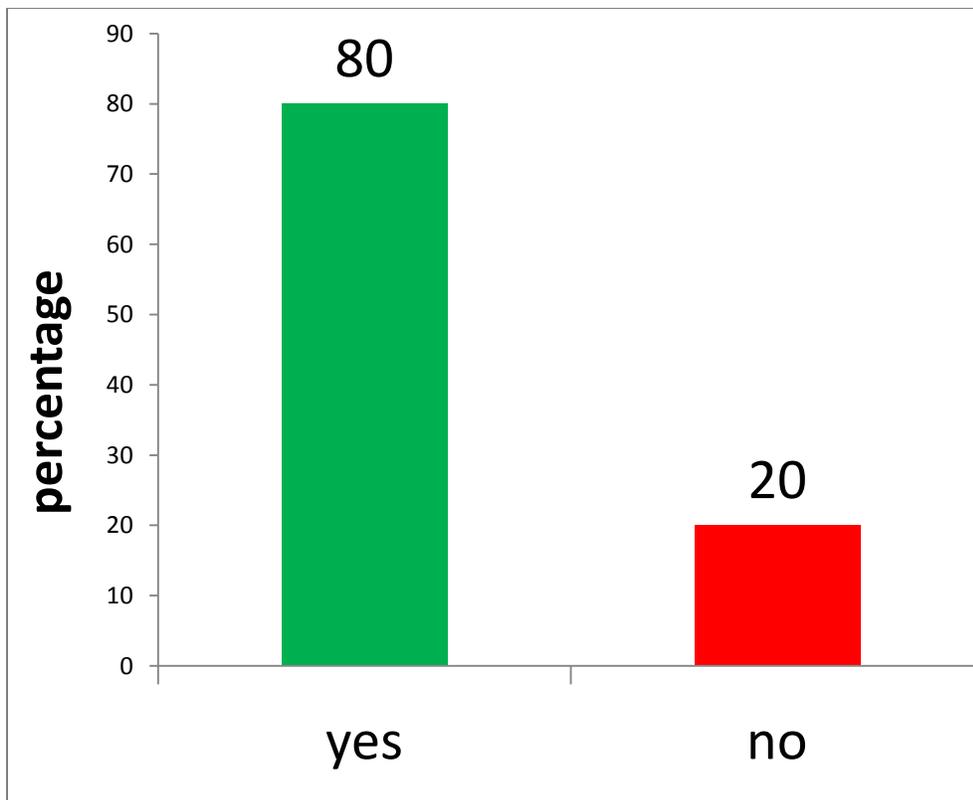


Figure 5. “Would price separation encourage you to bring your own reusable cup?”



6. Budget

6.1 Project MUG

Funding for the Project MUG budget (see Table 2) has been approved in the full amount by WWU's Office of Sustainability through the Green Energy Fee Small Projects Grant.

Table 2. Cost estimates for the Project MUG pilot

<i>Item</i>	<i>Cost per Item</i>	<i>Quantity</i>	<i>Total Request</i>
<i>Planetary Designs 16oz stainless steel tumbler mug in black</i>	<i>\$10.25 (includes etching)</i>	<i>144</i>	<i>\$1,476</i>
<i>Art work set up & Shipping</i>	<i>\$55 artwork set up, free shipping</i>	<i>1 time fees</i>	<i>\$55</i>
<i>MUG Logo Cards</i>	<i>Printing \$0.45/sheet; lamination \$1/sheet; cutting \$1.12/ minute</i>	<i>40 individual cards</i>	<i>\$30</i>
<i>Advertisement (graphics design, printing of posters and napkin holder sheets)</i>	<i>N/A</i>	<i>N/A</i>	<i>\$350</i>
<i>Rolodex</i>	<i>\$15</i>	<i>1</i>	<i>\$15</i>
		TOTAL REQUEST	\$1,926

6.2 Cost Separation

The budget for our proposed cost separation technique would contain the costs for advertisements and possibly new menu boards. In the event of the cost separation's implementation, the cost of new menu boards would be determined by Dining Services.

7. Future Works and Vision

7.1 Project MUG

Before the pilot can be fully implemented in the spring, there are tasks that need to be completed. This includes producing advertisements, selecting participants, creating surveys, and educating VU employees about the Project MUG system. We have completed a timeline to finish these and have the pilot system running by April 19th.

If successful, our goal is that the Project MUG system will eventually be implemented campus wide with open participation to all students, faculty, and staff. To do this, funding for expansion will need to be determined. A method to deliver MUGs to and from dishwashing facilities will need to be developed, as well as a way to compensate Dining Services for the increase in time spent washing MUGs. A service fee may be a viable option for gathering funds, but should be avoided if possible so as to encourage more participation. Rather than full campus implementation at once, it may be beneficial to expand in phases through different cafes.

When expanded, it would be ideal to have MUG exchanges done on WWU ID cards. This would make Project MUG even more convenient as most students, faculty and staff carry their WWU ID cards with them on a daily basis to gain access to the recreation center and to ride the bus. Not only would this cut the cost of purchasing MUG cards each quarter, it would allow for efficient tracking of MUG usage. This will require collaboration with the WWU card office.

Additionally, multiple MUG sizes and styles would be ideal for the future of this project. Having multiple sizes available would allow participants to order up to a 20oz beverage instead of being restricted to 16oz because of the MUG size. Adding a MUG style designed for certain cold beverages would make the MUG system more compatible with drinks like smoothies and soda.

7.2 Cost Separation

If Dining Services and the university accept the cost separation concept, an effective advertising plan must be created. Advertisements should highlight the fact that prices will not increase for customers not using reusable mugs; prices will only be lower for those who do use reusable mugs by not having to purchase a cup. Advertisements should also indicate the amount of single-use disposable paper cups in WWU's landfill-bound waste and what the environmental effects of this are— for instance, methane production. Essentially, advertisements should let customers know what is happening to beverage prices and the reasoning behind the price changes.

If the proposed price separation is adopted, the price of the disposable paper cup menu item (\$0.10 in this proposal) could be increased in the future to reflect external costs, like the environmental effects of paper cups in the waste stream, in addition to the economic cost of the disposable paper cups.

8. Conclusion

Project MUG will provide a convenient, cost-effective and sustainable option for students who purchase beverages on campus. The reusable mug rental system will encourage sustainable behavior and keep disposable paper cups out of landfills. To further incentivize the use of reusable mugs, separating prices of beverages and paper cups will make beverage purchases less expensive for those using reusable mugs and send a price signal to all customers, alerting them to the unnecessary purchase of disposable single-use paper cups. This technique will encourage and incentivize sustainable behavior rather than penalize unfavorable behavior.

The environmental and economic benefits of these projects will more than compensate for the minimal startup costs of the Project MUG pilot. The transparency of these projects will allow WWU to serve as a model in sustainability to other institutions and communities. Through extensive case study research we found that there are currently no other known universities implementing a reusable mug rental system. Thus, WWU be will the first in the nation to implement such a unique sustainability program.

Project MUG and the separation of beverage and cup prices both work to enhance sustainability at WWU. These projects will effectively decrease the amount of paper cups WWU purchases and significantly reduce the volume of single-use paper cup waste WWU sends to the landfill every year. In

these ways, WWU's carbon footprint will be greatly reduced and the university's image as a leader in sustainability will be enhanced.

Appendix A

Coffee Market Research Survey

1. How often do you buy a hot beverage from on-campus cafes?

- Never
- About once a month
- About once a week
- More than once a week
- Everyday

2. Do you own your own reusable mug?

- Yes
- No

3. How often do you bring a reusable mug for your beverage purchases?

- Never
- Seldom
- Most of the time
- Always

4. The price of a disposable cup is currently included in the price of a beverage at on-campus cafes. How would you feel about the price of a disposable cup being separated from the price of the drink?

Example:

Now- Drink & Cup \$3.10

With Separation- Drink \$3.00, Cup \$0.10

- Supportive
- Neutral
- Opposed

5. Would price separation encourage you to bring your own reusable cup?

Example: Drink \$3.00

Cup \$0.10

- Yes
- No

6. What is your major?

7. Comments:

Appendix B

Menu from Tufts University showcasing cost separation



Our hot beverage prices have changed!

We have separated the price of the cup from the price of the drinks:

<u>Drinks</u>	<u>12 oz</u>	<u>16 oz</u>	<u>20 oz</u>
Speeder & Earl's Fair Trade Coffee	1.37	1.57	1.87
Mighty Leaf Tea	1.32	1.42	1.52
Hot Chocolate	1.33		
Hot Chai	1.33		

<u>Cup Options</u>			
Disposable cup, lid, and holder	0.17	0.17	0.17
Bring your own mug	--	no cost	--

Appendix C

Interview with former Tufts University student who successfully implemented cost separation

Interviewee: Laur Fisher, former student at Tufts University

Interviewer: Jaymes McClain

On Tuesday, February 5th I interviewed Laur Fisher via Skype. In 2008 Laur completed an honor's thesis project at Tufts University, the purpose of the project being the reduction of waste from disposable beverage cups on Tufts' campus. This was accomplished by separating the cost of disposable cups from the cost of beverages at Tower Café on Tuft's campus. Beverage prices were reduced by 17 cents (the average cost of a single disposable cup at the café) and disposable cups were put on the menu for 17 cents. Those who used their own reusable mug essentially received a 17 cent discount. Consumers now have an incentive to use reusable mugs at Tower Café since it is cheaper.

The pricing change happened only at one café at Tufts University, and it cost little to no money. Laur completed all the staff training and implemented the entire project herself.

The project was implemented over a 5 week period during the spring semester at Tufts University in 2008. This time period does include preparation for implementation.

The notable stakeholders involved in Laur's project were the Director of Dining Services and the manger of Tower Café. From the outset, it seems that these stakeholders were approving of the project and did not pose any serious barriers to the implementation of the price change.

One of the biggest challenges in her project was tracking the success of the project. The price change required a new key on the register (one for disposable cup), so it was entrusted to café employees to remember to use that extra key to track how many purchases were made with a disposable cup versus how many didn't include a disposable cup. Also, her period of study for determining disposable cup purchases did not align with the period for the inventory report, which was a small challenge in determining total number of cups used. Sifting through inventory files was also a difficulty.

When looking back on her thesis project, Laur wishes she took into account the environmental costs of disposable cups instead of mainly the economic costs of production. Also, if she had more time, she would have tried to implement the new price change to all cafes on Tufts' campus.

From what I gathered, the price changes are still in effect to this day at Tower Café at Tufts University, though Laur's last time of contact with the university was about a year ago.

Appendix D

Previous Case Studies and Interviews from the Fall Quarter Proposal

1) GoBox, Portland, Oregon:

The idea for this project was based off a business in Portland, OR called GoBox. GoBox was created to reduce the amount of waste generated by food carts. It allows customers to opt into the program through a subscription fee of \$12 per year. For this fee, the customer receives a token that can be exchanged at participating food cart vendors to be served in a reusable container. When the customer is done with the container, they return it to designated locations and receive a new token. Many of the return locations are local businesses, who appreciate the influx of potential customers from the use of their store for container/token exchange. The dirty containers are then collected via bicycle and taken to partner restaurants for washing. Once clean, the containers are taken back to food carts also via bicycle.

Originally, a pilot of this program was started 2 years with 3 vendors, 30 subscribers, and about 100 containers. It was then launched as a business in the summer of 2011 for under \$20,000. Currently GoBox is a profitable business operating with around 1,000 subscribers, over 50 vendors, and processing around 300 containers a day. The community reaction to it has been positive and it has received many mentions in the media. For more information visit www.goboxpdx.com.

2) Eckerd College, St. Petersburg, Florida:

The Eco-Takeouts program was first developed in 2004 in response to a waste audit that was conducted by one of graduate students. The programs main purpose was to reduce waste on **campus. Three years later it received grant money from Eckerd's Environmental Research and Education fund** and the project was implemented. The overall cost was \$32,000 with an additional cost \$6,000 for the OZZI machine which is similar to a reverse engineered vending machine that collects the dirty clamshells. The total student body at Eckerd College is 1,850 students.

G.E.T. Enterprises was chosen as the company to provide the clamshells as the program is for **profit. "Annually this program is estimated to keep 32 million disposable containers out of the landfill."** They chose this company because they wanted their containers to resemble that of a takeout container. After doing the lifecycle analysis of different containers, they found G.E.T. Enterprises to be the best option. Their dining services food supplier, Bon Appetite, sourced the containers for them.

Students, faculty and staff were very excited when the project was implemented because it was more environmentally friendly. They did have some challenges however. Between 2009 -2011, the program was in non-existence because students were not returning their clamshells; this turned out to be there biggest challenge. Since 2011, the program is back up and running and **has been extremely successful. "Spring semester 2012 there were about 1,200 clamshells collected in the OZZI machine and Bon Appetite has not offered a styrofoam option since 2007. To date, 116 colleges have adopted the program or are in the implementation process."** Evan Bollier, my point of contact at Eckerd, suggested charging students just above the cost of the

clamshells (or MUG), to maintain a revolving fund. "That way, the fund will never run out and you'll continue to have enough money to buy more clamshells in the future."

Insider Interview Questions with Eckerd College (Evan Bollier):

Contact name & position

Evan Bollier, "Sustainability Fellow" Gamma Office. Graduated in 2011 and took on re-implementing the program.

Purpose of the project?

Reduce waste

"Size" & cost of the project?

\$6,000 for the OZZI machine, ~\$32,000 for the project

Timeline for project?

Fall of 2004 Audrey Copeland conducted an audit for Professor Ormsby's Introduction to Environmental Studies class... In July of 2007 the Environmental Research and Education Foundation awarded Eckerd College a \$32,000 grant to develop and implement the program at locations across the nation. In the fall of 2007 G.E.T. Enterprises, a Houston-based manufacturer, agreed to construct a prototype. In the spring of 2008 the containers went live at Eckerd College.

Players/stakeholders involved?

cafeteria manager

sustainability coordinator/advocate

business office/accounting representative

information technology representative

student focus group

Biggest challenges?

1. Getting the containers back from students
2. Many students lose these tokens, some sign up with false student ID information
3. Sometimes the cafeteria workers lose the sign up sheets.
4. Hypothetically the system should be revolving fund but we are losing money rapidly.

How is the project progressing now?

It fell into nonexistence between 2009 and 11. Our biggest challenge with the program is getting students to return the clamshells to the cafeteria. There is a sign-up sheet at the main register and students can buy a clamshell at \$5 and have it charged to their student account. They take the clamshell out and hypothetically bring it back and return it to the OZZI machine we have. The OZZI will give you a token after it accepts the clamshell and the student can hold onto it until they want to exchange the token at the main register for a clean eco-clamshell.

Related future projects?

To date, 116 colleges have adopted the program or are in the implementation process.

Try to get students to return the containers

3) Unintended consequences?

What were the biggest challenges with getting this program started?

Evan- Graduated in 2011 and took on re implementing the program. It was in nonexistence between 2009 and 11. Our biggest challenge with the program is getting students to return the clamshells to the cafeteria. There is a sign up sheet at the main register, students can buy a clamshell at \$5 cost and have it charged to their student account. They take the clamshell out and hypothetically bring it back and return it to the OZZI machine we have-video. OZZI will give you a token after it accepts clamshell and student can hold onto it until they want to exchange the token at main register for clean eco-clamshell. Many students lose these tokens, sign up with false ID information, sometime cafeteria workers lose sign up sheets. Hypothetically system should be revolving fund, losing money rapidly. Spring semester will need to charge \$10 in order to cover the costs of the clamshells and OZZI.

Why did you choose to use G.E.T. Enterprises as opposed to another company?

They are the only company that sells "eco-clamshells." We wanted our container to resemble that of a takeout container, did lifecycle analysis of different containers. Our supplier(Bona Batit) sourced the containers for us from GET enterprises.

I have researched other universities that have implemented similar programs but are not for profit. Do you recommend using a for profit or nonprofit program?

Each clamshells costs about \$5.00 if bought in bulk (300 plus). We have the OZZI machine, but it requires a service contract which tacks on some extra cost to the program. I'd say if you're trying to maintain a revolving fund, aim to charge students just above cost. That way, the fund will never run out and you'll continue to have enough money to buy more clamshells in the future.

Our campus uses Aramark as our dining food service. Was it easier making the switch using Aramark as opposed to another company? How eager were they in helping you out?

We have Bon Appetit as our cafeteria vendor. They were huge in getting this program up and running. Eckerd buys the clamshells and Bon appetit bought the OZZI machine- \$6000 (they wash all the dirty clamshells that are collected in it).

Since you started the program in 2007, have you seen much growth? Would you say the benefit outweighed the cost?

There has been expansive growth. Spring semester 2012 ~ 1,200 clamshells collected in the OZZI. "Bon apatit" not offered a Styrofoam takeout option since 2007. If we wanted to be greener we wouldn't offer clamshell program since eventually some clamshells will be recycled/ thrown away after students move out at the end of the year or graduate.

Insider Interview at Pacific University

Bethany Bigelow

Director of Dining Operations

Email: bigelowb@pacificu.edu ***

Phone: 503.352.2217

Pacific University, Forest Grove Oregon:

- Reusable to-go container program
- Started Fall 2009
- Purpose of the project?
 - Reduce waste while providing more convenience to students
 - No compost available in county so this is their response
- "Size" & cost of the project?
 - Much smaller school than WWU, have about 1200 students but gave each one a reusable to-go box
 - Storage: 100 cases aka 1200 cases sitting on loading dock. Went to residential halls and dropped off boxes and their job to distribute.
- Timeline for project?
 - Took about 4 months from initial idea to ordering & implementation of boxes. Takes about 6 weeks to order boxes.

Players/stakeholders involved?

- AARAMARK (paid for half)
- Residence Halls (paid for other half)
- Students & Staff
- Outside community - they often come in for meals as well since located centrally within the city
- Reception/perception of the project of the stakeholders?
 - Idea received very well right from the get go. Customers within city can purchase boxes as well as faculty/staff.
- Biggest challenges? (at least three)
 - **Not getting boxes returned because people don't bring them back**
 - Paying for start up costs – residence paid half and AARAMARK paid half
 - Cleaning & distribution of boxes

- Distributed through residence halls since they have more storage and immediate access to students.
 - **Students living on campus get them for free. Students who don't** live in residence halls just go and purchase them. ~\$3.50 for one year.
 - Results?
 - Website says their project cut down use of regular to-go boxes by 78,000 but this number is old. Bethany says that number grows by 40,000 every year.
 - **Don't purchase ANY disposable to-go boxes anymore.**
 - People know the drill even in the outside community.
 - Related future projects?
 - Trying to go paper cup free. Talked with AARAMARK about it. Get reusable cups instead. AARAMARK said if you could figure out how to do it – do it.
 - Already banned bottled h2o.
 - Unintended consequences?
 - **Haven't purchased to-go boxes in 2 years.**
 - **Only problem is they don't bring them back very well. Doing campaign to get boxes back. Made "wanted" posters. Enter students who bring them back into raffle.**
 - **Other questions....**
 - What type of material are boxes made of?
 - Thick reusable plastic. Health inspector fine with everything
 - Who cleans them?
 - Dining services does. Not that much of a burden, but again, much smaller school.
 - How has it been working with AARAMARK?
- Focus on peer institutions, if you can:
<http://www.wvu.edu/upb/FactsandComparisons/peerinst/peerlist.pdf>

Projects been going on for 4 years.

Much smaller campus than WWU.

Work with residential and retail, partnered with dining program.

Housing purchased half and school purchased half. One per student. Buy new containers every year.

- What percent of people are using the program?
 - All.
- \$ saved and initial cost
 - 1200 students on meal plan. Faculty and other students purchase for 3.50 and give box box at end of summer

- Does dining services do extra washing cycles to accommodate cleaning of boxes?
 - Not much more of a load. Bring back to dining room.

- How do you distribute? How do you return?
 - Get pos system to monitor and track boxes.
 - Have key tags/cards to hand out for when not a meal period.