

TEMPLE UNIVERSITY WASTE MINIMIZATION AND RECYCLING REPORT



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TABLE OF CONTENTS

Executive Summary	3
Context of the Climate Action Plan	5
Overview of Existing Practices	6
Recommendations	11
1. Education, Training and Outreach.....	11
2. Labeling and Containers	12
3. Outdoor Recycling Facilities	14
4. Expansion of Plastic Recycling	15
5. Institutionalized Reuse and Recycling of Surplus Inventory	16
6. Waste Minimization and Recycling at Special Events	16
7. Purchasing	17
8. Housing and Residential Life	19
9. Food Waste and Dining Facilities.....	20
10. Harnessing Technological Advances.....	22
Implementation	24
 Appendix A: Temple University’s Existing Waste Minimization and Recycling Initiatives	
 Appendix B: Implementation Schedule	

EXECUTIVE SUMMARY

In May 2010, Temple University adopted its Climate Action Plan, which delineated the university's interim goals for reducing its carbon footprint and infusing sustainability into the campus culture. The Climate Action Plan addressed the role of waste minimization and recycling as part of its comprehensive efforts to reduce the university's carbon footprint. Since the adoption of the plan, Temple has achieved a 10% reduction in its greenhouse gas emissions derived from solid waste. While this is a noteworthy success, the university's recycling rate continues to remain at 30%, with only 20.3% of core materials being recycled. Core materials include mixed paper, cardboard and aluminum, glass and plastic beverage containers.

This report was prepared in response to the Climate Action Plan, which recommended the creation of a Waste Minimization and Recycling Committee that is tasked with identifying strategies for achieving tangible reductions in waste and increasing Temple's recycling rate to 40% by 2015. This report lays out the committee's findings and recommendations.

This report reviews the goals established in the Climate Action Plan, provides an overview of Temple's existing waste minimization and recycling practices, and examines the successes and challenges of the current program. The report then sets forth a series of recommendations aimed at increasing the university's recycling rate while minimizing its waste stream.

This report identifies ten action areas to be considered when developing a comprehensive recycling and waste minimization program. The areas include:

1. Education, Training and Outreach. Temple University has an extensive recycling program and an array of waste minimization initiatives. However, many students, staff and faculty are still unclear on the materials that can be recycled on campus or what they can do to reduce waste. This section outlines educational programming, training and outreach aimed at increasing recycling rates among the Temple community and minimizing the waste generated.
2. Labeling and Containers. This section reviews the types of containers utilized on campus, their multi-material sorting methods and the consistency in the labeling of recycling receptacles on campus.
3. Outdoor Recycling Facilities. The outdoor recycling program has a strong infrastructure on campus. This section explores opportunities to further strengthen the program, including reviewing the consistency and distribution of the outdoor recycling containers on campus.
4. Expansion of Plastic Recycling. This section looks at the breadth of the university's plastic recycling policy and ways to build on synergies with and successes of the City of Philadelphia's recycling program.
5. Institutionalized Reuse and Recycling of Surplus Inventory. Temple University generates a large amount of surplus inventory due to its size and its need to be on the cutting edge as a research facility. This section investigates new opportunities for recycling and waste diversion of surplus inventory, such as clinical and laboratory materials, major appliances, furniture, research equipment, and electronics.

6. Waste Minimization and Recycling at Special Events. University departments host a variety of special events throughout the year. This section looks at ways to increase recycling and minimize waste associated with these events.
7. Purchasing. This section explores opportunities for the university to minimize its waste and increase its recycling rate through its purchasing policies, procedures and practices.
8. Housing and Residential Life. Temple's residential community is comprised of approximately 5,200 students and is expected to grow in the future. This section suggests ways to increase the recycling rate in the residence halls and promote waste minimization. Areas addressed include outreach and education, containers and facilities, moving and composting.
9. Food Waste and Dining Facilities. Each year, Temple diverts 165.60 tons of food waste from entering the waste stream. This section highlights opportunities to increase the amount of food waste diverted and to minimize the amount of dining related waste generated through infrastructure changes, recovery programs and education and outreach.
10. Harnessing Technological Advancements. Technological improvements and increased availability present new methods for students, staff and faculty to reduce the amount of waste they produce. This section looks at the promotion of existing technologies as a tool for reducing waste levels.

The report sets forth recommendations for each of the above identified action areas. The recommendations can be implemented in four phases: immediately (completion by the end of calendar year 2011), short-term (completion by June 2012), mid-term (completion by June 2015), and long-term (completion by June 2020). The implementation of the recommendations will require university departments to forge new partnerships and institute institutional procedural change. Additionally, while the goal of the report is to develop programs and practices that are revenue neutral, there will be some upfront costs to implement the recommendations.

CONTEXT OF THE CLIMATE ACTION PLAN

In May 2010, Temple University adopted its Climate Action Plan, which clearly delineated the university's interim goals for reducing its carbon footprint and infusing sustainability into the campus culture. Table 1 displays the benchmarks that the university is striving to achieve in terms of reducing its carbon footprint.

Table 1. Climate Action Plan Goals for Reducing Greenhouse Gas Emissions

Climate Action Plan Goal	Date
5% GHG emissions reduction	2015
15% GHG emissions reduction	2020
22% GHG emissions reduction	2025
30% GHG emissions reduction	2030

The Climate Action Plan established a goal of reducing the amount of greenhouse gas emissions derived from land-filled solid waste by 10% by 2015 relative to the 2006 baseline level. The Climate Action Plan estimates that Temple emitted 5,229 metric tons of carbon dioxide equivalent (MTCO₂E) in 2006. A 10% decrease is equivalent to 529 MTCO₂E. The university successfully achieved that reduction in 2008. In fact, between 2006 and 2010, Temple reduced its emissions associated with solid waste by 19%.

Although it reached its 10% greenhouse gas emissions reduction benchmark, the Climate Action Plan identified additional waste minimization and recycling recommendations, which are listed below:

- Increase the recycling rate from 32% to 40% by 2015;
- Increase outdoor recycling opportunities to ensure that every trash can is accompanied by a recycling can;
- Explore composting of food waste;
- Review opportunities in the food service areas to replace disposable dinnerware and eating utensils in all dining halls;
- Review business practices that contribute to excess waste; and,
- Engage students in residence halls to reduce waste.

It should be noted that the Climate Action Plan did not identify a specific target for the reduction of trash. A goal and benchmark system for waste reduction may be something that the Waste Minimization and Recycling Committee considers as a way to evaluate the success of the university's efforts.

This report will explore opportunities on campus to increase its recycling rate to 40% while minimizing waste generated by operations and individual community members.

OVERVIEW OF EXISTING PRACTICES

Temple University established its recycling program in 1989. Since its inception, the program has expanded the depth and breadth of the materials that can be recycled. The university has also explored ways to reduce the waste generated. Between 2006 and 2010¹, the university has diverted approximately 15,561,780 pounds of material from entering the waste stream.

Temple divides its recycling materials into three categories: core materials, secondary materials and special materials. Core materials include mixed paper, cardboard, and aluminum, glass and plastic beverage containers. Secondary materials are primarily organic waste and include food waste, fryer oil, leaves and tree limbs and brush. Special materials encompass a broad range of items, including recycled electronics, glass from Tyler’s glass blowing studio, pallets, furniture and chemical waste.

Temple’s existing programs vary in their scope. While some programs may be universally available at Temple and are operated by the university, other programs are patchwork efforts that are run by student groups or interested staff/faculty. Appendix A provides a matrix of existing waste minimization and recycling programs at Temple University. The matrix is divided into two categories – waste minimization programs and recycling programs. There are occasions when a program can represent both categories depending on the end users’ perspective. On these occasions, the programs are placed in the most relevant category and a notation is made about their dual functions.

Temple’s investment in its recycling program and its waste minimization efforts have resulted in continued improvement in the recycling rates and waste reduction. The university has reduced its solid waste (trash) going to the landfill by 19.5% between 2006 and 2010. The greatest annual reduction came between 2008 and 2009, when the university experienced a 13.6% decrease in its solid waste. Table 2 illustrates the scale and make up of Temple’s waste stream.

Table 2. Temple University Waste Stream by Ton (2006-2010)

Materials	2006	2007	2008	2009	2010
Mixed Office Paper	720.2	868.2	682.7	678.5	641.7
Cardboard	236.6	277.1	298.1	301.1	297.3
Bottles and Cans	81.6	90.6	95.1	100.9	100.7
Secondary Materials	270.00	307.50	304.00	249.7	280.3
Special Materials	106.01	123.00	193.96	285.60	231.3
Trash	4,439.9	4,229.4	3,939.8	3,390.3	3,574.2

¹ Temple University reported waste and recycling amounts by calendar year (CY) through 2010. From 2011 on, waste and recycling amounts will be reported by fiscal year (FY).

Charts 1 and 2 depict the change in core recyclable materials between 2006 and 2010. It should be noted that the decrease in the amount of mixed office paper that was recycled is related to the university's introduction of waste minimization practices. The university instituted double-sided printing in the Tech Center, reduced students' printing quotas, switched various business practices from paper to electronic and eliminated some paper catalogues. Additionally, many departments upgraded their printers/copiers to machines with duplexing ability.

Chart 1. Amount of Core Materials Recycled

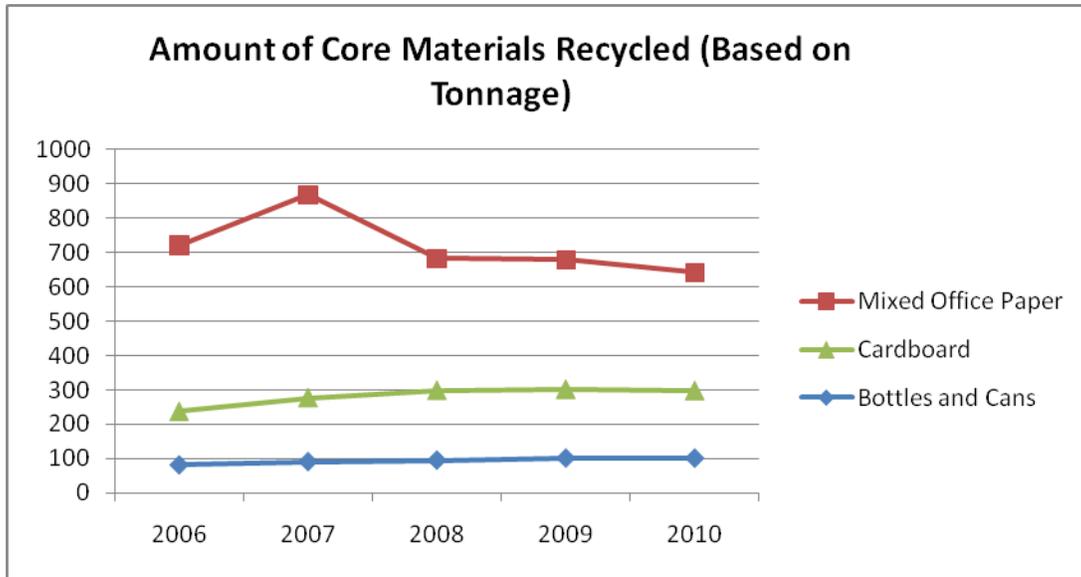
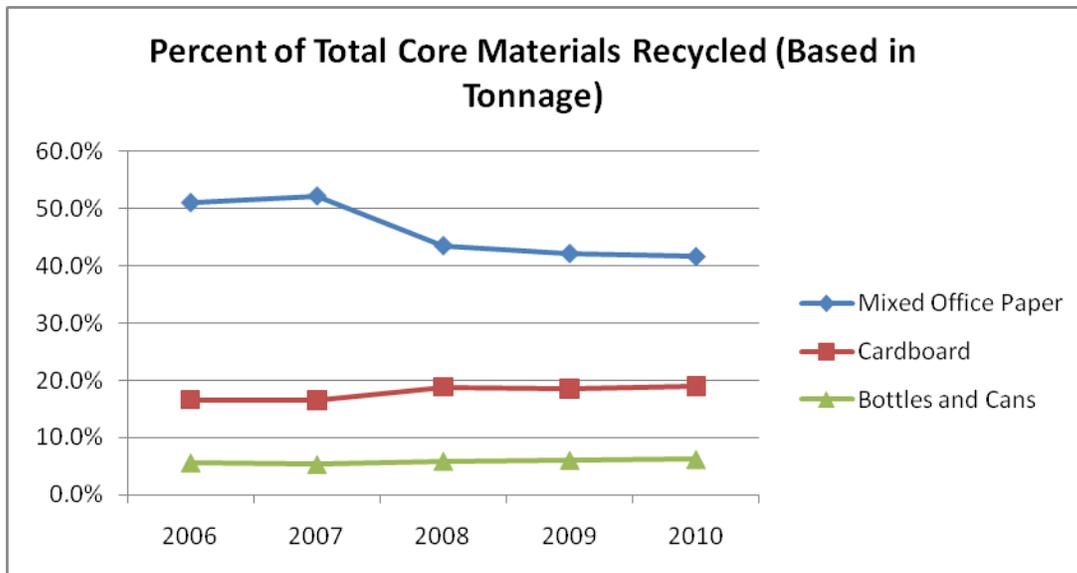
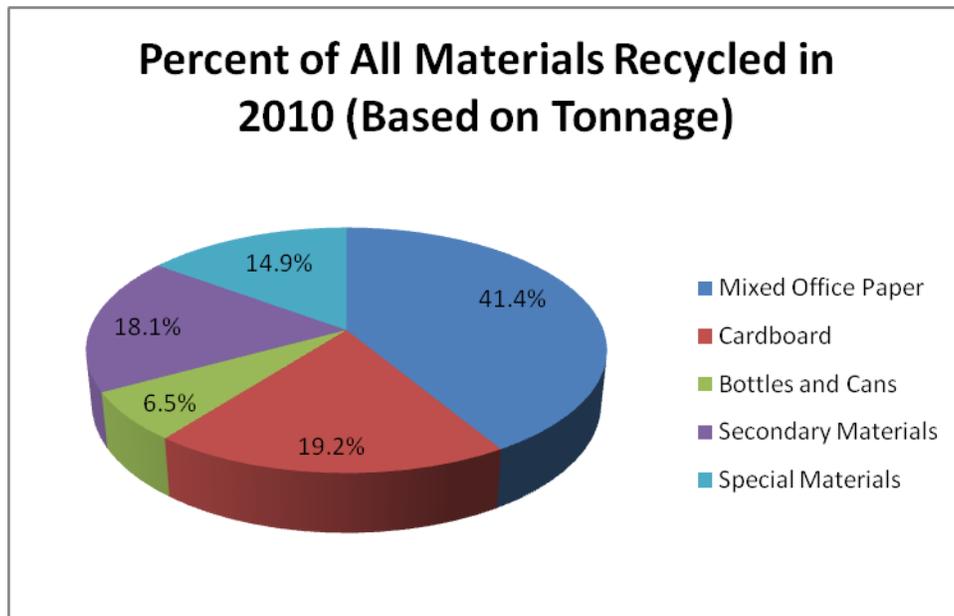


Chart 2. Percent of Total Core Materials Recycled



Although the university has reduced its use of paper through a variety of practices, mixed office paper continues to comprise the largest portion of Temple’s recycling stream. Chart 3 shows that mixed office paper comprised 41.4% of Temple’s recycling totals for 2010. As recycling is based on total tonnage, the high rate of paper recycling may be related to the weight of paper. An additional factor may be the role of paper in institutions of higher education and office settings.

Chart 3. Percent of All Materials Recycled in 2010



Since the inception of its recycling program, Temple has expanded the breadth of its collection materials. Charts 4 and 5 demonstrate the trends in the amount of secondary materials and special materials recycled by the university. The amount of secondary materials recycled increased between 2006 and 2008, but experienced a slight decline in 2009. The decrease in total secondary materials recycled in 2009 was related to a reduction in the amount of food waste that was recycled. This reduction was most likely due to the temporary closure and renovation of the Johnson & Hardwick Cafeteria.

The amount of special materials recycled has grown significantly since 2006, increasing by 118% between 2006 and 2010. While the total amount of special materials has increased annually, the specific streams included in the category “special materials” vary based on the activity in a given year. For example, there was a sizable increase in the weight of computers recycled in 2008. This reflects the university’s switch from the bulkier CRT monitors to flat screen monitors. In 2009, scrap metal was captured as a secondary material and increased the activity for that year.

Chart 4. Amount of Secondary and Special Materials Recycled

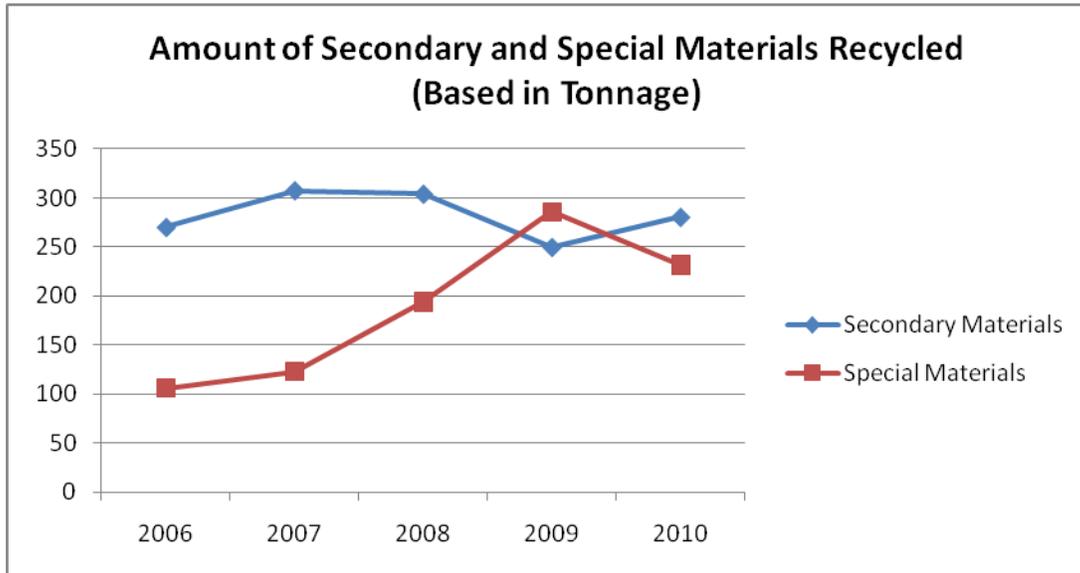
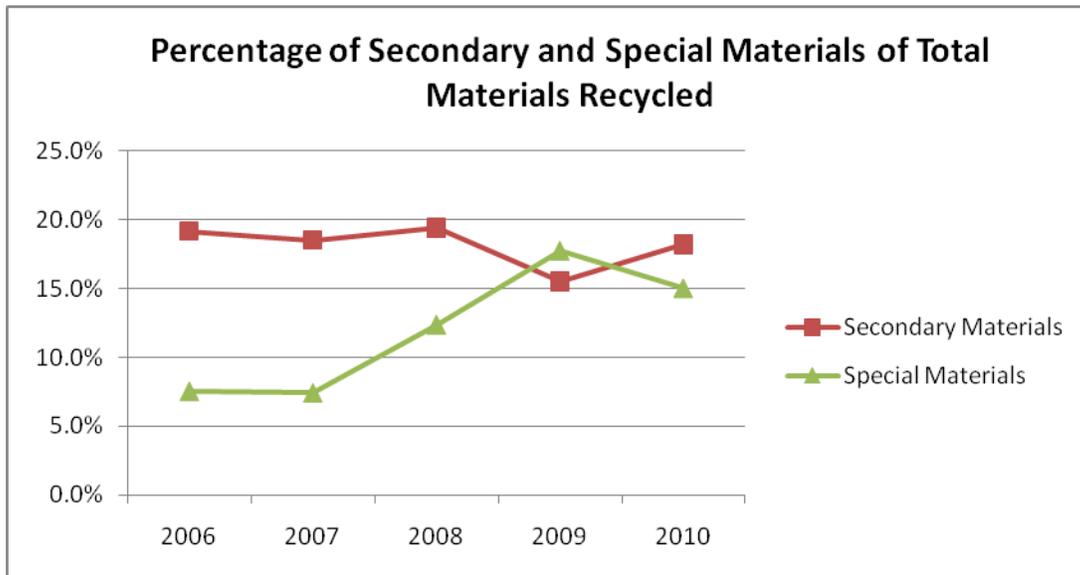


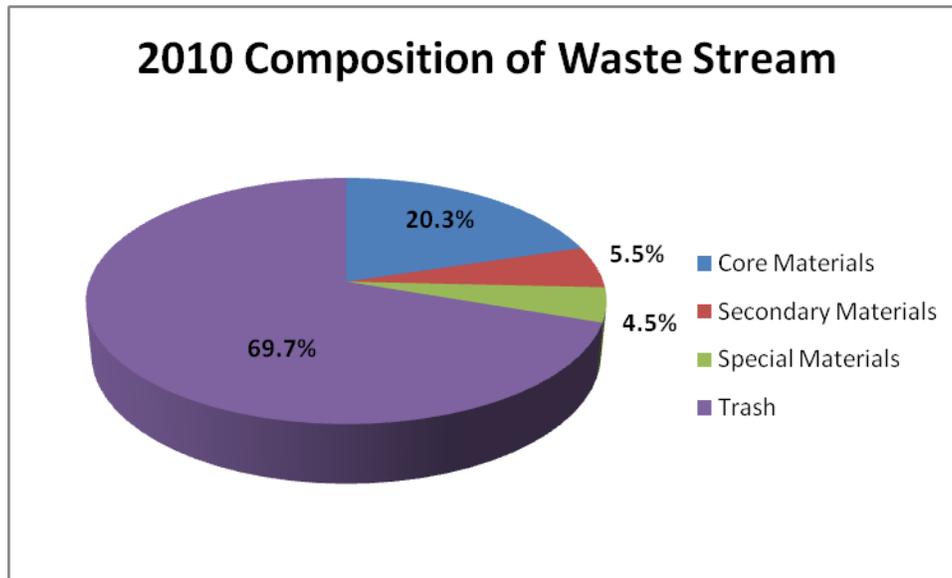
Chart 5. Percentage of Secondary and Special Materials of Total Materials Recycled



The success of Temple University's recycling program continues to grow. In addition to the yearly increase in the total recycling tonnage and decrease in waste tonnage, the university garnered positive recognition for its participation in RecycleMania, a national contest among universities. In 2011, Temple University earned the first place prize in RecycleMania in the Atlantic 10 Athletic division for the largest amount of recycling based on gross tonnage. Temple also placed first in the Atlantic 10 division in the Waste Minimization category. The university's success in RecycleMania and its continued increase in recycling numbers reflect that Temple has a well established and institutionalized recycling program.

While Temple University has a well established recycling program that has met with continued success, the program will need to be expanded in order to achieve the waste minimization and recycling goals set forth in the university's Climate Action Plan. Chart 6 highlights the university's recycling rate of 20.3% for core materials in 2010.

Chart 6. 2010 Composition of Waste Stream



As Temple advances its waste minimization and recycling agenda, it is essential that it address the following challenges:

- Reconciliation between the existing program with advances made in the waste minimization and recycling fields;
- Contamination of the recycling stream;
- Lack of awareness of the university's current recycling programs;
- Waste inherent to large institutions and research enterprises; and,
- The operational challenges that may be created as a result of the proposed changes to the existing program and the addition of new waste minimization and recycling initiatives.

The remainder of this report puts forth recommendations that addresses the aforementioned challenges and establishes a pathway for meeting the waste minimization and recycling goals established in the university's Climate Action Plan.

RECOMMENDATIONS

The Waste Minimization and Recycling Committee was divided into four sub-committees: Strengthening Existing Programs, New Initiatives, Purchasing, and Residence Hall/Dining Facilities. Each committee was charged with making recommendations to improve waste minimization and recycling within the context of their subcommittee's topic. The scope of each subcommittee is defined below:

- Strengthening Existing Programs - reviewing existing waste minimization and recycling efforts at the university and determining ways to improve or strengthen the programs.
- New Initiatives – proposing financially feasible programs that expand the depth and breadth of Temple's recycling and waste minimization efforts.
- Purchasing - identifying opportunities to minimize waste and increase recycling through product selection, purchasing policies, purchasing procedures and post-purchase operations.
- Residence Hall/Dining Facilities – focusing on improving the recycling rates and waste minimization on residents of University Housing and the dining facilities on campus.

This report incorporates the recommendations from the four subcommittees and sets them forth in actionable categories. The recommendations will address:

1. Education, Training and Outreach;
2. Labeling and Containers;
3. Outdoor Recycling Facilities;
4. Expansion of Plastic Recycling;
5. Institutionalized Reusing and Recycling of Surplus Inventory;
6. Waste Minimization and Recycling at Special Events;
7. Purchasing;
8. Housing and Residential Life;
9. Food Waste and Dining Facilities; and,
10. Harnessing Technological Advancements.

1. EDUCATION, TRAINING AND OUTREACH

EXISTING CONDITIONS

Temple University has an extensive recycling program and has initiated many waste minimization practices. However, many students, staff and faculty are unclear on the materials that can be recycled on campuses, the vast array of the recycling initiatives and how they can reduce their waste. Currently, there are multiple parties advertising and promoting Temple's recycling and waste minimization programs, including Residential Life, Dining Services, Student Groups, Computer Recycling Center, Purchasing and Environmental Health and Safety. The two largest organizations in this role are the Office of Sustainability and the Temple Recycling Office. Although it is a positive that there are so many groups interested in promoting recycling and waste minimization, the uncoordinated approach to recycling and waste minimization outreach and education leads to confusion about the roles and responsibilities of each organization. The uncoordinated approach results in marketing materials that

inform the Temple community about pieces of the program, but that fail to provide a comprehensive portrait of the full recycling and waste minimization program at Temple.

RECOMMENDATIONS

In order to promote recycling and waste minimization programs, it is imperative that education, training and outreach occur. These practices are necessary whether existing programs are promoted or new initiatives are introduced. An example could include a new outreach program promoting the water bottle refilling stations. It is recommended that the Office of Sustainability assumes the responsibility of coordinating the educational and marketing campaigns associated with Temple's recycling and waste minimization efforts. The following principles will guide the Office of Sustainability in its coordination and development efforts:

- An inclusive process with buy-in from interested stakeholders is critical to the development of educational and outreach materials.
- Current, accurate and comprehensive information is needed to inform and educate the Temple community on recycling and waste minimization practices.
- Clear and simple messaging is an effective way to reach a broad audience.
- It is of value to develop marketing materials for individual recycling and waste reduction initiatives that are consistent with the university's comprehensive approach to recycling, waste minimization and sustainability.
- Embracing multiple forms of media and emerging communications technology will aid the Office of Sustainability in reaching a broad audience.
- Peer to peer messaging is an essential component to education and outreach programs.

In order to develop successful educational materials and outreach programming, the Office of Sustainability will need to coordinate with a variety of partners in the Temple community. As this report assesses the aforementioned action areas, outreach and education strategies may be included as recommendations. The proposed outreach and education strategies are highlighted as potential options for raising awareness and fostering sustainable practices in regard to recycling and waste minimization.

2. LABELING AND CONTAINERS

EXISTING CONDITIONS

Temple University's Office of Facilities Management (OFM) provides recycling containers in its 100+ buildings that span four different campuses. Each individual office is provided with a desk side recycling container for mixed paper and cardboard. Large recycling containers for plastic, glass and aluminum beverage containers are located in common areas or hallways. Large paper recycling containers are also available in common space areas and hallways. In addition, University Housing Maintenance Operations provide recycling containers to all of its housing facilities. The scope of this program ensures that Temple University recycles an average of 1,036 tons of core material per year.

Although indoor recycling containers are virtually ubiquitous on Temple's campuses, they vary in size, shape, sorting quality and color. Thus, as members of the Temple community move from one building to

another, they interact with multiple recycling containers and sorting systems. Each time they approach a different recycling receptacle, they are required to process how items are to be sorted by the container rather than reacting in a pavlovian manner and placing recyclables in the correct container. Moreover, this lack of a standard prevents the university from branding its recycling program. It would be counteractive to feature one type of recycling container in marketing materials, as individuals may assume that if they do not see that type of recycling container present then there is no recycling container in the building.

Furthermore, the recycling containers on campuses feature different labeling, which sends conflicting messages on Temple's recycling procedures. While the university permits comingled beverage container recycling, the labeling on some of the recycling units suggests to users that they should sort out their beverage containers by material. Yet, in other places, users are instructed to place all of the beverage containers into one receptacle. This sends a conflicting message about Temple's recycling policy. It is unclear whether recycling is source separated or comingled. There are even containers that do not have any labeling. An example is the standard green recycling containers. The lack of labeling on the green container would suggest that the university has switched to single stream recycling and that all recyclables (paper, beverage containers, and cardboard) can be added to this particular container. In addition to the inconsistency in the labeling, the labeling is occasionally located above the recycling container rather than on the actual container. When the container is moved, the signage is separated from the receptacle. For example, the labeling on a recycling container in Anderson Hall is posted on the wall of the hallway rather than on the specific recycling container. This may result in individuals being unclear about which items are permitted to be recycled under Temple's recycling program.

RECOMMENDATIONS

It is recommended that the university adopt and implement a standard recycling container and labeling system for the recycling receptacles on all campuses.

Standard Recycling Container

It is financially infeasible to replace all of the existing recycling units on campuses with a standard recycling receptacle. There are far too many receptacles, and it would require a significant financial commitment to replace all of them. Moreover, it would be wasteful to dispose of containers that are in good condition. However, as new units are purchased, Temple should establish a consistent standard for recycling and ensure that there is compliance with the standard. For additional detail on this, refer to the "Purchasing" recommendations.

Standard Labeling

While it may not be financially practical to replace all of the existing recycling units on campuses with one uniform standard, implementing consistent and uniform labeling on the recycling receptacles is a cost effective way to increase compliance and participation in Temple's recycling program. It is recommended that OFM places a consistent label on each recycling unit. The label should indicate the type of materials that are accepted in each sorting compartment. The labels should also emphasize the comingled beverage container policy and should refrain from encouraging source separation by materials for beverage containers. The labels should have a consistent appearance and utilize the same font, graphics and lettering on all containers across campuses. It should be noted that the labels may not be able to be exactly identical as the recycling containers are all different shapes and sizes. Using the

same font, the same graphics and the same phrasing will help ensure a level of consistency and create a feeling of familiarity for users.

Standard Recycling Locations

As was noted above, OFM has a standard procedure for the location of recycling containers. It is recommended that the procedure for locating recycling containers be expanded to include a paper recycling container next to each copier or printer. This will ensure that the recycling containers are located near the source of paper production. In addition, whenever possible, the recycling containers located in the common areas and hallways should be paired with a trash container. If possible, the containers in the common areas and hallways should be tied together, so that the units cannot be moved or separated from each other.

3. OUTDOOR RECYCLING FACILITIES

EXISTING CONDITIONS

There are approximately 20 outdoor recycling containers on Main Campus, 2 containers on the Health Sciences Campus and 2 containers on the Ambler Campus. There are none on the Podiatric Medicine Campus. The outdoor recycling receptacles target commingled beverage containers only, as outdoor paper recycling presents the potential for unintentional litter across the campuses.

Similar to the indoor recycling receptacles, Temple's outdoor recycling containers vary in size, shape and material sorting methods. While the cherry red recycling containers with a single opening for commingled beverage containers are the most prevalent on campuses, there are a variety of other types of outdoor recycling containers on Main Campus. For example, the outdoor recycling units located near Paley Library feature three openings for commingled beverage containers. To further complicate matters, a number of outdoor trash receptacles on Main Campus have been painted blue, which is a color that is associated with recycling. Given the disparate outdoor recycling containers on Main Campus, individuals may be unclear whether the trash container is just another type of recycling container.

In addition, some of the outdoor recycling containers are stand alone, which means that they are not paired with outdoor trash containers. Best practices suggest pairing recycling and trash as research shows that paired containers have higher recycling rates than stand alone recycling receptacles. Moreover, there are large stretches of Main Campus that are underserved by outdoor recycling. For example, there are no outdoor recycling containers along Liacouras Walk south of Alter Hall to Ritter Annex, which is a highly trafficked area that would benefit from outdoor recycling containers.

RECOMMENDATIONS

It is recommended that Temple University adopts a policy of pairing recycling and trash cans together. The adoption of this standard will result in the need for additional outdoor recycling containers and as a result additional staff time allocated to collect the recycling. To address those concerns, it is recommended that the university decreases the number of outside trash receptacles and replace with recycling containers. However, this report cautions against simply removing trash receptacles and

replacing them with recycling. Instead, this report recommends that the university, as directed by the Office of Facilities Management and the Office of Sustainability, hire an external consultant to conduct a comprehensive outdoor trash and recycling audit. This audit would be beneficial to determine the appropriate number of trash and recycling receptacles to meet the needs of the campuses.

It is anticipated that the cost of the additional outdoor recycling containers will be partially offset by the increased recycling diversion rates. By diverting material to recycling, the university decreases its overall solid waste budget. In 2010, the average cost to Temple for trash removal was \$159.87 per ton. In contrast, the university paid only \$34.31 per ton for recyclable removal. That is a cost savings of \$125.56 per ton of additional recyclables diverted.

It is recommended that Temple establishes the cherry red recycling unit as the standard for outdoor recycling. Given budgetary constraints, this report does not recommend the immediate replacement of the disparate outdoor recycling containers with the cherry red units. However, as the university adds new outdoor recycling units or replaces existing recycling containers, it is recommended that they be replaced with the cherry red outdoor recycling units.

As the university looks to expand outdoor recycling, it is critical that Temple includes the parking lots and parking structures on the list of areas that require additional recycling facilities. The parking lots and garages are under-served in terms of recycling. Currently, drivers and passengers are expected to carry their recyclables to a recycling receptacle on campus in order to properly dispose of their beverage containers. It is recommended that the Office of Facilities Management and Parking Services work together to develop a recycling strategy that is feasible for the campuses' parking structures and lots.

4. EXPANSION OF PLASTIC RECYCLING

EXISTING CONDITIONS

Temple University currently recycles plastic beverage containers. According to the Recycling Office, all beverage containers are accepted regardless of the number of the plastic. That means that at Temple, individuals are permitted to recycle beverage containers that are made of #1 and #2, and even #3, #4, #5, #6 and #7. While the university's recycling program accepts all plastic beverage containers, it does not accept a broader array of plastic items, such as rigid plastic food containers. Only beverage containers are accepted. This program differs from the recycling program of the City of Philadelphia, which accepts all household plastic materials made of plastics #1 through #7.

RECOMMENDATIONS

It is recommended that Temple University expands its recycling program to include plastics accepted by the City of Philadelphia's program. Through expanding the recycling program, Temple University will reinforce its commitment to sustainability and will simplify the recycling process for the Temple community.

5. INSTITUTIONALIZED REUSE AND RECYCLING OF SURPLUS INVENTORY

EXISTING CONDITIONS

Temple University is a large institution with advanced operations. Each college, school and administrative department requires a variety of equipment to meet and excel in the role they play on campus. The equipment used varies by department. For example, the Theater Department in the School of Communications and Theater requires industrial strength irons, sewing machines and washing and drying facilities. In contrast, the School of Podiatric Medicine requires clinical equipment, such as exam tables. While each department may have their own specialized needs, there are also universal resources, such as computers and furniture that are utilized campus wide. As departments strive to remain on the cutting edge of technology, they are confronted with the question of how to dispose of their old equipment and materials. This question also holds true for smaller scale resources such as laboratory glass items that may need to be replaced or may be broken, as well as plastics.

Temple has made some strides in attempting to institutionalize a program for recycling surplus inventory. The Computer Recycling Center (CRC) is a prime example of a successful turnkey operation, in which the CRC picks up the electronic equipment that is being discarded, cleans and refurbishes the item, and then makes it available for purchase to the Temple community. While the CRC has aided in diverting 85.56 tons of electronic material from entering the landfill in 2010, other opportunities exist to create institutionalized programs for recycling surplus inventory. Currently, there are some small scale programs throughout the university, but they are largely unknown across the university and may be difficult for the entire Temple community to access.

RECOMMENDATIONS

It is recommended that the university develops institutionalized programs for capturing surplus equipment, such as large appliances, furniture, electronics, and used medical, laboratory and research equipment before it enters the waste stream. These programs will need to be developed with partner departments on campus, including the CRC, Purchasing and the Office of Facilities Management. Additionally, programs aimed at reusing and recycling surplus medical, laboratory and research equipment will need to be developed with members of the health sciences and research community to ensure that the program meets the necessary health and environmental safety regulations. The Office of Environmental Health and Safety at Temple will provide guidance in the development of these specific programs. Outside vendors who specialize in recycling and/or reselling specialty equipment can be useful in providing turnkey processes. Key goals in developing the programs should include ensuring that the program is universally accessible, there are clear procedures on how to obtain or remove the surplus materials and that the program is self sustaining.

6. WASTE MINIMIZATION AND RECYCLING AT SPECIAL EVENTS

EXISTING CONDITIONS

Large special events pose an interesting challenge to promoting waste minimization and recycling on campus. The events are frequently non-recurring events that are coordinated by individuals that may

not have been previously involved in promoting waste minimization and recycling efforts on campus. The event planners may be unfamiliar with the recycling procedures and may not consider waste minimization and recycling when designing their event. At the same time, the events are often quite visible and may serve as an individual's first point of contact with Temple's campus. These events provide Temple with an opportunity to showcase its commitment to sustainability to newcomers to Temple.

Currently, the university does not have a centralized event planning site. Event coordinators are asked to reserve the space through the Student Center Reservation system, to separately contact the Office of Facilities Management (OFM) to order items like tables, chairs, and equipment and finally to contact Sodexo for food and catering. This is an uncoordinated process that often results in missed opportunities to incorporate waste minimization and recycling practices in the event.

RECOMMENDATIONS

The following recommendations may facilitate the streamlining of the event planning process in a way that minimizes waste generation and maximizes recycling.

- Provide event coordinators with best practices for greening special events. The list of best practices should incorporate waste minimization and recycling initiatives, such items as ordering recycling containers, providing food in trays and stations, rather than boxed lunches, utilizing reusable dishware and ordering water in pitchers rather than in bottles.
- Develop a process in which OFM is notified each time an event is scheduled in the Student Center's Online Reservation system that additional recycling containers are needed. If an event requests trash containers, OFM should include recycling containers as well.
- Provide consistent type of recycling container for large events that are uniform in appearance. It is recommended that the container resembles the large blue recycling receptacles used around campus or the easily transported clear plastic containers with frame.
- Provide support from Green Team² members for large events, such as commencement. The Green Team should be present to provide educational support and the visible presence of recycling volunteers.
- Ensure that recycling signage is on the container and that it shows which items can be recycled at Temple. Many visitors may be unfamiliar with Temple's recycling policies and may not be aware of the proper recycling procedures.

7. PURCHASING

EXISTING CONDITIONS

Temple University provides a community of over 40,000 with supplies and equipment each year. The Purchasing Department (Purchasing) is the central department at Temple that handles the oversight of

² The Green Team is a student volunteer organization whose mission is to promote sustainability on campus and within residence halls.

acquisitions.³ Purchasing has been active in advancing the goals of Temple University's Climate Action Plan. In 2010, Purchasing partnered with Staples to implement a reusable tote program. Temple receives an average of 16,000 cardboard boxes from Staples each year. By eliminating the single-use cardboard boxes, Temple is able to divert 12.8 tons of waste from the landfill. While Purchasing has confronted a few challenges with the implementation of the program, the program remains in place and the Office of Sustainability and Purchasing are working on raising awareness of staff and faculty about the proper procedures for implementing the program.

While the university has a central purchasing department, many of the purchasing decisions are made at the local departmental level rather than through Purchasing. This allows departments at Temple to make the decisions that best fit their individual needs. While this practice provides greatly needed flexibility, it makes it difficult to impose purchasing standards that would result in increased recycling rates and reduced waste generation.

Moreover, the decentralized nature of purchasing decisions also impedes the university's ability to reduce packaging by ordering in bulk. Departments order materials and equipment based on their individual needs and schedules. They do not consult with other departments on campus to coordinate purchases. This results in items being shipped and packaged individually, which often results in an increased amount of packaging waste.

RECOMMENDATIONS

In advance of this report, the Purchasing Subcommittee of the Waste Minimization and Recycling Committee undertook a pilot project that aimed to coordinate the purchasing of a number of computer servers for the Tech Center. The subcommittee worked to minimize the amount of packaging related to the purchase and to ensure that the packaging material was recycled. Moreover, the subcommittee worked to reduce the number of delivery trips associated with the purchase, which directly reduces the carbon footprint associated with the purchase. This pilot project was a partnership among Purchasing, the Computer Recycling Center, Computer Services and the Office of Facilities Management. It is recommended that the subcommittee prepares a report describing best practices for reducing packaging waste through the coordination of large-scale purchases. The pilot project will serve as the basis for the development of the best practices report. It is recommended that the best practices report provides suggestions and strategies for incorporating waste minimization and recycling into requests for proposals (RFP).

Furthermore, it is recommended that Purchasing builds on the success of Temple's Energy Star Certified Appliance/Equipment Purchasing Policy by establishing and enforcing standards that require departments to purchase equipment and appliances that have built-in waste minimization features. An example of a proposed new standard is requiring departments to purchase or lease copiers and printers that have the capacity to duplex copies and prints, and fax machines that have the ability to send and receive faxes in an electronic format, which would reduce the need to print out the item to be faxed. It

³ 42,014 include full and part time students, staff and faculty from all campuses except Harrisburg, Temple University Center City, Fort Washington, Rome or Japan, and are based on fiscal year 2010. When converted to a full time equivalent, the number is 37,948.

is suggested that Computer Services and the Office of Sustainability be involved in the implementation of this policy in order to maximize its effectiveness. Another example of a proposed new standard is requiring all departments to purchase the same recycling containers so that the university develops a uniform appearance across all its units.

Other examples of waste minimization include encouraging departments to buy rechargeable batteries rather than single use alkaline batteries, for which Temple does not currently have an outlet for recycling, and promoting the purchase of filtering water stations rather than water coolers or bottled water. Once standards are established, then Purchasing can remove items that do not meet the standards.

8. HOUSING AND RESIDENTIAL LIFE

EXISTING CONDITIONS

As of fiscal year 2010, Temple University enrolled 34,021 students and employed 4,512 staff and 3,481 faculty. Of the student population, approximately 5,200 are members of Temple's residential life community on Main Campus and the student population is expected to grow as new residence halls are built. The campus residential community presents both opportunities and challenges to the university's achievement of its climate action goals. The campus residential community is a significant population that is continually on Main Campus. Whereas waste generated by staff is limited to their work functions, campus residents create waste associated with both their studies and their day to day living. While the campus residential community may generate a greater amount of waste per capita than students who live off campus, they also present a unique opportunity for fostering a more sustainable culture on campus. The Main Campus residential community provides Temple with an accessible audience to whom the university can promote sustainable lifestyle choices and behaviors, including a campaign to increase recycling rates and minimize waste.

Over the past few years, Residential Life has become more active in promoting waste minimization and recycling. Residential Life hosts the "Give and Go Green" event at the end of each academic year, in which students donate clothes, electronics and other operable materials that they do not wish to bring home. In 2011, residents donated over 13,000 pounds of materials to local charities. Additionally, Residential Life has participated in the RecycleMania competition each year. While the level of participation of Residential Life varies year to year, they have been an important partner in the RecycleMania competition since its inception. In fall 2010, Residential Life received a grant from ALCOA to pilot an in-room recycling container program. Through the grant, the university was able to install individual recycling containers in the suites and apartments in the residence halls. The program was so popular that Residential Life is expanding the scope of the program to include the traditional residence hall style rooms. During the summer of 2011, Residential Life will install the individual recycling containers into the remaining rooms.

Residential Life also worked with the Residential Housing Association to create a Green Team, a student volunteer organization, in the residence halls. The Green Team is comprised of student resident leaders, who are interested in promoting sustainability on campus and in the residence halls specifically. The

Green Team is a great resource for promoting recycling on campus, and has actively participated in RecycleMania and America Recycles Day.

RECOMMENDATIONS

Outreach and Education

The key to a successful residential hall recycling program is education and outreach. While Temple's recycling program is reviewed during new student orientation at the beginning of the year, ongoing outreach campaigns aimed at reinforcing waste minimization and recycling behaviors have been developed in a piecemeal approach. Often times, the messaging on waste minimization and recycling occurs in residence halls on a voluntary basis, with many halls not participating in the programming.

It is recommended that Residential Life, with the assistance of the Office of Sustainability, develops a comprehensive outreach campaign on waste minimization and recycling. The campaign will work to develop the Green Team infrastructure and utilize the Green Team to communicate to residents about Temple's recycling program, the importance of recycling and steps to minimize waste.

Additionally, it is recommended that Residential Life incorporates a module on sustainability in its training of Resident Assistants. Resident Assistants (RAs) are leaders in the Temple residential community and serve as the defacto mentors to many incoming freshman. Given their influential roles in the residence halls, it is critical that Residential Life and the Office of Sustainability engage these leaders and educate them about sustainability initiatives, especially those related to recycling and waste minimization. It is recommended that the training for the RAs incorporates information on Temple's recycling program, why recycling is important to the university, and how it fits in with the mission of Residential Life. Moreover, during the training, the RAs should be given specific examples of how to incorporate information on recycling and waste minimization into their floor programming.

Composting

Students have shown an interest in composting food waste on campus. Though a large scale program would not be feasible due to a lack of space and need for additional infrastructure, a pilot program in one of the residential halls may be appropriate. In fall 2011, Residential Life and the Office of Sustainability will partner to operate a sustainability themed living and learning community (LLC). This LLC provides an opportunity for Temple to test a composting program in the residence halls due to the built-in community interested in sustainability. Unfortunately, the LLC is located in the 1940 Residence Hall, which features traditional residence hall rooms. The residents on the floors do not have individual kitchens and will not likely generate enough organic material to make the composting program worthwhile. It is recommended that the students in the LLC in sustainability and Residential Life identify a community to pilot the composting program in a facility that features suites and apartments.

9. FOOD WASTE AND DINING FACILITIES

EXISTING CONDITIONS

According to the Environmental Protection Agency, food waste was the single largest component of municipal solid waste reaching the landfill or incinerators in 2009. Food waste comprised approximately

14.1% of the municipal solid waste generated in 2009, and less than 3% was recovered and diverted from entering the waste stream.⁴ Temple University recognizes the impact of food waste on its efforts to reduce its cumulative waste stream and the associated waste generated in dining related industries. Currently, the post-consumer food waste in Johnson and Hardwick (J&H) cafeteria, which accounts for approximately 165 tons annually, is picked up by a pig farmer⁵ and is used for pig feed. While Temple has an institutionalized program to collect the post-consumer food waste at the J&H cafeteria, food waste is not being diverted from the waste stream from other dining services, such as the Howard Gittis Student Center food court, the Diamond Club, Sodexo-operated cafes in individual schools and colleges, or the dining facility in the Medical Education and Research Building. Moreover, most pre-consumer food waste is currently not being diverted.

In addition to diverting food waste, there are other opportunities for recycling and minimizing waste associated with food and dining services. J&H is the largest dining facility on main campus. Sodexo, which operates the J&H cafeteria and other dining operations on campus, has initiated waste minimization and recycling efforts in its locations on campuses. As was noted in the matrix, Sodexo has arranged for the diversion of kitchen grease via Waste Oil Recyclers, which makes oil available for bio-fuels. It also offers discounts on coffee refills with purchases made using a refillable coffee mug at all of its locations and has been active in promoting recycling events on campus.

RECOMMENDATIONS

This report makes recommendations on a comprehensive approach to dealing with food waste and addresses specifics related to cafeterias. The following sections delineate the recommendations.

University-wide Approach to Food Waste

Given the scale of food waste on campuses, it is critical that the university develops a comprehensive approach to address all phases of the food industry on campus, from food preparation to food disposal. It is recommended that a comprehensive, food waste diversion program is implemented for both pre- and post-consumer waste for all campuses and all dining areas. This plan should be developed among the stakeholders including Office of Facilities Management, Business Services, Sodexo and Student and Residential Life.

On-Campus Cafeterias

It is recommended that Temple Dining Service implements a tray-less dining program, which requires patrons to carry their own plates rather than using a tray to collect plates of food. Tray-less dining has been shown to have a number of positive sustainability results, including:

- Reduced food-waste – Patrons take less food when there is no tray, which results in less food being discarded;
- Reduced water usage – Tray-less dining reduces water consumption, as water is not needed to wash and clean the trays; and,

⁴ <http://www.epa.gov/osw/conserves/materials/organics/food/fd-basic.htm>

⁵ Shisler Farm provided this service through 6/30/2011.

- Reduced energy cost for food transport – Sodexo would not need to transport as much food, which would result in less energy used for transportation.

The Waste Minimization and Recycling Committee studied the tray-less options and what it would take to implement a tray-less system at Temple. The Office of University Housing and Residential Life explained that new conveyor systems would need to be installed in the J&H cafeteria in order for a tray-less system to work. The existing conveyor systems are based on the tray and are unable to convey individual dishware. The Office of University Housing and Residential Life indicated that they would be willing to explore switching to a tray-less conveyor system when the current conveyor system needs to be replaced. Additionally, it is recommended that the proposed dining hall in the new residence hall incorporates tray-less dining technology. Moreover, as plans for the proposed dining facility in the new residence hall advance, it is recommended that the cafeteria utilizes bulk condiment stations rather than individual plastic condiment bottles, which are used in the J&H cafeteria.

In addition, it is recommended that the dining facilities on campus, including the proposed dining room in the new residence hall, expand their recycling scope to include number 10 cans and plastic condiment bottles, such as mayonnaise, ketchup and mustard that are provided on each table at the J&H cafeteria.

It is also recommended that Temple Dining Services implement an aggressive informational campaign on waste minimization and recycling as it relates to the dining experience. This campaign should emphasize the message of “taking only what you can eat” and alerting students to the 165.60 tons of food waste generated by the J&H cafeteria each year.⁶ An example of reducing waste is to create a marketing campaign aimed at reducing the amount of dishware that is removed from J&H cafeteria and taken to rooms, apartments or suites on campus. Moreover, this campaign should be expanded to a dishware recovery program at the end of the year.

In addition to its outreach campaign at J&H cafeteria, it is recommended that Sodexo expands the sale of reusable mugs and reusable water bottles to include all Sodexo-operated food establishments on campuses with the exception of the Diamond Club. Further, it is suggested that Sodexo provides more prominent advertising of its discount program on coffee refills.

10. HARNESSING TECHNOLOGICAL ADVANCES

EXISTING CONDITIONS

Temple University has implemented a number of technological tools that facilitates waste reduction. Faculty have access to Blackboard, which provides them with the opportunity to post their syllabi and course materials online rather than printing copies to distribute to their class. Moreover, a number of faculty and staff have been utilizing digital archiving as a way to reduce the number of paper files

⁶ The 165.60 tons of food waste includes the total food waste diverted from the landfill for Main Campus, Podiatry and Health Sciences Campus in 2010. Since J&H is the only location on campus that diverts food waste, this number should reflect J&H’s food waste.

associated with their work. The Health Sciences Campus is taking digital archiving to the next level by digitizing medical records.

While these technological tools and others are available to faculty and staff, they have not been fully adopted across campuses. There are faculty members that continue to print their syllabi and require bulky course packets, rather than posting the articles on Blackboard. Some staff members continue to cling to their hard copies of forms and paperwork. Other faculty and staff members are unaware of the digital services that are available to assist in reducing the amount of paper they use. Furthermore, some faculty and staff are deterred from participation due to the cost of implementing some of the tools, such as digital archiving. The benefits of added storage space, reduced paper consumption and easy access to retrievable files have not been clearly demonstrated to them.

RECOMMENDATIONS

It is recommended that Temple University expands the use of these technological tools in its daily operations across campus.

Blackboard

In the spring of 2011, the Department of Geography and Urban Studies (GUS) is piloting a paper-free class that will eliminate the use of paper from the classroom with the exception of the final exam. The class will demonstrate how faculty members at Temple can minimize or eliminate the use of paper in the classroom. In addition to the GUS faculty, an adjunct faculty member at the Fox School of Business (Fox) has also experimented with a paperless class. It is recommended that following the completion of the pilot that the Office of Sustainability works with the GUS faculty and the Fox faculty member to develop practices for reducing paper use in the classroom. It is also recommended that the Office of Sustainability works with the Teaching and Learning Center to offer seminars on greening classroom practices. This seminar should include the waste minimization practices and findings developed by the GUS faculty.

Digital Archiving

It is recommended that the Office of Sustainability works with schools and colleges that have already implemented digital archiving, such as the College of Education, to develop a list of best practices or frequently asked questions sheet. Topics to be covered include:

- Naming and filing systems;
- Security of storage and backup;
- Budgeting for digital archiving;
- Disposal of existing paper files, many of which can include confidential materials; and,
- Recommended providers of digital archiving services.

While digital archiving poses a number of advantages, it does cost money. Schools, colleges and departments will need to budget for this practice.

IMPLEMENTATION

As was noted in the Executive Summary, these recommendations can be implemented in four phases: immediately (completion by the end of calendar year 2011), short-term (completion by June 2012), mid-term (completion by June 2015), and long-term (completion by June 2020). Appendix B sets forth an implementation schedule for the recommendations. Some of the recommendations that are slated for the immediate or short-term timeframe have already been started. Others require limited capital investment. The recommendations that require larger financial and resource investments are phased in over time.

PRIORITIES

The Waste Minimization and Recycling Report sets forth recommendations in ten action areas aimed at increasing the university's recycling rate and reducing its waste stream. The report attempts to provide a comprehensive approach to meeting the waste minimization and recycling goals established in the Climate Action Plan. This report provides a lengthy array of options; however, it is critical that Temple be realistic about its limited resources and that it prioritizes the recommendations for implementation. The following items are priorities from the aforementioned recommended strategies. It is recommended that Temple University implements these suggestions as soon as it is feasible and incorporate these items into current budgeting and strategic planning activities.

Priority 1: Implement an Expanded Education and Outreach Campaign

It is recommended that Temple University develops and implements a comprehensive education and outreach campaign regarding waste minimization and recycling that targets incoming students, staff and faculty. This program will require the coordination of the Office of Sustainability and the Recycling Office and will demand that these two entities develop partnerships with other departments, such as Human Resources and Student Affairs.

Priority 2: Install Consistent Labeling of Recycling Receptacles on Campus

It is recommended that the Office of Facilities Management places a consistent label on each recycling unit. The label should indicate the type of materials that are accepted in each sorting compartment. The labels should also emphasize the comingled beverage container policy and should refrain from encouraging source separation by materials for beverage containers. The labels should have a consistent appearance and utilize the same font, graphics and lettering on all containers across campus.

Priority 3: Expand Plastic Recycling to Meet the City's Standard

It is recommended that Temple University expands its recycling program to include plastics accepted by the City of Philadelphia's program. Through expanding the recycling program, Temple University will reinforce its commitment to sustainability, will simplify the recycling process for the Temple community and will reap financial benefits.

Priority 4: Food Waste Diversion Plan

It is recommended that a comprehensive, food waste diversion program is implemented for both pre- and post-consumer waste for all campuses and all dining areas. This plan should be developed among the stakeholders including Office of Facilities Management, Business Services, Sodexo, Student and Residential Life, and the Office of University Housing.

Priority 5: Conduct an Outdoor Trash and Recycling Audit

It is recommended that Temple University conducts an outdoor trash and recycling audit to determine the appropriate number of outdoor trash and recycling receptacles to meet the needs of the campuses and to hire an external waste consultant to conduct this audit.

While the aforementioned recommendations reflect the priorities for the university as it strives to reach its waste minimization and recycling goals, there are a number of recommendations outlined in this report that are already being addressed by different departments. Progress on these initiatives should continue.

It is anticipated that most initiatives can be accomplished within existing operational and/or capital budgets. One time only recommendations, such as an outdoor trash and recycling audit, will be considered on a case by case basis for appropriate funding sources.

APPENDIX A

Temple University's Existing Waste Minimization and Recycling Initiatives

Appendix A: Temple University's Existing Waste Minimization Initiatives

Waste Minimization Efforts	Description	Responsible Departments
Academic Electronic Tools	Temple's academic offices and departments have also been converting to electronic media. For example, many instructors now post their syllabi and course packets exclusively on blackboard. Also, the registrar no longer publishes a paper course guidebook. This spring, Dr. Rosan partnered with a PhD student in the department of Geography and Urban Studies to pilot a paperless class.	Various Departments and Schools and Colleges
Administrative Electronic Forms	Increasingly administrative departments are moving to online forms and paperwork. Examples include Human Resources, which has switched to electronic forms for the completion of new hire paperwork. Tax forms and payroll information are available online to all university employees on the TU portal. Through TU Marketplace, staff and faculty at Temple can complete online purchases without having to submit hard copies of the purchase order and other supporting documents. Accounts Payable is now permitting staff members to submit their receipts and expense reports electronically.	Human Resources
Digital Archiving	Some departments on campus have begun to digitally archive their material rather than printing and copying a hard copy.	Individual Colleges and Schools
Furniture Surplus	University departments give their surplus to the Office of Facilities Management. This surplus furniture is made available to other departments on campus as an alternative to purchasing new furniture. This is both a recycling and waste minimization program.	Office of Facilities Management
Housing Electronic Forms	University Housing and Residential Life have made the switch to electronic forms for registering for a room, checking out of a room and processing damaging claims.	University Housing and Residential Life
Reduced Student Printing Allocation	Students have a reduced budget for printing in the Tech Center on campus. This reduces the amount of used paper generated.	Computer Services
Refill discounts	Sodexo offers discounted coffee refills at all of its locations on campus to those who bring a reusable coffee mug.	Sodexo

Waste Minimization Efforts	Description	Responsible Departments
Setting Duplexing as Default	Duplexing is the default setting for printers in the Tech Center. This reduces the amount of used paper generated.	Computer Services
Staples Reusable Totes Program	Staples delivers orders to Temple in reusable totes. This diverts approximately 12.8 tons of cardboard from the waste stream per year.	Purchasing
Water Bottle Refilling Stations	As of April 2011, 22 water bottle filling stations have been installed on Temple's campuses. The stations are designed to allow individuals to refill reusable water bottles with filtered, cool water.	Office of Facilities Management

Appendix A: Temple University's Existing Recycling Initiatives

Recycling Program	Description	Responsible Department
Battery Recycling	Environmental Health and Radiation Safety, the Office of Sustainability and the Computer Recycling Center serve as collection points for recycling rechargeable batteries on campus.	Environmental Health and Radiation Safety
Chemical Recycling	Environmental Health and Radiation Safety minimizes waste through the following items: 1) Chemical Redistribution (the taking of unused and unexpired chemicals and allocating them to other labs); 2) Mercury Exchange (changing out mercury-containing equipment for mercury-free alternatives); 3) Chemical Recycling (certain chemicals can be recycled and reused, saving on the cost of purchasing new chemicals or the disposal of old ones).	Environmental Health and Radiation Safety
Core Material Recycling	Temple recycles mixed paper, cardboard, and comingled beverage containers. In 2010, the university captured 1,027.69 tons of core materials. Offices are provided with desk side mixed paper recycling containers. Large hallways and common spaces are equipped with comingled beverage containers and mixed paper containers. Apartments and suites in the residence halls are equipped with individual recycling containers for paper and comingled beverage containers.	Office of Facilities Management, University Housing and Residential Life
Electronic Recycling	The Computer Recycling Center, an EPA Award Winner, is an assembly line operation in which surplus electronic equipment is evaluated and either refurbished or properly recycled. Refurbished equipment is made available for purchase to current staff, faculty and students via a webstore at http://crc.temple.edu .	Computer Recycling Center
Give and Go Green	Annual year end residence hall clean out and donation drive. Collected clothing, house wares and food are donated to local charities.	University Housing and Residential Life
Leaves/Tree Limbs/Brush	Temple captures leaves, tree limbs and brush and utilizes it to create mulch. In 2010, 102.76 tons of organic landscaping waste was diverted from the waste stream.	

Recycling Program	Description	Responsible Department
Office Supply Swap	The Computer Recycling Center accepts donations of unwanted office supplies and makes them available at no cost to other departments and students on campus through Swap Tables. The CRC was able to rescue multiple pallets of office supplies from the USB building before it was demolished.	Computer Recycling Center
Outdoor Recycling Program	The University has outdoor recycling containers that collected comingled beverage containers.	Office of Facilities Management
Pallet Recycling	The Recycling Office works with a private individual who collects the empty pallets on campus for reuse. In 2010, the university recycled 138.97 tons of pallets.	Office of Facilities Management
Partnership with Better World Books	Collection boxes for book donations are located throughout campus. The books are donated to a Better World Books.	Golden Key Honor Society student organization
Plastic Bag Recycling	There are six plastic bag recycling collection centers on campus.	Computer Recycling Center
Podiatric Medicine Clinical Equipment Donations	The School of Podiatric Medicine makes clinical equipment available to its alumni when the school no longer wishes to retain it.	Podiatric Medicine
Post-consumer Food Waste	Post-consumer food waste from Johnson and Hardwick dining hall is collected by Shisler Farms, Inc. (a pig farm) on a daily basis and is used for pig feed through 6/30/2011.	Office of Facilities Management, University Housing and Residential Life
Printer Cartridges	Temple departments recycle their printer cartridges by shipping them back to the company for free using UPS. Also, Fox School of Business operates a collection for printer cartridges on campus. The collection is located in the Paley library and in Alter Hall.	Fox School of Business
Scrap metal	In 2010, the university launched a new recycling initiative aimed at recovering and recycling scrap metal. Approximately 26.41 tons were collected in 2010.	Office of Facilities Management
Tyler Glass Recycling	Tyler, the Office of Facilities Management and New Age Blast Media partnered to collect recycled glass from the Tyler glass blowing studio as a raw material for reuse.	Tyler School of Arts Office of Facilities Management

Recycling Program	Description	Responsible Department
Umbrella Recycling Collection	Student-run collection of broken umbrellas that are donated to a local artist for reuse	Student organization
Waste Oil Recycling	Sodexo has partnered with Waste Oil Recyclers to take Temple's waste oil and process it for resale as fuel.	Sodexo

APPENDIX B

Implementation Schedule

Appendix B: Implementation Schedule

7/31/2011

Recommendations	Immediate (12/31/11)		Short-term (6/30/12)		Mid-term (6/30/15)		Long-term (6/30/20)	
	\$ One Time	\$ Ongoing	\$ One Time	\$ Ongoing	\$ One Time	\$ Ongoing	\$ One Time	\$ On Going
Education, Training and Outreach								
1 Install visual prompts	x							
2 Strengthen New Hire Orientation Outreach			x					
3 Create a lunch and learn program for staff			x					
4 Continue green awareness survey program	x							
5 Develop a "Green Stars Keep Skies Blue" recognition program	x							
6 Organize campus contests/competitions	x							
7 Utilize TU TV	x							
8 Organize sustainable messaging contests with students	x							
9 Develop a strong peer education program			x					
10 Improve housekeeping training and outreach	x							
11 Improve the website for the Recycling Office	x							
12 Target areas with low recycling rates			x					
Labeling and Containers								
1 Standardize Recycling Containers					x			x
2 Standardize Labeling	x							
3 Standardize Recycling Locations	x							
Outdoor Recycling Facilities								
1 Conduct outdoor trash and recycling audit	x							
2 Add outdoor recycling containers	x		x		x			
3 Add outdoor recycling containers to parking facilities			x					
Expansion of Plastic Recycling								
1 Expand plastic recycling to meet City's program	x							
Recycling of Lab, Clinical and Research Materials								
1 Create program for diverting medical and research equipment	x							
2 Create program for recycling laboratory glass	x							
Recycling and Waste Minimization at Special Events								
1 Develop best practices for greening large special events	x							
2 Develop integrated event planning system			x					
3 Update Recycling Office website to include recycling container form	x							
4 Organize green team to serve as recycling volunteers at large events	x							
5 Labeling of recycling containers for large special events	x							
Purchasing								
Implement purchasing procedure for equipment with waste minimization								
1 features	x							
2 Encouraging the purchase of rechargeable batteries	x							
3 Promotion of water filtration systems	x							
4 Enforce University standard for recycling containers	x							
Housing and Residential Life								
1 Develop infrastructure of Green Team in Residence Halls			x					
2 Develop module on sustainability for training of RA's	x							
3 Develop resources for RA's to use in promoting recycling	x	?						
4 Expand individual recycling containers to traditional "dorm" room	x							
5 Pilot composting program on Sustainability LLC floor			x	?				

Recommendations	Immediate (12/31/11)		Short-term (6/30/12)		Mid-term (6/30/15)		Long-term (6/30/20)	
	\$ One Time	\$ Ongoing	\$ One Time	\$ Ongoing	\$ One Time	\$ Ongoing	\$ One Time	\$ On Going
6 Expand Give and Go Green to include off-campus residents			x					
Food Waste and Dining Services								
1 Develop and implement coordinated food waste program	x							
2 Implement tray-less dining			x					
3 Develop and implement food waste educational campaign	x							
4 Implement plateware recovery program	x							
5 Expand th sale of reusable mugs and reusable water bottles	x							
6 Develop advertising campaign for discounted refill programs	x							
Harnessing Technological Advancements								
1 Develop best practices for reducing paper in the classroom			x					
2 Develop seminars on green classroom practices	x							
3 Develop a list of best practices or FAQ sheets for digital archiving	x							