

The Denny Project: The Future of Waste at UW (Proposal Text Only)

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Background

The UW Garbology Project, a student organization collaborating with the UW Department of Anthropology and UW Recycling, is working to address waste issues on campus by using the scientific study of UW waste as a basis for local advocacy and outreach. Earlier work by our project has shown that the majority (60%) of what UW sends to the landfill is compostable. As such, the largest single improvement we can make to UW's waste system is to find ways to compost more efficiently. If this is done, the UW will save hundreds of thousands of dollars annually while taking a major step towards creating a more sustainable campus.

In recognition of this fact, UW Recycling is pursuing initiatives to increase composting on campus, including the MiniMax system, which helps facilitate additional composting and recycling in campus buildings. About 29% of campus currently participates in this system, which encourages composting in two primary ways. First, it provides indoor compost bins throughout participating buildings. This might sound trivial, but our research shows that compost bins are absent from most campus buildings, making composting extremely difficult for most campus users. Second, by requiring faculty and staff to empty their own waste bins, this system enhances users' awareness of their waste.

As a complement to this system, UW Recycling is also preparing to promote systematic composting of restroom paper towels, although this program has yet to be implemented. Since the UW currently throws away 87 tons of compostable restroom paper towels annually, UW Recycling sees huge potential in this program's implementation, especially in conjunction with the MiniMax system itself. In fact, UW Recycling sees these twin initiatives as an ideal model for the future of waste at UW.

Progressing towards comprehensive participation in these programs is therefore a priority for UW Recycling. Because these programs are voluntary, this progress will hinge on our ability to convince building administrators to adopt them. This progress will also hinge on our ability to convince students, faculty, and staff to actively participate in these programs by composting more. To help convince these groups, we must procure concrete evidence of the compelling benefits of participation, and we must publicize this evidence to the wider UW community.

Project Goals

Our project will meet these needs through direct investigation, advocacy, and education. Our investigation will directly measure the benefits of implementing these systems through a detailed case study. The study will be a "before and after" examination of the trash from Denny Hall, which currently holds no compost bins despite housing multiple academic departments, food preparation areas, restrooms, and classrooms. This study will first sample Denny Hall's baseline trash for several weeks to document how much of this trash is potentially compostable. Next, we will implement the MiniMax system and restroom paper towel composting throughout the building. This will be followed by a period of trash re-sampling to document any changes in composting efficiency resulting from the implementation of these two programs. From this data we will estimate the annual savings in both landfill waste and monetary cost due to implementing the MiniMax system and restroom paper towel composting in Denny Hall,

allowing the benefits of these programs to be expressed to building administrators in terms of concrete and practical incentives.

Our advocacy efforts will be aimed at using these practical insights to argue for substantive change in UW systems of waste. We will undertake this advocacy at the administrative level by submitting a report detailing our findings to Emily Newcomer, Manager of UW Recycling, who will then use our findings to inform her policies. If our findings show that these systems are effective, Ms. Newcomer will also use our results as evidence to help convince administrators of the benefits of participation in these programs. We will also undertake advocacy at the level of the UW student body in two ways. First, we will push for discussion of our results as part of UW first-year orientations, and we'll produce a short video for this purpose. Second, we will give an extensive series of 5-minute presentations to large UW lecture classes so that the actual costs and benefits of landfilling and composting are made plain to large numbers of current UW students. In this way, we hope to use our findings to help move towards a system in which our campus-wide policies encourage comprehensive composting and our campus community is universally aware of the incentives of participation.

Our educational efforts will be aimed at fostering the direct engagement of the UW community with our investigation and advocacy efforts. We will achieve this in several ways. First, we will continue to involve student volunteers in all phases of the project. Second, we will recruit additional students through collaborative partnerships with UW instructors, including courses offered through both the Program on the Environment and the Department of Anthropology. Third, we will hold more public "trash-ins" on campus to help raise awareness of our work and of campus trash issues in general. Lastly, we will continue to work with the Burke Museum, the local news media, and our project website to disseminate our initiatives, results, and findings to the wider public.

Project Needs

We already possess the facilities, expertise, core personnel, and institutional connections to successfully undertake this project. Still needed, however, is approximately \$9000 to pay for materials, supplies, and wages, since the scale of the intended project's investigation, education, and advocacy efforts will require an investment of money and managerial effort well beyond those currently available to the UW Garbology Project. We therefore ask the Campus Sustainability Fund to support these essential dimensions of our project, as we believe our project aims and scope to be fully congruent with those of the CSF.

We hope the CSF will find us worthy of such support, and we look forward to working with the CSF on this project. In addition, we are happy to provide any further information which might aid the CSF committee in evaluating our project and in considering our request.

Executive Summary

This project seeks to meet two objectives. First, it will directly measure the efficacy of two new systems of solid waste management offered by UW Recycling by directly quantifying the benefits of these systems in a devoted case study. Second, it seeks to use the results of these efforts as a means of advocating for administrative and user-based change in solid waste management at UW.

Efforts to address the first goal will be undertaken through a detailed study of Denny Hall's waste stream. This work will begin by characterizing the efficiency of the current system of waste disposal in Denny. Importantly, this system does not currently provide compost bins, and this is a major problem since 1) composting is a more sustainable waste-disposal strategy than landfilling, 2) composting is cheaper per ton of waste than landfilling (\$55 versus \$145), 3) the UW sends about 4990 annual tons of waste to landfills (costing about \$1.3 million annually), and 4) previous work shows that most of what UW sends to landfills is compostable. Next, UW Recycling will install two systems designed to improve the efficiency of solid waste collection – and composting in particular – in Denny Hall; these systems are the MiniMax system and restroom paper towel composting. The second half of this work will then measure whether these systems improve Denny's waste efficiency, including improvements in both sustainability and financial expense. Results will then be reported to UW Recycling to aid this office in convincing buildings across the UW campus to adopt these systems.

Efforts to address the second goal will be undertaken through a broad program of student involvement and project outreach efforts. These efforts will include diverse student participation in the project proper, as well as the dissemination of results to students through social media and our website, an educational video, campus events, collaboration with student environmental groups, and presentation of results and insights to a broad range of UW classes.

This project will be conducted by the University of Washington Garbology Project (UWGP; uwgarbology.weebly.com), a student-led initiative operating in partnership with UW Recycling and the UW Anthropology. In carrying out this project, we will draw upon the resources of these offices as well as existing ties with the Burke Museum, UW Housing and Food Services, the UW Program on the Environment, SEED, SAGE, Eco Reps, the Environmental Stewardship Committee, UW Bothell, and Shoreline Community College. Lastly, a portion of the funding requested will support dedicated efforts to expand our network of connections as a means of increasing the positive campus-wide impacts of the proposed project.

We are requesting a total of \$9000 to conduct this project. The majority of this money (\$6000) will be devoted to hiring two students as part-time employees devoted to managing project analysis and outreach efforts. The remainder will be devoted to materials and supplies needed to implement the proposed systems in Denny Hall, conduct waste analysis efficiently, cleanly, and safely, and support outreach efforts.

Explain the environmental problem in 1-3 sentences, and how your project will mitigate the problem

This project aims to confront the fact that the UW doesn't compost as much as it should. In fact, recent work by the UWGP indicates at least 60% of the waste we send to landfills is compostable. Improving campus sustainability and reducing landfill costs therefore demand that we encourage composting across the UW campus community.

Meeting this challenge requires addressing two campus-wide needs. First, we must ensure compost bins are accessible and convenient across campus. This is not the case at present, especially within campus buildings, the majority of which are entirely devoid of compost bins. Remedying this issue will require convincing building administrators to voluntarily implement composting, and as such we need direct evidence of the benefits of composting to spur adoption and implementation. Second, we must also convince folks to make appropriate use of these compost bins once they are in place.

This project will attempt to address both of these needs through a three-part process. The first part will generate direct evidence for the benefits of two programs offered by UW Recycling to help encourage composting in campus buildings. In tandem, UW Recycling sees these initiatives as an ideal model for the future of waste at UW. MiniMax, the first of these programs, encourages composting primarily by adding compost bins to hallway waste areas and break rooms within buildings. Restroom paper towel composting, the second of these programs, encourages composting by placing compost bins in building restrooms to help prevent compostable paper towels from being discarded in restroom trash bins. Efficacy of these programs will be assessed by means of a “before and after” examination of the trash from Denny Hall, which currently holds no compost bins despite housing multiple offices, food preparation areas, restrooms, and classrooms. Resulting data will allow estimation of annual savings in both landfill waste and monetary cost due to implementation of these systems in Denny Hall.

Resultant data and conclusions will be submitted to project collaborator Emily Newcomer, Manager of UW Recycling. Emily will then initiate the second part of this project by publicizing results to campus administrators as a means of advocating for the concrete incentives of program adoption. As such, this component of the project will build upon ongoing efforts by UW Recycling to universally implement the MiniMax system, while helping to launch paper towel composting.

The third part of this project will use our results to educate UW students about the benefits of campus composting programs. This stage will include the production of a video to be shown as part of UW First Year Programs, a series of presentations to UW large-lecture classrooms, and collaboration with a number of campus departments and organizations with whom we have ongoing working relationships, including student groups such as Eco Reps, SAGE, and SEED, faculty and staff organizations such as UW Recycling, HFS, and the ESC, and academic entities such as the Department of Anthropology, the Program on the Environment, and the Burke Museum.

Explain how the impacts will be measured: 500 Words Maximum

Within the Denny Hall case study, impacts will be measured using a “before and after” quantification of waste diversion rates and associated costs. Here, a “waste diversion rate” refers to the portion of solid waste mass recycled or composted.

The “before” stage will begin with spring quarter 2013 and will sample Denny Hall’s solid waste twice weekly for four weeks to allow robust characterization of the composition of the building’s waste stream. Each sample will consist of one day’s building-wide waste, and will be separated by bin type (trash bins versus recycling bins; Denny is currently devoid of compost bins) and then weighed to produce a waste diversion estimate for the sample. Average Denny Hall waste diversion rates will then be calculated, and these diversion rates will be projected to annual monetary costs. Following measurement by bin type, items in each sample will be also sorted into three constituent types – landfill waste, compost, or recyclables – according to the method of disposal most appropriate to each discarded item. Sorted materials will then be weighed and recorded to derive the percent contribution of each sorted type to the overall building waste stream, and by extension an estimate of “potential” waste diversion rates if bin users had disposed of all items correctly. Potential diversion rates will then be contrasted with actual diversion rates to quantify the inefficiency of the current waste system in Denny Hall, as well as the costs associated with this inefficiency.

During the fifth week of the project, UW Recycling will implement the MiniMax and paper towel composting systems in Denny Hall. In doing so, they will introduce compost bins to all building break rooms, restrooms, and publicly accessible areas while publicizing these new systems to building users.

The “after” stage will then commence with another four weeks of sampling, sorting, and analysis identical to the first stage, while adding compost bins as a discard bin type. At the end of this period, differences between “before” and “after” diversion rates and related costs will be quantified, allowing direct estimation of the benefits of the two systems implemented, as well as the degree to which each realizes potential diversion rates.

From this point forward, measurement of project impacts changes dramatically, as success becomes defined by the degree to which results are effectively publicized to administrators and students. For the former group, impacts will be measured by changes in the rates with which administrators adopt and implement the MiniMax system (paper towel composting is new and provides no baseline for comparison); if project results demonstrate compelling incentives for composting, adoption rates should increase. Effects on student behaviors will be less immediately measureable, but the number of students exposed to and/or participating in outreach events may serve as a useful proxy; as such we will work to continually increase this number as a means of enhancing the impact of this project.

Explain how your project will be publicized to the campus and what your specific outreach and education goals are

This project will be publicized both before and after the examination of Denny Hall waste commences. Pre-publicity in many ways began last week with the UWGP’s participation in both the Burke Museum’s AIA Archaeology Day event as part of the Museum’s new “Plastics Unwrapped” exhibit, since this event afforded us the opportunity to present our past work as well as our planned future projects to nearly 1000 museum visitors. Publicity will continue this weekend, as our project and our intended future direction will be featured on the January 2013

episode of “UW 360,” a monthly news magazine aired on UWTV. Over the course of winter quarter 2013 we will also be discussing our project with UW students through invited lectures at several classes in both the Department of Anthropology and the Program on the Environment as a means of raising awareness for our efforts and recruiting participants for our intended spring quarter work. These visits stand in addition to teaching about our project in my own class (Archy 205, for which I currently serve as a TA), scheduled upcoming presentations to classes at UW Bothell and Shoreline Community College, meetings with representatives of the UW Environmental Stewardship Committee, a public presentation at the Burke Museum’s upcoming “Short Takes on Plastics” event and its Recycling Fair event, participating in UW Recycling’s “Trash-In” event in mid-April, and the advertisement of the proposed project on the UWGP’s own website, Facebook page, and Twitter feed. In sum, we are already doing much to publicize this project.

Once sampling, sorting, and analysis has begun, we will also continually publicize our project by creating a student-authored blog that documents our ongoing efforts. This blog will be added to the UWGP website, and will be updated weekly as the project unfolds. Student volunteers will be responsible for contributing to this blog by writing short weekly entries recording their thoughts, impressions, and insights as they confront the waste collected from Denny Hall. In particular, these students will be asked to continually reflect on how the experience of sorting trash has changed their perspectives on composting, waste, and consumer behavior in general. In this way, non-participants will be able to share the experiences of student volunteers as they confront the challenges UW faces in managing its solid waste.

Once this initial, waste-characterization stage of the project is complete, we will continue to publicize our results and insights by making use of these pre-existing connections and resources, while also developing new ways of featuring our work to an ever-expanding group of students. These expanding efforts will be overseen by an undergraduate student appointed as a dedicated coordinator of our outreach efforts for the remainder of calendar year 2013. This student will be supervised by myself in conjunction with Emily Newcomer, and will be paid as an hourly part-time UW employee to undertake a specific series of tasks. Chief among these tasks will be the production of a short video to be shown to all incoming first-year students via UW First Year Programs, with the goal of eventually achieving universal exposure of the student body to both 1) the significant incentives for composting and recycling at UW and 2) how best to participate in UW’s composting and recycling systems (in other words, what is compostable and what is not). This outreach coordinator will also be responsible for visiting large-lecture classes on campus and speaking briefly about composting to large numbers of students, much the same way summer internships are commonly advertised in these classes already. Further, this student outreach coordinator will work directly with UW Recycling to foster ties with student groups such as SEED, SAGE, and Eco Reps, aid in advocacy for administrative change, stage campus events such as the “Trash-Ins” which have been previously successful, participate in environmental events in the local community, and work with the UW recycling team to creatively develop entirely new means of publicizing the need for campus-wide composting.

Taken together, all of these efforts will help our project reach its educational goals. At the most basic level, these goals involve helping to create a UW campus where most people compost extensively by default and every student is made more aware of both why and how they should

compost. More broadly, we also want to effect student behavioral change by confronting them with the waste issues we face as a community, and by showing them how easy and productive it can be to engage in better ways of managing our solid waste on campus. If we are successful in achieving this goal, our ultimate hope is we will in some small way encourage UW students to carry better habits and a greater consumer consciousness throughout the remainder of their lives, in turn helping them to improve the sustainability of the many communities in which they will eventually live.

Describe how many student jobs and/or volunteer opportunities your project involves and their responsibilities

If funded, this project will provide two part-time student jobs, around 20 volunteer opportunities during sampling, sorting, and analysis, and an open-ended number of volunteer opportunities during subsequent outreach efforts.

The first part-time job will pay one student about \$16.66 per hour for 20 hours of weekly work over a 12-week period. This period will begin one week prior to sampling and sorting efforts and end two weeks after sampling and sorting is concluded. This student will be responsible for organizing sampling and sorting efforts by managing all funding, materials, and supplies, coordinating sampling, scheduling, training, supervising volunteers during sorting, and recording and analyzing data. This student will also aid UW Recycling in converting Denny Hall to the MiniMax and paper towel composting systems. Once sorting efforts are concluded, this student will also be responsible for producing a written report communicating results and interpretation to UW Recycling, as well as the publication of this report on the UWGP website. Once these tasks are complete, this student will assist Emily Newcomer of UW Recycling in launching outreach efforts, including hiring and orientation of the part-time student outreach coordinator (discussed below). Once this is accomplished, this individual will remain with the project as an unpaid volunteer to assist Emily in supervising the outreach coordinator and outreach efforts for the duration of the calendar year.

The student outreach coordinator will be paid approximately \$10 hourly for a total of 200 hours of work to be completed over the course of summer and autumn quarters 2013. This student will be supervised by Emily Newcomer and the aforementioned student project manager in these efforts, and will work closely with these supervisors to develop ways of communicating project results, including the benefits of composting, to the UW campus and the wider community. Specific responsibilities will include the production of a short educational video about composting to be shown at UW first-year orientation, communication and collaboration with student groups such as SEED, SAGE, and Eco Reps, organization of and participation in UW Recycling events such as Trash-Ins, a series of short presentations to large-lecture classes on campus, and management of the UWGP website and social media. Further, this student will also assist in the recruitment of other student volunteers to aid in campus outreach efforts.

Student volunteers to aid in sampling, sorting, and analysis will be recruited through existing ties between our project and the Program on the Environment and the Department of Anthropology. These volunteers will be responsible for attending one group sorting and analysis session per

week (10 volunteers per session; sessions will take place twice weekly), aiding in the classification of collected materials, providing a weekly blog post reflecting on their efforts, and providing input and assistance during production of our educational video. Training – including safety training – for these student volunteers will be provided by the student project manager.

Student volunteers to aid in outreach efforts will also be recruited through the channels mentioned above. Additionally, the student outreach coordinator will be responsible for drawing in additional students by fostering ties with other organizations on-campus and beyond. It is impossible at present to estimate the number of students who will participate in these efforts, and their responsibilities will vary according to the particular task or event for which they volunteer, as well as according to their desired level of commitment. On the other hand, it is noteworthy that the project as designed can accommodate any students willing to volunteer for the outreach stage, as we can expand indefinitely and are willing to accommodate all levels of interest, expertise, and commitment to the project. As such, our efforts will be focused on bolstering the number of student volunteers, since increasing these numbers also helps advance our broad educational mission.