Waste Minimization and Increased Recycling at University of Idaho

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Proposal Working Group

Darin Saul, Sustainability Coordinator, Alecia Hoene, Communications Coordinator, Environmental Sciences Program, Jeannie Matheison, UI Sustainability Center; Tom Nagawiecki, UI Sustainability Center, Lissa Firor, UI Sustainability Center; Garrett Lamm, Sustainability Director for ASUI.

Groups who have formally endorsed this proposal

Graduate and Professional Students Association
ASUI Senate

Units or individuals contacted as part of this process

Jerry Curtis and Mike Thomson, Campus Dining;; Chuck Lanham and Luke Michelson, ITS; Purchasing; Tom Fischer, Director, Building Services; Tara George, University Housing; Mark Labolle, Director, Building Trades; Fred Hutchinson, Environmental Health and Safety; Cindy Johnson, Creative Services; Rose Graham, Commons Copy Center; Chris Cooney, Communications and Marketing

Programs or units to be reorganized

Recycling, Surplus and Solid Waste; University of Idaho Sustainability Center; University of Idaho (across all of Moscow campus); other individual units are addressed in the specific projects

Waste Minimization and Increased Recycling at University of Idaho

Overview

Sustainability has to be more than just a word at the University of Idaho (UI), but rather a way of preparing students for a future that may include energy and water shortages, climate change, increased competition from abroad, and perhaps declining per capita income. US citizens cannot afford to continue wasting precious resources. This proposal will increase the sustainability of UI by reducing our overall waste stream. The focus on waste minimization and recycling is meant to be an example of the types of projects possible to advance sustainability, which are both cost effective and requisite for a healthy future for the young people educated at the UI.

Minimizing waste saves money all along the process, from purchasing to handling, to disposal. Reducing UI's overall waste stream is the most cost-effective and environmentally and socially responsible approach to reducing waste-related costs. Since waste and recycling are paid for centrally, most staff, faculty and students do not know the true cost of the items they purchase. In 2007, UI spent approximately $880,000 on waste and recycling, including staff labor. This does not include the costs of purchasing, printing and other activities that generate the waste.

Most projects in this proposal will save the university money both in the short and long terms, and many of them do not have capitalization costs. The three proposed fees, a revolving loan fund, bundling of projects and an accrual mechanism will provide funding for the projects needing capitalization, for the education campaigns, and for the next wave of projects to be started after these are completed.

Minimizing waste is a difficult endeavor and will require dozens or even hundreds of small projects as part of the process. Collectively, these changes amount to a paradigm shift in how UI operates. Ultimately, the project is to change our entire way of looking at purchasing, use and disposal of materials on campus.

Waste Minimization and Recycling Projects

Paper Reduction

Paper is the single largest component of the UI waste stream. Any reduction of paper usage on campus not only saves money on the purchase of paper, but also saves money on handling and disposal. Both land-filling and recycling paper cost the university money because of labor and handling costs. The most cost-effective approach is to reduce the amount of paper we use up front and avoid having to dispose or recycle it altogether.

- Develop printer and copier equipment purchasing and operating standards with duplexing (two-sided printing) as the default. Most printers and copy machines have this capability, but many machines have not been set to use it. By setting duplexing as the default, you will have to intentionally waste paper on campus instead of doing it as the general rule. UI Sustainability Center (UISC) will work with Purchasing on a policy to require duplexing functions on new printers. In addition, UISC will develop an education campaign targeting staff and faculty on the benefits of duplexing. The purchasing policy will be developed, put in the Administrative Policy Manual, and then disseminated through the FIG meetings and the FIG listserv.
- Set duplexing as the default printing option in the Information Technology Services (ITS) computer labs. As a first step, ITS and UISC will conduct a pilot in several computer labs next year. Duplexing will be set as a default in one lab and single-sided printing will remain the default in the other labs. UISC will work with ITS on an education campaign to explain the benefits and logistics of duplexing. The project will determine if education alone is enough, document benefits of the two approaches and determine student reaction to duplexing as the default.
- There was not time to adequately explore setting duplexing as the default with the Commons Copy Center beyond the need for more educational activities. UISC will continue the conversation with Creative Services to develop a plan to increase use of duplexing in the Copy Center. Initial data indicates that most copying is already double-sided and there are not large gains left to be made compared to the rest of campus.
- Continue transition to a paperless workplace. UISC will work with Purchasing on an educational campaign encouraging vendors to convert to electronic invoices and information.
- Convert the UI Register to an electronic only publication. UI Communications and Marketing has agreed to eliminate the paper version of the UI Register. The Register will continue as an electronic newsletter and as a website publication. Publication on paper will be discontinued in June 2009. This will save UI Communications $15,000 in publication and mailing costs, will reduce workload for campus mail, recycling and solid waste staff, and will save the UI additional money in disposal and recycling costs.

These activities will be conducted as ongoing operations by involved units. No additional funding will be required and all of these projects will save UI money.

Standardized Office Furnishings

Many departments at UI purchase office furniture made of particle-board. This saves departments money in the short-term but creates significant long-term costs for the University. This type of furniture is poorly made, short-lived, made with toxic chemicals, does not survive moving, cannot be resold, and has to be disposed of in a landfill. This results in furniture which must be replaced more frequently, can rarely be reused, and costs both staff time and money for disposal. This cheap furniture is showing up in large volume at Campus Surplus. Moving to standardized office furnishings made of durable wood or metal will allow the Campus Surplus program to keep and re-sell quality furnishings back to campus users at a reduced price, and result in significant long-term cost savings to UI. UISC, in collaboration with Purchasing, will form a committee to develop furniture standards.

Coffee cups and Water bottle fees

Several of the most commonly thrown away items on campus are disposable coffee cups and plastic water bottles. The growing trend on campuses across the nation is to simply ban these items (usually water bottles) from campus. We want to take a different approach that raises awareness and uses these waste streams to generate revenue to fund other waste minimization activities. If everything works as planned, this is a revenue source that will go away as behaviors change and problems are addressed. The idea is to add a $0.25 fee for every disposable coffee cup and water bottle sold on campus. Coffee purchasers will be asked each time if they have a reusable mug, helping to engrain the idea that reusable is better. Inexpensive reusable mugs will be sold at every coffee outlet and, potentially, funds generated could be used to give free mugs to incoming students. The fee on water bottles will be used to provide free reusable water bottles to incoming students and to convert drinking fountains so that they enable filling of water bottles.

The funding from these fees will decrease over time as more people convert to reusable coffee mugs and water bottles. In the meantime, this will provide a surge of funding to move many waste minimization and recycling projects forward, most of which will save additional money. The extra fee will go into a waste minimization fund at the UI Sustainability Center for projects that minimize waste on campus. The funding will support a half-time position focused on waste minimization projects and education campaigns and will provide the capitalization funds needed to develop additional projects to reduce waste and increase recycling on campus. Campus Dining will need about two weeks to add the fee into their system. They will collect the fee as part of selling coffee and transfer the accumulate funds monthly to a waste minimization account in the UISC. This particular idea has received the most support of any of the ideas in this proposal from students, including the GPSA and the ASUI Senate.

Waste minimization and recycling education and outreach campaign

Campus community buy-in is essential for waste minimization and recycling efforts to be successful. Although the current recycling rate at UI is 15%, a recent UISC study found that 68% of the waste stream could be recycled or composted with the current campus recycling system. Much of the infrastructure is already in place for a successful recycling program on campus. We already have over 200 recycling stations on campus: we collect recycling in buildings, at exterior recycling stations, at cardboard collection stations and at other locations on campus. Most staff, faculty and students have easy access to recycling options, at least for paper and cardboard, which comprises the majority of recyclables in the UI waste stream. The exception to this is the need to develop recycling at large events on campus. Little or no recycling options are available at sporting and other large venue events.

For normal, day-to-day operations, changing campus culture has a greater potential for reducing waste and increasing recycling than infrastructure improvements. The biggest opportunity to increase recycling at UI is to increase staff, faculty and student participation in the program. University of Idaho, from freshman dorm rooms to the President's office, needs to increase the accountability expected from students, faculty, and staff. Minimizing campus waste is everyone's responsibility. Every individual on campus needs to participate in recycling for it to reach its potential as a cost-effective and

environmentally and socially responsible approach to handling our waste. What is needed is a waste minimization and recycling education program for all campus users.

The current recycling system is often crippled in its cost effectiveness by excessive contamination with garbage, which wastes staff time and reduces the quality and value of the recycling commodities collected. UI students often have a positive outlook on recycling, but a lackadaisical approach toward how they implement it. In broad terms, this is due to lack of awareness for the full extent of the consequences of our actions, externalization of costs, and denial that small habitual actions have the potential for very big impacts. Although these problems undermine the effectiveness of the current recycling program, almost no educational activities to counter them currently take place on campus, except for those in the single stream pilot in Residences. There is an assumption that recycling is intuitive, that everyone knows how to do it. The exceptionally high rate of contamination of the recycling system at UI is evidence that many people do not know how to recycle. Greatly expanding educational efforts around recycling will not only improve the viability of the UI recycling effort, but will help students, staff and faculty be more effective recyclers at home and elsewhere, something that is critical if as a culture we are ever going to develop a viable, long-term recycling effort.

In addition to addressing contamination, educational efforts should target strategic areas of waste minimization. A number of these strategic areas would support projects outlined in this proposal. Additional examples of projects are as follows:

- Recruit and integrate volunteers in promoting and collecting recycling on campus. Develop service-learning activities for classes to participate in. Involve students in every aspect of the program possible to increase its effectiveness and to increase experience and skills in the student body around recycling.
- Define expectations by setting universal standards across campus. Acceptable and non-acceptable materials need to be clearly listed, defined, and publicized.
- Produce literature for orientation packets to introduce recycling to new students. Present educational information in multiple places in the orientation process.
- Include waste minimization and recycling information and expectations in the new employee orientation. Make it clear that waste minimization and recycling are part of what is expected by “other duties” in position descriptions.
- Offer free a waste audit and consulting program to help offices and departments reduce waste. Part of this program could include waste minimization posters, promotional materials or display kits available to offices at low cost.
- Use branding to link school pride to waste-conscious behavior. Instead of the generic “campus recycling” we should call our program “Vandal Recycling.”
- Advertise vandal recycling at sporting events. This campaign should include UI athletes, university administration, ASUI officials and other leaders from the vandal community in advertising and promotions. It will aim to tie good recycling behavior to vandal spirit and the campus community.
- Implement an avid recycling program with large groups of volunteers at all UI sporting events. There are many examples of successful programs at other universities which can provide models for how this can be done.

- Regularly announce recycling PSAs on the campus radio station. Develop PSAs or short film advertisements for the UI TV station.

Key to the success of the effort is explicit support from upper administration. Many people at UI will respond to a call by leadership to increase their effort in recycling. Small amounts of effort by everyone will have more impact than any other thing we can do to increase recycling. The President and Provost need to use their positions as a "bully pulpit" to advocate for increased recycling efforts at UI. Examples of specific activities that the President and Provost can do to help support this effort include the following:

- Model the behavior we want others to adopt. All events arranged by the President's and Provost's offices should be zero or minimal waste.
- They should emphasize the importance of the effort periodically in the Friday Letter, and at large gatherings and venues on campus (UISC and Sustainable Idaho can provide the talking points).
- Publicly endorse waste minimization goals established by the Sustainability Committee (Minimize the overall waste stream by 20%; Recycle 60% of what remains).

The overall education program will prioritize educational projects that have the largest impact on reducing waste and increasing recycling, that save money and that change perceptions and behaviors to minimize waste. Funding from the coffee cup and water bottle fees will be used to hire a half-time education coordinator in the UISC to spearhead these activities. This person will focus on coordinating student and volunteer involvement, managing educational activities and working on specific waste reduction projects.

Compost food waste on campus

The two major dining venues at the University of Idaho, Bob's Place in Wallace Hall and the food court in the Commons, generate a little over 100,000 pounds of compostable waste every year. Compostable waste is a collection of food waste, napkins, and compostable plates that can be composted and used as part of landscaping or other uses on campus. Currently, the University of Idaho pays approximately $3,500 per year to have this waste transported to a landfill 200 miles away. Along with the financial cost of disposing of food waste as garbage, there is also an environmental cost: as this waste decomposes in the landfill it emits more than 10 metric tons CO_2e of greenhouse gases into the atmosphere, and its transport to the landfill results in another 4 metric tons CO_2e. With the implementation of a composting system for these two venues, these financial and environmental costs could be avoided while at the same time creating an educational opportunity for students.

UI Sustainability Center and Campus Dining have initiated a project to develop a composter sized to compost food waste from Bob's Place in Wallace, the food court in the Commons and from catering. The goal is to compost all food waste from all campus dining operations within 18 months, with portions of it being composted sooner. The composter will be designed and built as a senior engineering project next year, under the guidance of Tom Hess. Campus Dining has agreed to pay for the project. The composter will cost approximately $5,000 to build and will save $3,500 per year in waste disposal costs and produce approximately $400 worth of compost per year for use by Landscape Services.

Switch to electronic hand dryers from paper towels

A recent campus-wide waste characterization found that paper towels make up around 15% of the waste found in 12 dumpsters surveyed on campus. In addition to disposal costs, the paper towels themselves are expensive, costing up to several hundred dollars per hand towel dispenser per year for high use dispensers. In addition, the paper towel machines must be stocked regularly, and after the towels are used, custodial staff has to haul them to the garbage, costing an average of $135 in labor per machine per year. A more cost-effective and sustainable solution comes in the form of electric hand dryers: the newer, better ones can dry hands in less than 5 seconds and are much more energy efficient than older models. They will use between $5-20 per year in electricity and so will have operating costs between 2-8% of those of paper towel dispensers.

The return on investment for these dryers, when these savings are tallied, ranges from 1.2-5 years depending on how frequently they are used. They will rapidly pay for themselves while eliminating one of the single biggest parts of our waste stream in one blow.

As for environmental tradeoffs, the use of electricity produces carbon. A high use electric hand dryer will result in between 1/20 and 1/5 of a ton of carbon being released, depending on the machine. The manufacture and disposal of paper also results in carbon emissions, which are less easy to quantify. We are proposing that a small fee be assessed from the savings generated to pay for conservation projects to offset the increase in electricity use. Ideally this fee would be about $10 per machine per year, or slightly less than 2% of the projected savings per year from high use machines. This money will be invested in the Sustainability Revolving Loan Fund to pay for energy conservation projects or renewable energy projects to reduce the UI carbon footprint, thereby offsetting any increase in the UI carbon footprint caused by this project.

UISC is working with Tom Fischer, Director of Building Services, to identify the best building to conduct a pilot project to determine the feasibility of using air dryers instead of paper towel dispensers. The pilot project will develop a baseline, install the machines, quantify savings, determine user satisfaction, and determine the overall feasibility of expanding the pilot to broader implementation. Depending on the results, the savings from the machines used in the pilot would be used to buy additional air dryers to expand the program to high use areas on campus. The Sustainability Revolving Loan Fund, which is in the process of being established, would be a good source of funding for the pilot. If this does not work, then funding from the coffee cup and water bottle fees could be used as seed money to get it started, and savings from use of the machines could be used to expand the project.

Develop minimum waste catering on campus

Campus Dining is working on converting its catering system to a minimum waste system. In the near future, they plan to convert their current system to two catering options, outlined in Table 1.

	Minimal Waste: Special Occasions	Minimal Waste: Casual Events
Covered Trays and serving bowls	Reusable, durable china	starch based, compostable or recyclable
Plates and bowls	Reusable, durable china	starch based / compostable
Cold Cups	Reusable, durable drinking glasses	compostable
Hot Cups	Reusable, durable stoneware mugs	compostable
Silver	Reusable, durable silverware	starch based / compostable
Napkins	Reusable, durable cotton napkins	Compostable
Linens – table cloths	Reusable, durable cotton napkins	Compostable
Bottled water, juice and pop	Served in glasses, any single use beverage containers will be recycled	Any single use beverage containers will be recycled
Stir Sticks	Compostable	Compostable
Flower vases	Reusable, durable	Reusable, durable
Food scraps	Composted	Composted
Leftover food	Composted or donated to the Troy community feed	Composted or donated to the Troy community feed
On-site Minimal Waste Green Glove Staff	White glove service, staff will ensure that everything is composted and recycled	White glove service, staff will ensure that everything is are composted and recycled
On site recycling bins	Always	Always
On-site compost bins	Always	Always
Compostable bags for on-site bins	Always	Always

Table 1: Zero or minimum waste catering options

There will be a small investment, under $10,000 for reusable trays and a portable composting and recycling collection system of containers. The cost of compostable flatware will increase the cost of catering by $9,000. The conversion will save $10,000 per year that Campus Dining currently spends on disposable trays. The waste savings have not been quantified. This amounts to an increased cost of several thousand dollars the first year, and then the savings on trays will offset the extra expense of compostable flatware in following years.

Campus Dining can manage these changes for events with less than 50 people as part of normal operations. A student group in Business 378 is currently working on a business plan to identify options for large events. One option is to include a small fee for events larger than 50 people to cover expenses associated with collecting recycling and compostables. After the students have quantified the costs and ideal logistics for the program, UISC will work with Campus Dining to determine the necessary fee ($0.50 per person at most, preferably less).

Require use of 30% recycled content paper for multipurpose paper purchases on campus

One problem with recycling is the weak markets for recycled commodities. To address this problem, the Federal Government and many states (e.g. Washington and California) have required the use of papers with recycled content as their standard paper for copying and printing. In addition to stimulating

markets through our buying power, switching to recycled content papers reduces our environmental footprint. The University of Idaho purchases around 51,000 reams or 25.5 million sheets of paper in a year at a cost of over $190,000 dollars. Of the 51,000 reams purchased, only 18,000 reams, or about 35% is made of at least 30% recycled content. The consumption of 16 million sheets of virgin paper has an extensive impact upon the environment; an impact that could be significantly reduced by switching to paper with at least 30% recycled content. Table 2 below summarizes the avoided resource usage and avoided pollution that would result from switching all of the current virgin paper purchased at UI to 30%, 50%, or 100% recycled content.

	Avoided Wood Usage (tons)	Avoided Energy Usage (million BTU's)	Avoided GHG Emissions (lbs CO2e)	Avoided Wastewater Production (gallons)	Avoided Solid Waste Production (lbs)
30% recycled content	87	417	52,624	218,431	28,050
50% recycled content	144	695	87,707	364,052	46,749
100% recycled content	288	1390	175,414	728,104	93,499

Table 2: Avoided impact from switching all UI virgin paper to recycled content. Estimates made using the Environmental Defense Fund Paper Calculator, http://www.papercalculator.org.

Much has already been done on this issue at UI. 100% of the paper used by ITS in the student computer labs meets or exceed the 30% minimum standard for recycled content. The Commons Copy Center stocks recycled-content papers in the self-serve copy machines, but only on request in the main copy center. But, less than 35% of the paper purchased by departments, faculty and staff on campus meet or exceed the 30% recycled-content standard, and these users account for most paper used on campus.

There was not adequate time to determine how best to craft a policy about purchasing standards for paper. The conversation was started, but additional work needs to be done to determine the approach that will have the most success. UI Sustainability Center will work with Purchasing, Creative Services, and other stakeholders to develop a policy in the Administrative Policy Manual concerning use of 30% recycled content paper as the standard multipurpose use paper. In addition, UISC will work with Purchasing, Creative Services and ITS on a education campaign about the benefits of using recycled content paper.

This project is cost neutral. Under the Office Max contract recycled-content paper is the same or slightly cheaper than the virgin-content equivalent paper. The price varies over time, sometimes slightly cheaper, sometimes the same, sometimes slightly more. It is always an insignificant difference of a few pennies per ream, one way or the other (less than 2% difference between virgin and recycled-content papers over time).

Electronics and E-waste

Electronic waste is a rapidly growing problem at UI. Much of the e-waste stream includes toxic substances, and UI will be forced to eliminate it from the waste stream January 1, 2010 by the State of Oregon, where our waste is transported for disposal. UI disposed of 24.5 tons of computer monitors alone in FY2008 at a cost of $7,380. The total volume of computers and monitors for disposal continues to increase each year (see Figure 1).

Many problems exist in current electronics recycling programs, as many recycling programs amount to little more than dumping toxic waste in developing countries. To address this problem, we are in the process of developing a Request for a Proposal for a contract for an e-waste recycling vendor to handle all e-waste from campus. As part of the contract, vendors will need to provide documentation showing that all parts will be properly recycled, re-used, or destroyed. UI Sustainability Center, Recycling Surplus and Solid Waste, and Environmental Health and Safety are working with Purchasing to develop the RFP.

The budget for recycling computer monitors was previously paid for by Environmental Health and Safety. As part of budget cuts, the funding for monitor recycling has been eliminated, leaving no funding available on campus for this waste stream. They cannot go to the landfill, but no budget exists to recycle them, and no long-term storage exists to store them.

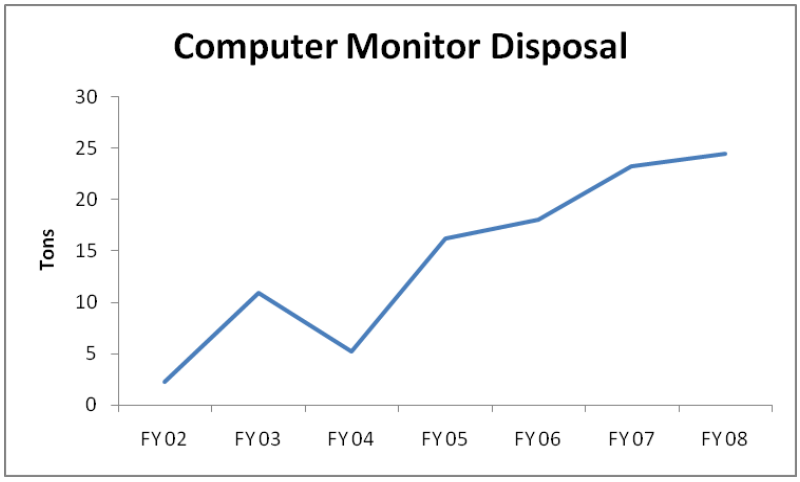

Figure 1: Trends in monitor disposal

To pay for e-waste recycling, Recycling, Surplus and Solid Waste (RSSW) will assess a fee to pay for end of life recycling. For the remainder of FY09 and for FY10, the surcharge assessed by RSSW will be $25 per large electronic item under 50 lbs (computer, monitors, copy machines, printers), and $25 plus $0.50 per pound for any item over 50 lbs. The surcharge will be charged on any large e-waste item taken to surplus until 2012 to cover items currently owned by UI. A fee is planned as an upfront charge, but the exact mechanism has not been worked out by RSSW. The fee for e-waste will be evaluated each year, and either adjusted up or down, based on surplus or deficit in the e-waste recycling budget.

This fee and many of these problems could be eliminated if UI switched to a program of leasing computers instead of purchasing them. So far there is interest in this option, but no support towards making it happen. We will continue to explore this option.

Process followed to develop this proposal

The current UI Sustainability Center is a product of the combined efforts of faculty and staff from the Sustainable Idaho Initiative and many UI students over several years. Resources from Sustainable Idaho

and student fees fund the Sustainability Coordinator, student staff and programs in the UISC. During the last 18 months, Sustainability Idaho and UISC have organized the Sustainable Planning Committee. This Committee includes diverse faculty, staff and student representation focused on integrating sustainability into all aspects of university culture, academic achievement and operations. As part of this effort, several subcommittees and working groups have developed that focus on specific sustainability issues at UI, including a waste minimization working group. This group developed a number of the recommendations in this proposal. The Sustainability Steering Committee also participated in both brainstorming and reviewing portions of this proposal.

The ideas in this proposal were presented to both GPSA and the ASUI Senate. Both groups passed resolutions endorsing the ideas in this proposal.

Once the list of projects was developed, the Sustainability Coordinator, with support from the Proposal Working Group contacted affected units to collect information and determine the feasibility of the different projects. As part of this process, many ideas were simply accepted as reasonable and affected units initiated efforts to implement them rather than waiting for the conclusions of the RFI process. For other ideas, while substantial progress was made, not all details were worked out in time for this submission and additional follow up (as noted under specific projects) will be carried out by UISC staff. A number of ideas were simply dropped when insurmountable difficulties were discovered during this process.

Additional Comments about Financial Mechanisms

Many sustainability projects will pay for themselves in the short-term. For those that will not, there are several mechanisms available to us. One is the revolving loan fund. When sustainability projects are implemented that produce savings, a portion of that savings is accrued in a revolving loan fund. These funds are then used to pay for projects that have longer-term payback periods. Re-investing a portion of the savings accrued from sustainability projects enables development of additional projects, which will create additional savings. A draft policy establishing a revolving loan fund is currently under review at the Office of General Council.

Another mechanism involves bundling projects. Instead of simply implementing the most cost-effective sustainability projects, projects with long-term benefits, but which would be slow to pay themselves off, are bundled with more cost-effective projects with greater short-term payoff. If done right, the average between the projects still produces substantial savings in the short-term, while enabling longer-term payoff projects to occur.

The third financial mechanism used in this proposal is to include fees that discourage waste, increase motivation for using reusable options, and support waste minimization programs. One of the problems with the current waste system is that substantial costs are externalized to other units, or to the environment, and consumers never know the true costs of their behaviors and purchases. Even small fees, like the ones on disposable coffee cups, can call attention to problems and motivate changed behaviors, in this case, the use of reusable mugs instead of disposable cups.