

# **Indiana University**

## **Campus Recycling**



**2008 Summer Program in Sustainability**

**Prepared by: Emmy Giovanni**

**Mentor: Steve Akers; Environmental Operations, RPS**

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## Executive Summary

Recycling is a key aspect of any sustainability effort, one that calls for the participation of the entire campus community. A successful and high-profile recycling system will not only provide IU a chance to demonstrate its commitment to sustainability, it can also provide significant cost savings and financial returns. IU has an established recycling system that provides a solid infrastructure for a highly successful program. However, despite this potential, campus recycling efforts are currently facing several problems and challenges. These include:

- Negative Campus Perceptions
- Ineffective Information Dissemination
- Procedural Inefficiencies
- Recycling Bin Inconsistency and Ambiguity
- Absence of Recycling at Athletic Events
- Incomplete Accounting of the Waste Stream

The primary obstacle to a highly successful program is negative or indifferent campus perceptions that are caused by operational and informational inefficiencies. Many students, faculty, and staff are suspicious of recycling systems because of the pick-up methods employed and a general image of disorganization caused by inconsistent and ambiguous recycling bin choice and labeling. Peer institutions such as Ohio State, Penn State, Washington and Lee, and Oregon can provide useful examples of successful recycling initiatives. Luckily, most of the problems associated with IU recycling can be addressed through simple and relatively inexpensive means. Recommendations for improvement speak to image issues and information dissemination, and there are also some procedural modifications that can result in greater overall consistency and efficiency. Specifically, recommendations are:

- Public Awareness Initiative
  - Literature publication and newspaper ads
  - Dedicated website
  - Packer truck labeling
- Development of Campus Recycling Logo
- Campus-wide Recycling Policies
  - Bins and labeling
  - Collected materials and commingling
- Campus waste audit
- Procedural adjustments
  - Separation of materials
  - Pick-up consolidation
- Recycling implementation at athletic events
- Pursuit of additional funding

## **1. Introduction**

Waste stream reduction is only one of many environmental challenges that IUB currently faces—but it is the one that can be addressed by every individual on a daily basis. According to EPA [1], recycling prevents the emission of many greenhouse gases and pollutants, saves energy, supplies valuable raw materials to industry, creates jobs, and promotes the development of greener technologies, in addition to reducing avoidable landfill disposal. U.S. residents and businesses produce over 250 million tons of waste per year—that's *4.6 pounds of waste per person per day*. [1] On average, about 28% of waste generated in the United States gets recycled, although 80% of waste items generated are recyclable. [2] The quantity of recyclables that are currently being landfilled represent a serious environmental challenge. For example, recycling one ton of paper saves 17 trees, over 80 gallons of oil, 4,100 kilowatts of energy, 3.2 cubic yards of landfill space, and 60 pounds of air pollution. [2]

These are only a few of the pertinent recycling facts available on a national scale. Recycling also has significant impact more locally, on the Indiana environment and economy. For example, according to a report published by the Indiana Department of Commerce [3], recycling in the state employs 75,000 residents (more than any other industry besides auto manufacture), generates \$3 billion in annual payroll, generates \$19 billion in annual revenue, and includes 1,700 recycling establishments. These statistics are just a few of many that demonstrate the effectiveness, efficiency, and responsibility of recycling at all levels. As a university, IUB should take a leadership position in environmental action and sustainability. Recycling is a fundamental piece of any real sustainability initiative, and given IU's efforts to become a more sustainability-focused, institution, implementation of a highly successful recycling program should take high priority. While it is the responsibility of every student to participate in recycling programs, it is the responsibility of the administration to make these programs available, convenient, and unambiguous.

In campus waste disposal plans, recycling should be a third priority—only after *reduction* and *reuse*. The most beneficial steps that campus planners can take are in reducing material usage before it ever becomes waste. IUB currently has a limited number of these programs in place, largely implemented and motivated by individuals or groups on campus. For example, Residential Programs and Services (RPS) has been selling plastic refillable water bottles at many C-store locations. Students purchase these bottles and then use them instead of plastic water bottles. These can also be refilled with fountain drinks at the dining halls for a reduced price. This program demonstrates that waste reduction campaigns on campus can be implemented simply and very inexpensively.

However, any realistic or practical sustainability plan on campus must address and incorporate all relevant waste stream issues, including the disposal of recyclable waste items. The main objective should be to minimize the amount of waste going into landfill, and recycling can play a significant role in that reduction, depending upon the creativity, motivation, and effort of key players and the general campus community. The importance of landfill diversion is particularly relevant at IUB due to the transportation issues involving the local waste stream. Since the closure of the Monroe County Landfill several years ago, all landfill waste from Bloomington (including campus) must be trucked to the nearest

landfill in Terre Haute, Indiana, approximately 60 miles away. This commute naturally raises other sustainability-related issues as well, such as transportation efficiency, greenhouse gas emissions, and energy use. In a world with shrinking space and resources, this consideration is just an additional incentive on top of the already substantial motivation to pursue recycling.

## **2. Methods**

IUB has a solid infrastructure that lends itself to a highly successful recycling initiative. However, there is significant room for improvement, and in order to assess current practices and determine recommendations for moving toward a more successful recycling program, interviews with key stakeholders and participants on and off campus were conducted. These interviews included representatives from Building Services, RPS, IMU, Campus Division, Hoosier Disposal (our recycling service provider), selected academic buildings, and other interested parties. In addition, to assess practices and perceptions of recycling on campus, two surveys were conducted: one was sent to approximately 75 building managers across academic, entertainment, and athletic buildings on campus; the other was sent to residence and dining hall building managers. The questions and summaries of responses are included in Appendices A and B. Based on these interviews, surveys, and a literature review of campus recycling, several challenges to success were identified, and recommendations for improvement were generated.

This report summarizes the findings generated by this research. In section 3, recycling practices across campus are summarized. Section 4 contains information on how perceptions of campus recycling are generated on campus. Then, in section 5, problems and challenges are identified, followed by a summary of some pertinent examples at peer institutions in section 6. Finally, incentives for improvement are identified in section 7, and recommendations are made in section 8. Section 9 contains general conclusions generated by the report. The primary focus of immediate efforts should be a community perception and publicity campaign geared toward informing and motivating the campus community to actively participate in the available recycling programs. Longer term recommendations include procedural modifications concerning recycling collection and pick-up that will improve the overall consistency and efficiency of campus recycling.

## **3. Current IUB Recycling**

Recycling has a long history on the IUB campus. For over 30 years, Campus Division has practiced composting of waste leaves, trees, and flowers. In the early 1990s, Building Services began recycling paper waste, including office paper and cardboard. In 1993 and 1996, Building Services staff was awarded the Governor's Award for Excellence in Recycling for these efforts. Since then, recycling programs on campus have continued to expand, with increases in materials and

### **Who are the recyclers?**

- Building Services
- Residential Programs and Services (RPS)
- Indiana Memorial Union (IMU)
- Surplus Store
- Campus Division
- Motor Pool
- Volunteers in Sustainability
- Hilltop Garden and Nature Center

quantities recycled. This history gives IU a solid foundation for campus recycling, and early successes can continue to bolster recycling campaigns on campus.

Currently, IUB recycles approximately 20% of all waste generated. According to Building Services records, about 4800-5000 tons a year is sent to landfill, while 1100-1200 is recycled through the local recycling vendor, Hoosier Disposal, and the on-campus Surplus Store. Internally, IUB's recycling systems are highly decentralized, managed by numerous departments across campus. Primary recycling efforts are separated among 3 main divisions: Building Services, which handles all academic buildings, Indiana Memorial Union, and Residential Programs and Services (RPS), which services all residence and dining halls. In addition, other miscellaneous recycling programs are implemented by various departments, including Campus Division, the Surplus Store, Hilltop Garden, Volunteers in Sustainability, and Motor Pool.

### *3.1 Building Services—Academic Buildings/Offices*

Building Services handles waste disposal for about 120 major academic buildings as well as 50 on-campus houses that contain offices. While recycling at all academic buildings is coordinated through Building Services department, it is not a highly centralized or consistent program. Rather, it is dependent upon the initiatives of academic building staff to request and maintain recycling efforts in individual buildings. Specifically, department members contact Building Services to set up recycling, and Building Services works with these members to determine how many bins will be installed and where they will go. The bins provided by Building Services are 22-gallon metal waste bins known as “tall boys.” Since these bins are the same as bins used for trash disposal, they are labeled with paper signs to indicate what materials are accepted.



Currently, there are approximately 1500 of these tall boys dedicated to recycling across campus, at a cost of \$15 each. Also available are tall white cardboard bins for cans and plastic bottles (which cost about \$8), of which there are about 300 across campus. Staff and faculty members can also get small cardboard desk boxes for paper recycling, which they are then responsible for emptying into the departments' centralized recycling containers. These desk bins are usually purchased in bulk by Building Services, at a price of less than \$1 apiece. There are over 8,000 of these in offices on campus. Some departments may also choose to purchase other recycling bins at their own expense. For example, the School of Public and Environmental Affairs (SPEA), motivated by the student-run Environmental Management Association, invested in more expensive SafeCo recycling bins and Rubbermaid “Slim Jims” to more prominently display recycling efforts in public areas and classrooms.

Recycled materials are collected by the custodial staff of each department, and deposited into dedicated recycling dumpsters located throughout campus, primarily at the loading docks behind most buildings. Each day, one of Building Services' four packer trucks is dedicated to recycling, and drives around campus picking up the recycled materials and taking them to Hoosier Disposal, which provides recycling services. Although IUB does not directly receive recycling revenue from the sale of these items, all materials that are

diverted from the conventional waste stream and into recycling create savings in avoided landfill fees, which are \$38/ton (and expected to rise in the coming years). All told, approximately 4800-5000 tons of garbage is sent to the landfill each year. Currently, Building Services recycles 1100-1200 tons per year (or a little under a quarter of the waste stream), for a cost saving of about \$42,000 per year.

What is recycled? Plastics and cans are also collected, but there is a relatively small quantity of these materials recycled; the vast majority (over 90% by weight) of recycled material is fiber, or office paper (of all kinds). In addition to these materials, Building Services also handles the recycling of miscellaneous materials. Batteries are collected and sent to a battery recycling facility that pays for the postage. Florescent light bulbs are also recycled through a Greenwood-based company, although at a steep price—about 50 cents per bulb. Building Services currently spends thousands of dollars per year for the light bulb recycling service. Finally, Building Services also handles the recycling of scrap metals, which are sold to JB’s Salvage, a local company that pays for various metal types by weight.

### 3.2 Residence Halls

Recycling in residence and dining Halls is coordinated through Residential Programs and Services (RPS) offices, independent of Building Services. For placement on each residence hall floor, RPS has purchased Rubbermaid “slim jim” recycling bins for paper, glass, aluminum, and plastic. There are over 600 of these bins (which cost approximately \$30-35 per container) across all residence halls on campus. The common lobby and public areas of each building also have the more expensive and attractive SafeCo bins (which cost approximately \$150-200 per bin) for newspapers, plastic, paper, glass, and cans. To facilitate easy recognition and convenience, all recycling bins in residence and dining halls are affixed with the RPS recycling logo.



The custodial staff empties recycling bins, depositing recyclable material into totes at the loading docks of the halls, keeping materials separated (with separate bins for newspaper, paper, and comingled glass, cans, and plastic). These totes have prominent labels displaying the accepted materials to help ensure that staff members dispose of all items correctly. The materials are then picked up once a week by Hoosier Disposal. Although recycling is provided at no charge, the pick-up service entails a monthly cost of \$19.60 per tote. Since there are 144 totes all told, this adds up to a cost of over \$2,800 per month, or \$34,000 per year.

In addition to these more traditional recycling operations, each hall has receptacles for batteries located in the lobby, and Environmental Operations staff members collect light bulbs for recycling. There are receptacles for printer cartridges provided in the lobbies, which are sold to the electronics recycling company Rocky Mountain e-cycle. The proceeds generated by this cartridge collection are reinvested in the RPS recycling fund. RPS also runs an End-Of-Year Collection which begins in the spring. Boxes are set out in the residence halls to collect unwanted clothing, household items, and nonperishable foods. These items are then donated to local charities, such as Hoosier Hills Food Bank and Back

Street Mission, where they are redistributed to community members in need. Last year, over 20 truckloads of donations were collected through this effort.

Recycling services are also provided in two of the campus dining halls. Plastic recycling is currently being practiced in Foster and Wright, which are the two largest dining halls. At Foster Gresham, there is a new collection system including a poster displaying acceptable items, which include plastics #1-7. The kitchen staff members at Foster Gresham also collect and recycle all metal and plastic food containers. Also, all dining outlets practice cardboard recycling programs. Cardboard from food packaging is collected, flattened, and bailed. These cardboard bails are collected by Hoosier Disposal 3-5 times per week, depending on the volume. This pick-up service is provided at a cost of about \$225 per site per month, which adds up to \$1,800 per month (or almost \$22,000 per year) for cardboard pick-up.

### 3.3 Indiana Memorial Union



IMU implements a recycling program that is independent and mostly separate from Building Services and RPS systems. For all public areas, IMU has invested in dedicated SafeCo recycling bins for cans, paper, newspaper, and, most recently, plastic. These bins cost approximately \$150-200 each, which is significantly more expensive than the bins commonly used in academic buildings, but this cost is justified by the aesthetic demands of the building (which contains a hotel and conference center). These recycling bins are emptied by custodial staff several times a day and materials are collected at the loading dock area.

In addition to these public area recycling bins, recycling efforts are made by IMU staff; batteries and flattened cardboard are also collected at the loading docks. Every week, all of these materials are picked up by Building Services packer trucks (as described above). Also, totes have recently been placed in kitchens to collect glass and plastic containers. These containers are then collected in 10 totes (rented from Hoosier Disposal) at the loading dock area. Once a week, Hoosier Disposal picks up compacted trash and the recyclable materials generated by kitchen staff.

Costs of this service are detailed as follows:

- Trash compacter rental: \$350/month
- \$300/week for trash pick-up service
- \$38/ton landfill fee
  - 8-9 tons/week during school year (\$304-342/week)
  - 3-4 tons/week during summer (\$114-152/week)
- \$100/week for recycling pick-up service (regardless of weight)

Thus, while IMU does not pay for the recycling service provided by Hoosier Disposal, they do pay over \$5,000 per year for the pick-up service. However, recyclable materials diverted from the waste stream to recycling represent avoided landfill fees. Like Building Services, IMU also recycles scrap metal, which is sold to JB's Salvage. Florescent light bulbs are also recycled through Lighting Resources at a significant cost.

### 3.4 Miscellaneous Recycling Efforts

In addition to the three primary recycling programs, there are several other relevant initiatives on campus. Campus Division, which is in charge of all outdoor maintenance on campus, practices composting of all tree branches, limbs, and plant material waste, using the resulting mulch to fertilize new growth. Rather than bagging grass clippings and sending them to the landfill, the clippings are left on the lawns where they can naturally decompose. These practices represent a significant diversion from the landfill and cost savings.

There is also a Surplus Store on campus, where retired furniture and computers are sold either individually or by the pallet for reuse or recycling. Since the computers on campus are on a three year replacement cycle, there is a significant quantity of computer and electronic waste every year. The vast majority of the computer systems are resalable. Each year, the Surplus Store sells 1,000-1,500 computer systems to students and the general public. Computers that cannot be sold individually are palletized and bid on in auction by electronics recyclers. Although in the past there has been concern about the ultimate destination and use of these auctioned pallets, the Surplus Store now requires all purchasers



to sign a waiver stating that the materials will not be landfilled or sold to overseas companies. While there is not much revenue gained from pallet sales, there is the significant cost avoidance of having approximately 500 computers disposed of (it costs about \$25 per computer to have them disposed of at most recycling centers). The Surplus Store also sells a large quantity of used office and dorm furniture every year.

Hilltop Garden, a campus garden and outdoors center, recycles a significant quantity of aluminum cans, which are collected both on campus and through participating community members. This collection is a fundraiser for Hilltop Gardens, and proceeds are used to fund gardening classes and summer camps for local children. Cans are collected, sorted, and crushed at the center, then sold to JB's Salvage at a price of \$0.40 to \$0.75 per pound. So far, this collection has raised over \$800 for the center.

Until this year, outdoor recycling has been absent from the IUB campus. However, during the 2008 spring semester, RPS and Volunteers in Sustainability (ViS) sponsored the "More Art, Less Trash" competition. During the competition, students designed and painted outdoor recycling bins, which were placed around campus in cooperation with the University Architect's office. This one, for example, is located on the north end of the arboretum near the intersection of 10<sup>th</sup> Street and Fee Lane, an area that sees a large volume of student traffic every day. The bins are emptied by the director of Hilltop Gardens, who separates the materials, using aluminum cans in the abovementioned fundraising program. While the aluminum is the only material used by Hilltop, the bins collect several recyclable materials, and according to collection records, are usually composed of about 58% plastic and 17% cans. Although the competition closed with the end of the 2007-2008 academic year, the bins continue to be used during new student orientation, special events, and for general outdoor use throughout the year.



#### 4. Perceptions of Recycling



An integral part of any sustainability pursuit is the public's perception. In recycling initiatives, this image concern is especially relevant because of the pivotal role that community members play in making the program a success (or a failure). People need to be informed about the recycling services available in order to effectively utilize them. So it is IU's responsibility to make sure that recycling programs are convenient and unambiguous. How do IUB campus community members learn about recycling opportunities? Building Services provides some information about recycling on its website. This webpage contains general information on how to reduce your waste stream (for example, double-sided printing), how to set up recycling in your department (by contacting Building Services staff), answers to some frequently asked questions (do staples need to be removed?), and limited information on what materials may be recycled. [This](#) [The](#) Indiana Daily Student (IDS) also has a link from its main webpage that encourages reuse and recycling of its newspapers. It also provides links to information about recycling in Bloomington, recycling information for kids, and other useful websites. In addition to these internet sources, there are some other sources of information provided around campus. Bins are generally labeled as to what materials are accepted. Many of the tall boy bins have signs taped to the side that disseminate what may be placed inside. Bins in IMU and residence hall lobbies have specially shaped tops that indicate and limit what may be deposited there, as well as prominently displayed writing (white lettering on a black background).

RPS has printed and distributed several informational flyers and posters, with general residence hall recycling information and details about what items are acceptable for recycling. For examples, please see Appendices C and D. These publications are informative, and greatly facilitate recycling efforts in residence and dining halls, but are generally distributed to students living in residence halls, and are not applicable or available to the rest of the campus community.

#### 5. Problems and Challenges

*Negative Campus Perceptions:* Despite the importance of image, the campus perceptions of recycling are generally not positive. The following quote is a comment generated by the academic building manager survey, and represents a common misperception of recycling at IUB. "I have heard the rumors that IU's recycling is all 'smoke and mirrors' - that they actually just dump all the materials we recycle into the dumpsters and throw them out with the garbage." Similar concerns have been echoed by many students, faculty, staff, and other community members on campus. Given the importance of community participation in recycling efforts, negative perceptions such as this

##### **What is holding us back?**

- Negative Campus Perceptions
- Ineffective Information Dissemination
- Procedural Inefficiencies
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- Absence of Recycling at Athletic Events
- Incomplete Accounting of the Waste Stream

one are a serious impediment to successful recycling operations. Even though recycling actually is occurring, this suspicion discourages people from expending effort to recycle.

This misunderstanding is caused by a combination of operational and communication factors. In academic buildings, materials are separated into different bins inside the buildings, but by the time they reach the recycling dumpsters, all recyclable materials are commingled. The dumpsters that are dedicated to recycling across campus are not labeled as such, and are easily mistaken for trash dumpsters. Additionally, since the packer trucks used by Building Services for trash and recycling pick-up are interchangeable, many people who witness the pick-up assume that the trucks picking up recycling are garbage trucks. But as mentioned above, one truck each day is dedicated to recycling. They are not labeled as such simply because the same truck is not used for recycling every day. However, the lack of labeling combined with operational factors of disposal and pick-up lead to suspicious or apathetic patrons, who, as a result, may not expend effort to recycle their own waste materials.

*Ineffective Information Dissemination:* Contributing to the apathy and mistrust of campus community members is an ineffective communication system. Many people face uncertainty about what can be recycled. If a container is designated for paper recycling, does it also accept paperboard food containers? What about window envelopes? Stapled documents? Which plastics can be recycled? There is no easily accessible resource on campus to answer these questions for interested parties. This sort of uncertainty leads many people to simply throw away recyclable items rather than risk contaminating recycling bins. There is a disconnect between perceptions of what is recyclable and what is actually acceptable to recycling providers. For example, Hoosier Disposal has been accepting plastics #1-7 for several years. However, this has not been effectively communicated to the campus community. RPS staff members created a recycling guide document that helps to resolve these issues, but this guide applies only to residence hall recycling, is not applicable to the majority of campus, and is not available to students residing off campus.

In addition to ineffective campus-wide communication about recyclable materials and commingling acceptability, there is a lack of transparency in quantities and expenditures in waste disposal practices on campus. Although there is some quantifiable information concerning tonnages and waste disposal expenses, these figures are not easily accessible to interested community members or students. As a public institution, IUB should be forthcoming with these estimates, especially considering potential benchmarking opportunities for current and future recycling initiatives.

*Procedural Inefficiencies:* Although recycling is practiced at nearly every building on campus, there are several procedural inefficiencies that lead to significant underutilization. For example, in academic buildings, recyclables are separated (usually into newspaper, paper, and comingled plastic, glass, and aluminum) by patrons inside the buildings, but once they are collected, they are comingled in the recycling dumpsters. Thus, when packer trucks from Building Services pick up and take recycling to Hoosier Disposal, it is completely intermixed. This mixing causes serious operational difficulties for the recycling provider. It typically



costs Hoosier Disposal about \$51 to process one ton of recyclables. However, given the condition of materials delivered by Building Services, it costs about \$130 per ton to process the campus recyclable materials. This not only creates difficulty for vendors, it also creates a revenue loss for IUB. Although it is in the contract for Hoosier Disposal to practice revenue sharing with IUB, this is not currently practiced because of the extra expense (in equipment and manpower) to process the materials received, given their condition.

In addition there are currently several different recycling pick-up operations and contracts on campus. Building Services provides pick-up for academic buildings, as well as some materials for IMU, but RPS and IMU also have independent and costly contracts with Hoosier Disposal to come to campus for pick-up. This creates an overlapped system in which transportation resources are over-utilized (with numerous trucks picking up recycling on campus every day), and some campus offices are spending more than necessary on pick-up services. The segregation of pick-up and delivery to Hoosier Disposal is an inefficient resource distribution.

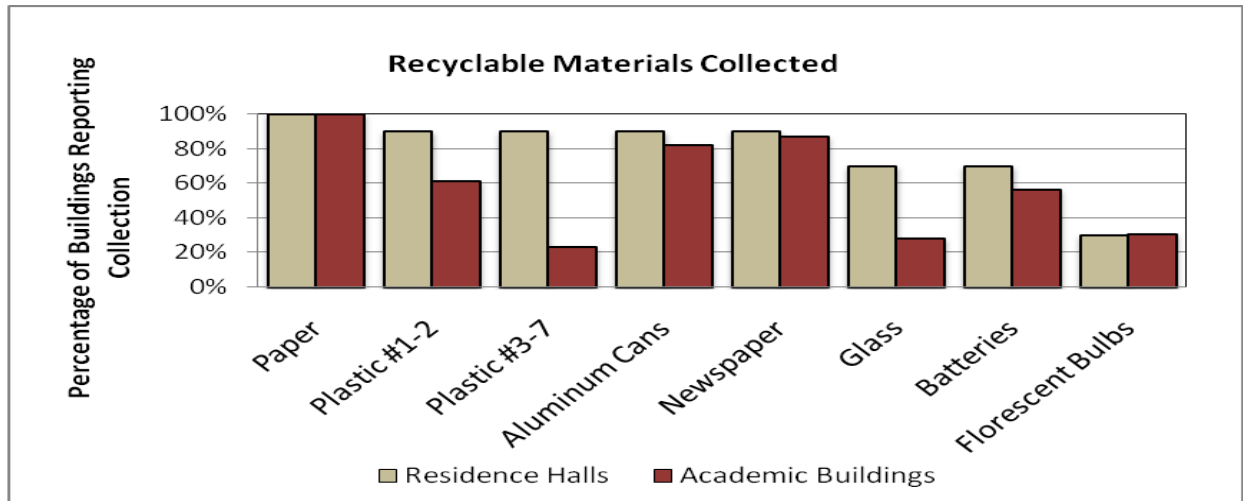
*Recycling Bin Ambiguity and Inconsistency:* In most buildings on campus, tall boy bins are used for both recycling and trash. The only labels that distinguish the recycling bins are paper signs taped to the side (usually at the bottom, and sometimes obscured at the back) of the bin that say “Paper,” (for example) with some examples of what can be deposited inside. Often, the patron has to stop and look at the label closely to make sure the waste is going into the appropriate bin. This leads to a greater amount of contamination (garbage being thrown in with recyclables); if there is more than 10% of non-recyclable waste in the bin, then the entire container is rendered unrecyclable and is sent to the landfill. The ambiguity of collected items extends to other materials as well. Because of poor markets, Hoosier Disposal does not accept glass for recycling from Building Services, but does take plastics #1-7, as mentioned previously. However, this is not displayed on the bins in most buildings, leaving the patron to guess what materials are appropriate.



There is also a great degree of inconsistency across campus. Each recycling system uses different standard bins and labeling. These are just a few of the many recycling bins used across campus. Students accustomed to the easily recognizable recycling bins used in residence and dining halls may overlook the recycling opportunities provided by tall boys in classroom buildings and libraries. The inconsistencies among areas and departments are apparent also in the materials recycled and comingling.

The following graph is generated by the results of a recycling survey sent to over 80 building managers on campus, including residence halls and academic buildings. Currently, Hoosier Disposal accepts all of the materials included on the graph (except for glass from academic buildings). However, as this graph shows, the materials actually collected do not conform to the standards of what is accepted by Hoosier Disposal. The disparity of

perceptions between academic and residential buildings highlights the divergence of the publicity and labeling practices employed. While RPS has clearly distinguishable recycling bins, explanatory labels, and flyers describing what is recyclable and where, academic buildings have no such informational system. There is no policy or campus-wide standard for acceptable materials. For example, Hoosier Disposal has been accepting plastics #3-7 (in addition to and comingled with the traditionally accepted #1-2) for several years. However, only 23% of academic buildings reported collection of this material, while 62% reporting collection of plastics #1-2. This discrepancy demonstrates the missed opportunity cause by the ineffectiveness of labeling and the policy consistencies on campus.



*Absence of Recycling at Athletic Events:* Currently, there is no recycling being conducted at athletic, entertainment, or Little 500 events, with the exception of vendors who recycle cardboard and other food packaging materials. This is a considerable missed opportunity, given the amount of plastic and aluminum material waste generated by vending sales and tailgating fans. According to a comment provided in the abovementioned survey, past recycling initiatives at Assembly Hall have failed due to contamination of recycling bins.

However, contamination can often be avoided by placement of recycling bins directly next to garbage cans. Recycling at athletic events is commonly practiced at many peer institutions. For example, Boy and Girl Scout volunteers at Penn State home football games collect cans and plastics for recycling before and after games. Through this effort, they collected 25 tons in one season, raising over \$1,200 for donation to their local United Way chapter. [4] In addition, there are recycling bins set up at other concerts and entertainment events. This passive collection diverted 13 tons of recyclables from the landfill in 2005. [4] Ohio State has also begun aggressive recycling initiatives at its home football games, placing 28 scarlet recycling dumpsters throughout 14 tailgating lots, and collecting about 4 tons of recyclables per game. [5] Although IU is a unique institution with needs distinctive and separate from these Penn and Ohio State, these examples demonstrate that recycling can be successfully accomplished at athletic and entertainment events. That IU has not yet implemented a similar program is a considerable omission in recycling efforts on campus.

*Incomplete Accounting of Waste Stream:* Despite paper recycling being available in virtually every building on campus, there is a great deal of fiber (office paper and cardboard) mixed in with the waste being sent to the landfill. According to the general manager of Hoosier Disposal, it is visually apparent in the incoming waste that about half of campus' landfilled waste is composed of highly recyclable fiber. These fibers are considered highly valuable in recycling markets, representing a missed opportunity for IUB to pursue wider recycling opportunities, and potential revenue sharing ventures.

However, it is currently impossible to determine how much of IUB's landfilled waste is actually recyclable without performing a comprehensive waste audit, which has not yet been done at IUB. This lack creates a serious challenge to gauging the success of campus recycling efforts. Although we may be diverting a quarter of our waste to recycling, that does not resolve the question of how much we *could be* diverting. As pointed out by Dan Einstein from the University of Wisconsin in Madison, "measuring what we succeeded at diverting doesn't tell us anything about the amount of material we targeted for diversion which remains mixed up with all the other material still headed for the landfill." [6] Increases in the tonnage recycled is certainly a positive indicator that recycling efforts are achieving some level of success, but without inventories of how much material is needlessly sent to landfill, it is difficult to set meaningful benchmarks for success.

The current information gap in tonnages recycled also highlights the need for a waste audit. It is unknown at present how much material is actually recycled on campus. Since Hoosier Disposal picks up recycling from RPS and IMU as part of a larger route, it is impossible to segregate campus contributions to recycling. This creates a situation in which, although RPS has significantly bolstered and improved its recycling campaigns in recent years, and it is apparent that recycling quantities have increased, the collection method prohibits the determination of *how much* they have. While many efforts have been made (including the purchase of bins, the publication of informational literature, the sponsorship of the outdoor bin competition, and the development and printing of a recycling logo), and recycling in residence halls certainly has a better reputation among students, it is impossible to quantify how much is recycled, or how much this recycling saves in landfill fees.

## **6. Examples: Peer Institutions**

Comparing quantitative recycling data from universities across the country or even the state may not be the most productive way to determine the success level or benchmark achievement in recycling systems. [6] Each university has a unique community of students, staff, and faculty as well as highly individualized resources and needs. Recycling markets vary significantly between states and regions; resources and funding are quite different for a private institution than for a publicly funded university; and a liberal arts university has institutional goals and priorities that do not necessarily align with more major- or trade-oriented university. What has proven to be highly successful at one university may not be compatible with the campus culture elsewhere. While it may be relatively easy to compare surface statistics such as percentage of waste stream recycled or tons landfilled per year, these numbers can be surprisingly misleading if examined or compared out of context. For example, what practices count as recycling? Here at IUB, Building Services counts items sold at the Surplus Store in the quantification of recycled materials, which may render

figures disproportionate to other universities that may count only paper, cans, glass, and other conventional recycling materials.

Due to this individualized nature of campus communities, it is clear that attempting to compare or model IUB's recycling program after those at other institutions may not only be fruitless, it may also be counterproductive. However, it is also true that some examples merit serious consideration. Ideas generated by creative individuals at universities can often be applicable to a wide variety of scenarios. While IUB may not model its recycling on another institution's practices, there may be aspects that could be applied here, and there may be some examples that help to generate new ideas. So it is certainly a valuable exercise to explore the actions, successes, and failures of other universities (Big Ten and others) to gain some perspective on our own challenges.

*Ohio State University (OSU):* As mentioned previously, OSU has implemented recycling campaigns at football games in recent years, and has greatly exceeded the stated diversion goals. To accomplish this, the university (with help from an Ohio Department of Natural Resources grant) purchased 28 dedicated recycling dumpsters to place at targeting tailgating fields. Volunteers also handed out labeled recycling bags to patrons as they arrived. The goal for recycling over the course of the football season was 16 tons—however, after only two games, over 7 tons of recyclables had already been collected. Inside the stadium, all recyclables are thrown away with the trash. Once the trash reaches the recycling provider, though, it is sorted and separated. In only one game, 17.47 tons of recyclables were recovered in this way, leaving only 5.28 tons going to the landfill. [7] Although figures at IUB may not be equivalent to these, this example shows that IUB could potentially be missing out on a huge recycling and landfill diversion opportunity. And OSU's innovative approach to tailgate collection could serve as an example or starting point for efforts at IUB.

*Penn State University (PSU):* Penn State's recycling program is very successful at diverting high percentages of waste from the landfill through recycling. Their website provides a detailed accounting of the quantities recycled (by material type) vs. landfilled and the specific costs and benefits of recycling programs. It also provides an overview of how to recycle on campus, what is considered acceptable material, the history of campus recycling, and goals for improvement. This transparency in all aspects of recycling is a great asset. It creates accountability as well as publicity for the successes of sustainability efforts on campus. Currently, PSU diverts over 48% of all waste through recycling efforts, with a goal of reaching 67% in coming years. [8] Landfilled waste has decreased from 76,400 tons in 1989 to 6,432 tons in 2006 due to concerted recycling efforts in residence halls, football games, and across all offices and classrooms on campus. [9] Penn State's recycling webpage is an example of how transparency and communication can greatly benefit and motivate campus recycling efforts.

*Washington and Lee University (WLU):* However, information also needs to be available to members of the general public who are not as likely to research recycling rates and opportunities on campus. WLU has a dedicated recycling webpage. In addition, they have literature available for distribution across campus, including "recycling cards" which

have simple information about what can be recycled and where recycling receptacles are located. [10] These are a useful tool, because they can reach students and other campus community members who are not likely to research recycling opportunities online. Placed in common areas on campus such as cafeterias or libraries, these informational flyers can inform patrons conveniently and straightforwardly, greatly expanding the reach of recycling information. If people are aware of recycling programs and locations, they are certainly much more likely to participate in recycling efforts. Like PSU, WLU also has a recycling logo which appears on bins and literature, which can help patrons to easily recognize recycling opportunities across campus.

*University of Oregon (UO):* University of Oregon has a well-reputed and extensive campus recycling program. Rather than contracting with a recycling provider, the Campus Recycling Program provides internal recycling services for the campus. This program employs a Program Manager, four full time coordinators, and approximately 40 student interns (who sometimes additionally earn academic credits). [11] This program provides a practical and financially sensible service to the university, as well as academic and professional experience to many students, many of whom go on to obtain positions in recycling operations after graduation. Although it may be currently infeasible for IUB to implement a full-service recycling program such as this one, it provides an interesting example of what is possible for campus recycling efforts. It also demonstrates the benefits of full student participation in recycling and other sustainability efforts, since this program educates students on recycling operations and benefits as well as environmental and social responsibility. IUB could take from this the lesson that student participation is key to successful recycling initiatives.

## **7. Incentives for Improvement**

There are several compelling reasons for IUB to work on addressing campus recycling challenges. First, there is a simple, straightforward financial incentive. Although recycling does accrue some cost to the University (in bin and liner purchases and labor costs for emptying the bins), it is clear that recycling is more cost effective than landfilling all waste. Since recycling services are provided at no cost, for every ton that is diverted from the landfill, IU saves \$38.00 in landfill fees (a figure that will surely continue to rise given gas and commodity price increases and projections). In addition, if small procedural changes were implemented, IU could begin to receive revenue-sharing income from Hoosier Disposal's recycling business.

Second, recycling represents a high-profile and participation-oriented sustainability effort. Implementation of a visible and successful recycling program will boost IUB's reputation as a sustainably-minded campus. It is a simple and relatively cheap project compared with many sustainability initiatives—a “low hanging fruit” as far as working toward sustainability goals and perceptions on campus.

Third and finally, it is a responsible social and environmental action that works toward making IUB's campus, city, and state more environmentally healthy, provides jobs to Indiana residents, and preserves limited (and ever-shrinking) waste disposal land area. As a public institution, it is our prerogative to work toward social and environmental

responsibility in all avenues. As Steve Akers, Associate Director for Environmental Operations at RPS says, “We at IU, as a teaching institution, teach our students inside and outside the classroom to become involved citizens in their community after they leave IU with their degrees. This includes participating and providing leadership within their neighborhoods and communities. This active participation includes being informed and participating in community recycling programs. So it follows that we have a responsibility to teach our students while they are with us on campus, to become informed and participate in campus recycling systems.”

## **8. Recommendations**

Luckily, most of the problems with current recycling efforts can be addressed via simple and relatively inexpensive means. Specific recommendations for improvement speak to image issues and information dissemination, but there are also some procedural modifications that will lead to greater general consistency and efficiency across campus efforts.

*Public Awareness Initiative:* Negative or indifferent campus perception of recycling is the biggest challenge to recycling at IUB. However, it is also a problem that can be overcome rather simply and quickly, through a campus public awareness campaign. Even as recycling operations remain segregated amongst different campus offices, it is possible to market IUB recycling in a more unified manner. This will encourage the campus community to embrace recycling more fully and actively. In addition, the publicity of campus recycling will help to bolster IUB’s image as a sustainability leader.

Given the common misperception that recycling does not actually occur, this initiative should have a highly proactive and positive approach. Specifically, the publicity initiative would include the development of a campus recycling logo, as discussed in further detail below. More directly, ads in the student newspaper IDS providing very general information and encouraging participation in campus recycling will raise awareness that campus recycling is in operation and motivate the campus community to take advantage of recycling opportunities across campus. A public awareness campaign would also include the development and publication of informational literature. Flyers could be distributed in high traffic areas such as cafeterias and libraries. These flyers would include basic information about what can be recycled (with specifics about types of plastics and papers), where bins are located, and what can be commingled. These can be produced inexpensively, perhaps with 4 flyers printed on a sheet of paper (such as at WLU), and

### **How can we improve?**

- Public Awareness Initiative
  - Literature publication
  - Dedicated website
  - Packer truck labeling
  - Newspaper ads
- Development of Campus Recycling Logo
- Campus-wide Recycling Policies
  - Bins and labeling
  - Collected materials and commingling
- Campus waste audit
- Procedural adjustments
  - Separation of materials
  - Pick-up consolidation
- Recycling implementation at athletic events
- Pursuit of additional funding

placed in easily-accessible locations all around campus—in residence and dining halls, offices, libraries, classroom buildings, and IMU. RPS currently distributes an effective and catchy informational poster and brochure informing students of recycling at residence halls. However, there should be campus-wide publications.

In addition, there should be a webpage dedicated to information about campus recycling, linked directly from the IUB website. While Building Services and the student newspaper both have some recycling information on their sites, a dedicated page without specific departmental affiliation could provide a great deal of information about recycling all over campus, including the three primary operations and other satellite programs. This webpage could also work to combat the transparency block that inhibits progress checks and benchmark setting. Here, quantities and expenditures could be published that reflect what IUB is currently doing as far as recycling efforts. This type of transparency will keep administrators and responsible parties on task when it comes to pursuing aggressive recycling goals.

IUB should take action to combat the misperceptions and negative feelings about recycling. Building Services cannot permanently label packer trucks as recycling, because all of the trucks are rotated between recycling and trash services. It would be infeasible to dedicate one truck exclusively to recycling because of the need for repairs and the expense of the trucks. However, the truck being used for recycling on a given day could be labeled with a magnetic car decal or some other removable sign that clearly shows the recycling purpose. The operation of packer trucks and recycling pick-up are strictly procedural aspects of recycling systems on campus, and would not conventionally be connected with public images. However, all operations occur in the public's view, and this issue is obviously a concern for the campus community. This operational issue quickly becomes a public relations issue that demands attention.

*Development of a Campus Recycling Logo:* Given the consistency fallbacks apparent in recycling efforts across campus, the development of an easily-identifiable logo, as part of this public awareness campaign, may help to publicize and clarify recycling practices. Used all over campus, in residence halls, academic buildings, libraries, IMU and outdoors, this logo will serve to unify the recycling programs throughout campus, providing consistency for patrons and some operational unification among the various implementers. It will also help to dispel the common misconception that recyclable materials are taken to the landfills. People will see the logo and recognize that the bin is designated for recycling only, helping to reduce the contamination issues. Although the printing and use of these logo decals would incur some costs for the recycling providers, mandating its use across campus would be a relatively cheap and effective way to bring some uniformity to the disparate recycling programs throughout campus.

This is an example of a simple and informative logo. It could be printed with various materials labels for ease of use (such as “Paper Only”, or “Plastics #1-7, Glass, and Aluminum”). This example logo is a simple and catchy indicator. It implies action (“IU Recycles”), which would help to dispel counterproductive campus misperceptions. However,



this is simply an example of a potential logo; another option would be to coordinate with a marketing or business class on campus to design a logo. This would bring design and marketing experience to the development of the logo, and provide an IUB class with a practical experience that generates real results.

*Campus-wide Recycling Policies:* However, launching a public awareness campaign and mandating the use of this logo will prove to be difficult without a campus-wide recycling policy, and some collaboration among the operations. Currently, the partitions and inconsistencies prevalent in recycling efforts across campus are a serious impediment to successful recycling initiatives. Variation in bin types, collection practices, materials collected, and labeling create an image of disorganization. IUB should implement campus-wide policies that streamline systems.



First, there should be greater consistency in bin type across all campus areas. Currently, each operational system uses a different basic recycling bin—Building Services uses tall boys (which are also used for trash) and white cardboard boxes, IMU uses SafeCo bins, and RPS uses Rubbermaid slim jims and SafeCo bins. Instead, all departments and buildings should use the same recycling bins for common areas. In some cases, aesthetic demands require the use of the more expensive bins (such as SafeCo bins) but in most locations, slim jims or another recognizable and relatively inexpensive bin could be utilized. If there were a bin purchasing policy on which bins are used for recycling, it would create a campus system with greater consistency and efficiency (given bulk order discounts that could be negotiated).

Also, there should be campus-wide recycling goals. Although campus recycling programs are well established, and motivated individuals continue to make significant improvements and expansions, there is no clear mission or goal as far as campus recycling. This should be remedied, with the simple establishment of recycling goals. Often, recycling goals are highly quantitative—for example, to divert one third of the waste stream to recycling from the landfill, or to recycle at least 80% of recyclable material, or to recycle at least 2500 tons per year. Or the goals can be more abstract (and less direct)—to motivate 100% participation in campus recycling programs, or to expand the collected materials every year, or to implement recycling at all buildings and events. Whatever goals are established, the simple presence of campus-wide recycling goals will help to motivate both the general campus community and the recycling operators to continually improve recycling operations and results.

*Campus Waste Audit:* Although some estimates are provided by Building Services and Hoosier Disposal, there is no quantification of the amount of material that is recycled campus-wide. Building Services receives weight tickets and summaries from Hoosier Disposal every month; however, these are only for academic buildings on campus, and do not include Hilltop Garden, residence and dining halls, or all of IMU's recyclables. Since Hoosier Disposal trucks pick up materials from



RPS and IMU as part of a route that includes many other businesses and establishments, there is no way to determine the amount coming from those individual locations. Thus, it is unknown how much RPS recycles, despite a great investment in improvements that has occurred over the last several years.

In addition, according to the general manager of Hoosier Disposal, it is visually apparent that about half of the waste sent from campus to the landfill is actually recyclable fibers (paper and cardboard). This could represent a significant missed opportunity for additional recycling, avoided landfill fees, and potential revenue income. However, it is impossible to determine the potential for improvement without ascertaining current rates.

IUB cannot effectively set goals and assess benchmarks without determining the current status of operations. That is why a comprehensive campus waste audit would be greatly beneficial to recycling and waste disposal systems on campus. This audit would provide a baseline for current performance. It would also bring to light inefficiencies and missed opportunities in operations, perhaps reveal problems that are currently undetected, and present opportunities for improvements and new revenue generating ideas.

*Procedural Adjustments:* While many of the problems with IU recycling concern information and public opinion, there are also some challenges inherent in the current procedural operation of recycling programs on campus. There are several steps that can be taken to address these problems.

First, recyclable materials should be separated at collection, pick-up, and delivery. This means that the recycling dumpsters at the academic buildings should be replaced by dumpsters or totes that effectively segregate paper, newspaper, and commingled glass, plastic, and aluminum. Then, rather than picking up from different buildings each day, packer trucks could pick up different materials each day (for example, paper on Mondays, Wednesdays and Fridays, newspaper on Tuesdays, and commingled on Thursdays). This will make campus recycling more effective, and induce the intended revenue sharing with Hoosier Disposal. While this may entail an initial expense (for replacement of dumpsters), it will generate a new income stream (which will, in turn, motivate additional recycling efforts). This action will also help to clarify recycling systems, making it apparent that recycling does occur.

Additionally, IUB should evaluate the integration of pick-up from all areas of campus. Although Building Services used to provide pick-up for all campus buildings, RPS and IMU now have separate pick-up contracts with Hoosier Disposal. Although a more detailed cost-benefit analysis is necessary, it is likely that an integration of all of these systems would be more efficient. The primary obstacle to this integration is the separation of budgets between the three operations. However, the costs of pick-up could be shared according to quantity distributions. There are a couple of options for how the services can be combined. One, Building Services could provide recycling pick-up for the whole campus, eliminating the need for Hoosier Disposal to come to campus for recycling pick-up. This would potentially alleviate the significant pick-up cost paid each month by RPS and IMU, and consolidate transportation. Or, Hoosier Disposal could be contracted to pick up recycling at all building locations. This would facilitate keeping materials separated (since they have specially designed trucks), and simplify the vendor relationship.

*Implementation of Recycling at Entertainment and Athletic Events/Little 500:* As discussed previously, several other institutions have successfully implemented recycling at athletic events. This is still absent at IUB, and represents a serious missed opportunity for waste stream diversion and fundraising. Tailgating generates tons of glass and aluminum at every game, and vending sales generates a very large quantity of plastic waste. After every football game, volunteers work to pick up waste from the stadium and from the tailgating fields surrounding it. However, all recyclables and waste are currently collected together and landfilled. A very easy alternative is to have some of the volunteers pick up recyclables only, while others collect garbage only. Then the recyclables could be donated to nonprofits or campus groups for fundraising (such as Hilltop Garden).

More aggressive recycling at football and other events could also be implemented. Bins (which Hilltop Garden procures free from a local business) could be painted with bright colors or designs and set up at all tailgating fields and venue exits to collect glass, plastic, and aluminum. Before events or during tailgating, volunteers could pass out bags for recycling collection and generally encourage fans to participate. These activities could be coordinated through an organization like campus's Volunteers in Sustainability or another community nonprofit organization that wishes to collect cans for fundraisers.

Little 500 has a great potential to become a "green" event. A bicycling event such as IUB's, which has substantial publicity, could be a great venue for promoting sustainability issues, and patrons would likely be very receptive to recycling initiatives. Again, bins could be decorated by volunteers or teams and set around the venue, and volunteers could be enlisted to pass out information or recycling bags. Little 500, basketball and football games, and other campus events provide a wonderful opportunity for IU to advance recycling efforts and pursue additional landfill diversions and fundraising for campus groups or local nonprofits.

Smaller scale events can also provide a great venue for implementing recycling. Currently, recycling opportunities are minimal or completely absent from conferences and meetings held at the conference center within IMU. This is due to the aesthetic and space demands of the building and rooms. However, there are efficient and convenient options for recycling at these events as well. For example, IMU could purchase wheelable or otherwise moveable bins to bring into the conference rooms during lunch or beverage breaks. This would again provide a chance to enhance IUB's image as sustainability-forward, and provide a significant landfill diversion (given the quantity of plastic water and soda bottles provided by catering at these events).

*Pursuit of Additional Funding:* Some of the recommendations listed above entail the incursion of expenses (for new bin purchases, the development and printing of literature and logo stickers, and possibly additional employee hours). However, there are many opportunities for the pursuit of additional, outside funds to advance campus recycling. For example, the Indiana Department of Environmental Management has a recycling grant available to public institutions. This grant of up to \$50,000, if attained, could be used to replace recycling dumpsters and bins and print literature and logos. [12]

Coca Cola also has recycling grants available. Rather than receiving funds, however, recipients are awarded their choice of recycling bins, for indoor or outdoor use. [13] IUB, or an organization within IUB, could apply for bins for use at conferences at IMU or

entertainment events on campus. One of the bin styles is an attractive, clear, and collapsible receptacle that is ideal for special events. Use of these bins at IMU conference center events would enhance IUB's image as environmentally responsible and sustainable.

## **8. Conclusions**

Although there are currently several obstacles hampering recycling efforts on campus, IUB generally has a well-established recycling system that provides a solid infrastructure for a highly successful recycling effort. If attained, a successful and high-profile recycling effort will not only provide IU with a chance to demonstrate its commitment to sustainability, it will also provide significant cost savings and financial returns. While problems are wide-spread and in some cases entrenched in inefficient operations, most issues can be addressed relatively immediately, simply, and inexpensively. Through publicity, cooperation, and operation, IUB campus recycling can become a successful and productive sustainability initiative.

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## Appendix A—Academic Building Managers: Survey and Results

1. What is the primary use of your building? [33 responses]

Academic (classrooms): 7 (21.2%)

Offices: 14 (42.4%)

Athletics: 2 (6.1%)

Laboratories: 1 (3.0%)

Entertainment: 2 (6.1%)

Residential: 0 (0%)

Student Services: 7 (21.2%)

Other (please specify)

- student union, hotel, meeting rooms
- Medical Clinic and Counseling Center
- union shops
- short term residential, offices, classroom
- Library
- wide variety of academic and University events in addition to entertainment
- art museum
- observatory
- and entertainment
- Research

2. What is the size of your building? (Gross Area) [31 responses]

0-10,000 square feet: 4 (12.9%)

10,001-50,000 square feet: 7 (22.6%)

50,001-100,000 square feet: 5 (16.1%)

100,001-150,000 square feet: 6 (19.4%)

150,001-200,000 square feet: 1 (3.2%)

200,001-250,000 square feet: 2 (6.5%)

Over 250,000 square feet: 6 (19.4%)

3. Does your building have vending machines, or otherwise sell food or beverages? [39 responses]

Yes: 31 (79.5%)

No: 8 (20.5%)

4. Is recycling available in your building? [39 responses]

Yes: 39 (100%)

No: 0 (0%)

5. If you answered “yes” to the previous question, please continue. If you answered “no,” then please skip to question #10 now. What materials are recycled in your building? (choose all that apply) [39 responses]

Plastics #1-2: 24 (61.5%)

Plastics #3-7: 9 (23.1%)

Glass: 11 (28.2%)

Aluminum Cans: 32 (82.1%)

Paper: 39 (100%)

Newspaper: 34 (87.2%)

Batteries: 22 (56.4%)

Florescent Light Bulbs: 12 (30.8%)

Other (please specify):

- metal from shops
- File folders, paperback books
- We want glass and aluminum recycling, also plastic 1-7 containers
- magazines/catalogs

6. What type of recycling bins are used in your building? (choose all that apply) [38 responses]

22-gallon metal tall boys: 22 (57.9%)

Blue and/or green Rubbermaid slim jims: 7 (18.4%)

Square SafeCo recycling bins: 4 (10.5%)

Tall white cardboard can receptacles: 20 (52.6%)

Individual desk-sized paper bins: 20 (52.6%)

Otto totes with lids: 2 (5.3%)

- We have a couple of different types of containers in use.
- Special locked shredding boxes
- blue, 40 gallon trash bins
- mixture of containers, some custom/some re-cycling specific
- We set up our own recycling internally - our trash cans are used for this. We take out liners. Almost everyone has a paper recycling can at his desk. Also the custodial staff has trash cans with synthetic liners on each floor for paper recycling.
- 6 classrooms with built in units
- Cabinet containing bins
- A large container for newspapers & office paper

7. Approximately how many recycling bins are in your building? [38 responses]

0-10: 19 (50%)

11-30: 9 (23.7%)

31-50: 1 (2.6%)

51-75: 2 (5.3%)

76-100: 2 (5.3%)

101-150: 3 (7.9%)

151-200: 1 (2.6%)

201-250: 1 (2.6%)

More than 250: 0 (0%)

8. How much material do you recycle in an average week (during the academic year)? [29 responses]

0-1 tons: 26 (89.7%)

2-5 tons: 1 (3.4%)

5-7 tons: 1 (3.4%)

8-10 tons: 0 (0%)

11-14 tons: 0 (0%)

15 or more tons: 1 (3.4%)

9. Where in the building are the recycling bins located? (choose all that apply) [36 responses]

Classrooms: 4 (11.1%)

Hallways: 26 (72.2%)

Common Areas (entrance, lobby, atrium): 20 (55.6%)

Lounges: 19 (52.8%)

Offices: 20 (55.6%)

Kitchens: 9 (25%)

Other (please specify):

- Reception areas large departments
- Metal roll off dumpster by shops
- Dock
- Labs
- Offices
- Back storage room for paper
- Except mailroom, they are inadequate and insufficient. I would like recycling in all of the above locations!
- building mail room
- mailroom
- by the elevator

10. Do you have any additional comments, suggestions, or information about recycling in your building or in general?

- Effort to recycle in Assembly Hall is based on each individual's initiative. Attempts to recycle during games have resulted in too much contamination of recycled materials by people depositing trash in the same containers.
- We would really like to have more recycling bins but were told by the custodians that they didn't have enough employees to empty them if we had more. Therefore, we can only have them in our downstairs hallway alcove, our big advising office on the first floor, and in the common area on the second floor. We would love to have a receptacle in each office.  
Thanks!
- There is a plastic bucket on the ground floor for batteries and I don't think has been emptied this past year. Don't know the area question.
- I did not answer question 8 as I don't know how many tons and 7 is a best guess.
- We are an outdoor center with 58 facilities so we are quite a bit different than matching the above questions - we are basically a campus of our own.
- It would be beneficial if recycling pick up and combined dumpsters were available in proximity to the Auditorium. It would also be helpful if funding for additional aesthetically appropriate bins for public spaces were available.
- The Physical Plant Department does an excellent job at keeping the recycling materials picked-up regularly. Let me know if you need anything else

- No comment, but we do not recycle anywhere near a ton. Mainly newspapers & office paper. Alum cans from the vending machines are mixed in with the trash even though we have a separate receptacle marked aluminum cans only.
- I found this survey difficult to fill out. More comment boxes are needed, one after each question, please. I would have appreciated images of the individual recycling containers so I could immediately identify what we have in the building (and what better containers might be available to us). The variety of those available is confusing, and I believe they should be standardized, well-marked, and colorful. Tonnage of recycling is impossible for me to estimate; this figure should probably come from Building Services. Re #5, the university community has not been informed it recycles plastics 1-7, although I hear on good authority it does. There should be containers that reflect that. RE #6, can a building choose what kind and how many containers we have in the building and where they are located (with a good minimum available to those departments which are lazier than others)? We need more kinds of them, more widely distributed, colorful, well-labeled and accessible. Please help us do the right thing and encourage and educate students to do so too. Re 8, we are a computer science department, so we recycle our machines, but what they weigh, I don't know.
- Tonnage is hard to determine -- mine is a guess. Custodial services can tell you a lot more about individual building recycle.
- I have heard the rumors that IU's recycling is all "smoke and mirrors" - that they actually just dump all the materials we recycle into the dumpsters and throw out with the garbage.
- Idiots that throw non-recyclable materials into the bins never cease to amaze.
- Glass, plastic, and aluminum can recycling is done by me personally; I.U. Building Services picks up all paper materials. I collect aluminum cans for Hilltop Garden & Nature Center.

## Appendix B—Residence/Dining Hall Managers: Survey and Results

1. What is the primary building type/purpose? *[10 responses]*
  - Residence Hall with Dining Hall: 5 (50%)
  - Residence Hall with no Dining Hall: 4 (40%)
  - Apartment Complex: 1 (10%)
  - Other (please specify):
    - Our apartments are for anyone over the age of 19. They do not have to be a graduate student or have a family.
  
2. How many buildings are part of the facility? *[10 responses]*
  - 1: 2 (20%)
  - 2: 1 (10%)
  - 3: 2 (20%)
  - 4: 1 (10%)
  - 5: 0 (0%)
  - 6 or more: 4 (40%)
  
3. Approximately how many students are housed in the facility? *[10 responses]*
  - 200-500: 0 (0%)
  - 500-1000: 7 (70%)
  - 1000-1500: 3 (30%)
  - More than 1500: 0 (0%)
  
4. What materials are recycled in your facility? (choose all that apply) *[10 responses]*
  - None: 0 (0%)
  - Plastics #1-2: 9 (90%)
  - Plastics #3-7: 9 (90%)
  - Glass: 7 (70%)
  - Aluminum Cans: 9 (90%)
  - Paper: 10 (100%)
  - Newspaper: 9 (90%)
  - Batteries: 7 (70%)
  - Florescent Light Bulbs: 3 (30%)
  - Other (please specify):
    - We also recycle cell phones and ink cartridges at our center desk.
  
5. If you have a dining hall, which materials are collected for recycling? *[4 responses]*
  - None: 2 (50%)
  - Plastics #1-2: 1 (25%)
  - Plastics #3-7: 1 (25%)
  - Glass: 1 (25%)
  - Aluminum Cans: 1 (25%)
  - Paper: 2 (50%)
  - Newspaper: 1 (25%)
  - Other (please specify):
    - I don't know.

6. What type of recycling bins are used in your facility? (choose all that apply) [10 responses]

22-gallon metal tall boys: 2 (20%)

Blue and/or Green Rubbermaid slim jims: 10 (100%)

Square SafeCo recycling bins: 4 (40%)

Tall white cardboard can boxes: 0 (0%)

Individual desk-sized paper bins: 4 (40%)

Otto totes with lids: 3 (30%)

Other (please specify):

- lots of different bins

7. Approximately how many recycling bins are in your facility? [10 responses]

0-10: 2 (20%)

11-30: 1 (10%)

31-50: 5 (50%)

51-75: 2 (20%)

8. Approximately how much material does your facility recycle in an average week (during the academic year)? [7 responses]

1 tote: 0 (0%)

2 totes: 0 (0%)

3-5 totes: 3 (42.9%)

6-8 totes: 1 (14.3%)

9-12 totes: 3 (42.9%)

Comments:

- how much is a tote?
- What is a "tote"? We recycle about 8-10 35 gallon containers per week.

9. Where are the recycling bins located? (choose all that apply) [10 responses]

Outdoor receptacles for pick-up only: 6 (60%)

Hallways: 4 (40%)

Dining Halls: 2 (20%)

Common Areas (entrance, lobby, atrium): 10 (100%)

Lounges: 7 (70%)

Offices: 6 (60%)

Kitchens: 0 (0%)

Individual rooms or apartments: 2 (20%)

Trash rooms: 4 (40%)

Mail rooms: 1 (10%)

Other (please specify):

- Common Area Bathrooms on residential floors
- There are recycle bins in some of the offices. Our students and staff would like to see these bins in every room.
- center desks

10. Do you have any additional comments, suggestions, or information about recycling in your building or in general?

- We have lots of places for students to do it, but not nearly as many do as we would like.

- We need bigger bins, more frequent pick-up, and recycling in our Dining Halls too! Traditional, Hoosier Cafe, & El Bistro should all have their own recycling bins in their units. Our residents recycle very frequently & the more options they have, the more likely they will be to continue to do it on a regular basis.
- Overall, our students and staff have expressed concern about the amount of plastic items that are disposed of in the Eigenmann Eatery and coffee shop given that these are "take and go" eating facilities. They are frustrated that there are also not more recycling bins in common spaces or even a paper recycle bin in each of the rooms. It would also be great to see some facility upgrades that work to make our halls more sustainable such as automatic lighting and faucets.
- This is great! thanks for doing this. I'm so excited about the recycling projects that we are doing in Foster and around the campus.
- I think that every student should be allowed to purchase recycle bins in all of the residence halls.

## Appendix C—RPS Recycling Guide

# How to Recycle in Your Residence Hall

There are containers on every floor in every residence hall for recyclables!

*You may recycle...*

### Recyclable mixed paper

Junk mail  
Envelopes  
Paper bags  
White paper  
Post-it notes  
Colored paper  
Wrapping paper  
Magazines and glossies  
Paper towels and plates  
Brochures and pamphlets  
Cereal boxes and paperboard cartons

### Newspaper and other recyclable paper

Newspaper  
Newsprint catalogs  
Telephone books (bag separately and place in paper recycling)

Corrugated cardboard and pizza boxes must be recycled at dining outlet docks in cardboard-only bins.

### Recyclable plastic containers

Plastics 1-7

### Recyclable metal/glass containers

Tin cans  
Steel cans  
Aluminum foil  
Aluminum cans  
Glass bottles

**You may also recycle:**

- Any light bulb or light tube may be given to a member of the Environmental Operations custodial staff for recycling.
- Printer toner cartridges and household batteries can be recycled in main lobby/center desk area.
- End of Year collection sites are in every center during the final three weeks of the spring semester for any household items, clothing, shoes, electronics, and non-perishable food. All is donated to local Monroe county organizations.

*You may NOT recycle...*

Blueprints  
Carbon paper  
Styrofoam items  
Hardcover books  
Soiled or wet paper  
Cardboard egg cartons  
Wax board microwave boxes



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