

Sustainability Report

2010 Men's Final Four Basketball Tournament



Practices & Lessons Learned

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Executive Summary

The following is a summary of the sustainability activities at the 2010 NCAA Men's Final Four Basketball tournament held in Indianapolis, Indiana. At any given time, more than 100,000 visitors attended a variety of games, events and concerts at several venues in downtown Indianapolis from April 2-5, 2010.

The local organizing committee established a 'Sustainability Committee' to conduct a variety of events, initiatives and programs to increase the environmental performance of the event. The committee comprised of volunteers from over 20 organizations.

These events included the following:

- Volunteers were asked to sign pledge cards which committed them to perform green activities during the event and continuing on a daily basis. A list of 25 ideas was provided and volunteers were required to check off 10 items and sign the pledge before receiving their volunteer uniforms.
- Volunteers were asked to donate clothing items in exchange for their volunteer t-shirts, hats and jackets. In addition, volunteers were encouraged to bring in their used electronic devices (TVs, VCRs, PDAs, computers, monitors, etc) to one of four collection events held in the parking lots of the orientation meeting location.
- Attempts were made to lease hybrid or flexible fuel fleet vehicles during the event.
- A tree planting event was held at a local park
- Excess food from special events, receptions and staff functions was donated to Second Helpings, a local food bank
- Volunteers and participants were encouraged to donate sporting goods and equipment for donation to local youth organizations and schools
- 'Middleschool Madness' involved a challenge to local schools to collect soda can tops
- Sport Graphics, the local company which fabricated all the large signage and banners took back all of the signs for reuse to make tents and canopies.

The following results can be attributed to these events:

- 74% of the 1,870 event volunteers signed 'Green Pledge Cards'
- 273 garments were donated under the 'Zero Variance Shirt' program
- 11,850 lbs of electronics were collected from volunteers at 4 events
- 13 of 66 leased vehicles were hybrids
- A hybrid bus, hybrid and flexible fuel fleet vehicles were used
- 20 trees were planted at Martin Luther King Park
- 1,250 lbs of excess food was donated to a local food bank
- 1,128 sporting goods were collected and donated to local youth organizations
- 300,000 soda can tops were collected and recycled by local middle schools
- Sport Graphics, the local company which fabricated all the large signage and banners, took back all of the signs to be made into bags and other items for resale.

The local organizing committee further sought to expand upon sustainability efforts by developing and implementing a recycling strategy for aluminum, glass, plastic and cardboard generated during the event. Detailed information about this effort can be found in Section 1. Recycling collections for cardboard and beverage containers were enhanced at the following locations:

- Lucas Oil Stadium during practices and games
- Indiana Convention Center during the ‘Bracket Town’ event
- White River State Park during concert events
- High traffic pedestrian areas in the vicinity of venues
- Four ‘Team Restaurants’
- Twelve downtown hotels

Over **32 tons of clean, marketable recyclables were collected and recycled** from these target areas during the event weekend, as detailed in Table 1.

Material	Recycled (tons)
Cardboard	20.1
Aluminum Cans	0.9
Glass Bottles	1.7
Paper	2.3
Plastic Bottles	1.0
Mixed single stream	6.4
<i>Total</i>	32.4

Table 1. Event recycling totals broken down by commodity.

An EPA model was used to calculate the total metric tons of carbon equivalent (MTCE) saved through recycling efforts. The analysis showed that approximately **24 MTCE was saved by recycling** rather than incinerating the materials collected. **24 MTCE** is equivalent to the CO₂ emissions from the **consumption of 9,912 gallons of gasoline or the emissions generated by the electricity use of 10 homes for 1 year.**

Another analysis showed that the 11,850 pounds of electronics collected will result in energy savings equal to **the amount of electricity used to power 10 homes for 1 year.** Recycling these electronics waste also **saved over 23 metric tons of air emissions.**

It is hoped that in addition to sharing information about the sustainability efforts at the 2010 NCAA Men’s Final Four Basketball tournament, that the successes, areas for improvement, and recommendations documented in this report will serve as a roadmap for future greening activities at similar athletic tournament events.

I. SUSTAINABILITY ACTIVITIES

A. VOLUNTEER INITIATIVES

The Green Team is an initiative in which volunteers were encouraged to evaluate their current environmental practices, pledge to make simple changes, and assist with environmental initiatives at the event. Volunteers were asked to sign a ‘Green Pledge’ at the orientation sessions, committing to perform ten or more actions or behavior changes to positively impact the environment (see Appendix A). Survey results showed that 74% of the volunteers joined the Green Team. “Green Volunteers” were issued a pin to wear as part of their uniform, and the program helped to build awareness of greening efforts. A survey was sent out to all volunteers to evaluate the effectiveness of the Green Team program (see results in Appendix H).

As part of the volunteer initiative, two special recycling opportunities were deployed:

- Reduce, Re-use, Recycle. In support of this concept, volunteers were offered the opportunity to trade in a gently used shirt and/or jacket in exchange for their Final Four volunteer uniform. The used clothing was collected at volunteer orientation and re-distributed to people in need. Volunteers turned in 273 shirts/jackets.
- In coordination with the 4 volunteer orientation events, a convenient drive-thru recycling drop-off lane was set up for electronic equipment (see Photo 1). Volunteers dropped off used electronics on their way to orientation sessions. In total, 11,850 pounds of electronics were collected. Workforce, Inc. of Indianapolis was partnered with to manage collection operations. As an Indiana Registered recycler, Workforce, Inc. recovers electronic components for reuse.



Photo 1. Volunteers dropping off electronic goods for recycling.

The U.S. EPA Electronics Environmental Benefits Calculator (see details in Appendix I) was utilized to estimate the environmental benefits of electronics recovery. The analysis showed that the 11,850 pounds (5,386 kilograms) of electronics collected will result in energy savings equal to **the amount of electricity used to power 10 homes for 1 year**. Recycling these electronics waste also **saved over 23 metric tons of air emissions**.

B. ALTERNATIVE VEHICLES

The transportation provider utilized a hybrid bus (see Photo 2) in the official shuttle system. In addition, 13 of the 63 courtesy vehicles were hybrid or flexible fuel vehicles. A summary of alternative vehicle usage is found in Table 2.

Vehicle Type	Number	Miles Driven
Hybrid bus	1	100
Hybrid cars	8	2454
Flexible fuel cars	5	592

Table 2. Alternative fuel vehicle usage during the event.



Photo 2. Hybrid bus used for transportation.

C. TREE PLANTING

A partnership was formed with Keep Indianapolis Beautiful, Inc. to host a tree planting event. In coordination with the annual celebration which commemorated a speech given by Senator Robert F. Kennedy upon Martin Luther King's death, 20 trees were planted at Martin Luther King Park (see Photo 3). Funding for the trees was provided by United Water and NCAA membership services. The children involved with Keep Indianapolis Beautiful will care for the trees for next 2 years to ensure their survival. Over 300 people attended the event.



Photo 3. Tree planting at MLK Park.

D. FOOD DONATION

Second Helpings, Inc. accepts donated perishable and overstocked food to prepare and distributes meals to hungry children and adults in Greater Indianapolis. Second Helpings worked with more than 10 venues and 30 catered events to collect over 1,250 pounds of excess and unserved food. The donated food became part of the 2,900 meals that Second Helpings sends out daily to local service agencies such as the Wheeler Mission, Dayspring Family Shelter, Mary Rigg Community Center, and 50 other local service agencies.

E. SPORTING GOODS DONATION

Republic Services, Inc., Marsh Supermarkets and the Community Health Network Foundation partnered with the local organizing committee to organize the “Geared for Health” program. This program collects new and gently used donated sports equipment and distributes it to not-for-profit, youth-serving organizations, sports leagues and sports clubs. Collection sites included Wilson Sporting Goods, NCAA National Office & Distribution Center, Final Four Friday, Bracket Town, Final Four Dribble and the 3 V 3 Basketball Tournament held at the local participating YMCAs. The collection sites produced over 1,128 equipment items for donation.



Photo 4. Basketballs from the Dribble Event were donated.

F. MIDDLESCHOOL MADNESS

The Middle School Madness education program included a curriculum on the ‘three R’s’ (Reduce, Reuse, Recycle). A recycling contest was held at three schools. Classrooms at these schools competed to see which class could collect the most can tops. It is estimated that over 300,000 tabs were collected (see Photo 5). The tabs were donated to the Ronald McDonald House, and the cans themselves were collected in recycling bins at the schools.

U.S. EPA Region 5 also donated 1,000 copies of the Lorax Activity Book for kids. Children were able to use these booklets and complete exercises about protecting the earth at the Basketball Dribble. Youth Clinic participants also received the booklets. The Dribble activated other green initiatives including having the kids create a chain at the start line which had messages about greening on each link.



Photo 5. Pop-tops collected from schools.

G. MATERIALS REUSE

In an effort to reduce waste, most all signage and banners (see Photos 6 & 7) produced for the event was resold or will be reused. 392 sets of street banners were either sold at the post-event sale or provided as gifts. These banners will likely be used as souvenir décor in offices and homes. Additionally, 1000 feet of decorative mesh used to block views along construction fences will be reused at future events. Sport Graphics, the local company which fabricated the large decor elements throughout the City, took back all of the signs for reuse to make tents and canopies. Approximately 185,000 square feet of vinyl banner will be reused.



Photos 6 and 7. Large banners on stadium were sold or reused, and the vinyl material which went into the large banners, such as the one on Indiana Sports Corporation Headquarters building, will be reused

II. RECYCLING ACTIVITIES

A. PLANNING

The local organizing committee sought to expand upon “sustainability” efforts by developing and implementing a recycling strategy for external sites such as hotels, restaurants and certain high traffic pedestrian areas. Two detailed recycling plans were developed by a recycling committee consisting of representatives from the Indiana Sports Corporation, Indiana Recycling Coalition, Indianapolis Department of Public Works, Coca-Cola Recycling (an NCAA corporate partner), Republic Services, Ray’s Trash Service, Strategic Materials, Waste Management, Indiana Recycled Fiber, August Mack Environmental, and U.S. EPA Region 5.

The following tasks were undertaken prior to the event:

1. A draft recycling plan for target hotels and restaurants was circulated for review by the sustainability committee on February 18th.
2. Site visits were made to target restaurants and hotels to assess current existing waste management and recycling activities on February 26th. The general manager and/or engineering director of the target sites were contacted in person to discuss the plan.
3. A meeting was held on March 12th to discuss the plan and confirm the participation of waste haulers serving the target hotels, venues and restaurants. The plan (see Appendix B) was finalized and distributed to partners on March 23rd.
4. A meeting was held on March 26th to develop a separate plan for recycling collection in high traffic pedestrian areas. The plan (see Appendix C) was distributed on March 31st.

B. OUTREACH & EDUCATION

The following tasks were conducted to ensure participation:

1. An instruction sheet was developed for target hotels and restaurants (see Appendix D). Return site visits were made to target sites on March 26th to confirm participation and distribute the instructions along with a sample blue recycling bag.
2. Mobile recycling team representatives visited all target sites on April 1st to distribute signage and blue bags. Details and logistics of the recycling plan were confirmed with shift managers and operations personnel. Signage was provided for the reception areas to make customers aware of the program and in dock areas for staff (see Appendix E). If the facility had an existing recycling program, staff were not asked to modify existing recycling procedures or use blue bags.
3. Throughout the weekend, shift supervisors, floor stewards, and individual staff were contacted individually to answer questions, provide instructions, and confirm understanding of recycling procedures.
4. Close contact was maintained with Indianapolis DPW crew managers and Coca-Cola Recycling personnel to ensure that street recycling containers and liners were maintained over the course of the weekend.
5. A press release was issued by EPA Region 5 to publicize the recycling effort (see Appendix F).

C. COLLECTIONS

Collection operations were conducted by a mobile recycling team consisting of EPA Region 5 and Indiana Recycling Coalition staff. All volunteers wore green t-shirts (made from recycled PET bottles) with the recycling logo on the back.



Photo 8. Mobile recycling team (left to right): Paul Ruesch (EPA), Rebecca Geyer (EPA), Don Brown (IRC), Katie Graham (IRC), and Jacob Hassan (EPA).

Volunteers not pictured include Mark Root (Coca-Cola Recycling), Brooke Shroeder, Stephanie Wendle and Katie Wiggs (IUPUI students).

Ray's Trash Service, Republic Services, and Waste Management provided empty 30 yard open-top containers along with transportation and recycling services. Full containers were hauled away and empty containers were placed immediately thereafter to ensure that collection crews always had staging for blue bags and cardboard collected from target sites (see Photo 9). The staging area was located in the southwestern corner of the Indiana Convention Center loading dock area out of the way of truck and bus traffic.



Photo 9. Republic Services dropping off 30 yard roll-off container for recyclables.

Collection crews recovered blue bags from participating sites on a continual basis (see Photo 10) to ensure that blue bags or cardboard did not build up on loading docks or alleys. The collected materials were transported to the staging area where the individual bags were weighed and logged prior to loading into the open-top container (see Photo 11).



Photo 10. Volunteer loading pick-up truck with blue recycling bags.



Photo 11. Log sheet and scale next to container.

The source location, time and weight of all incoming bags were logged. This enabled crews to identify trends which assisted in scheduling of collection rounds. It also allowed for detailed accounting of recyclables collected to facilitate reporting and greenhouse gas benefit calculations.



Photo 12. Unloading cardboard from collection vehicle into open-top container.

Volunteers continued outreach and education efforts to target sites on April 2nd and 3rd as shifts changed to ensure new staff and managers were aware in the change in waste handling operations to facilitate the recycling. Additional blue bags were distributed upon request. Different sizes of bags were used depending on the container being utilized by the facility. In most cases, existing garbage containers were utilized with signage to ensure recyclables only were placed in the containers. Volunteers canvassed the facilities to ensure the correct signage indicated the location of the recycling containers.



Photos 13 & 14. Blue bags set out at a hotel and restaurant for collection.

Several participating hotels and restaurants dedicated significant staff resources to the recycling effort. For example, operations staff at the Omni Severin Hotel, which collected over 3,500 lbs of aluminum cans, glass bottles, plastic containers, and cardboard, was dedicated to sorting each and every bag of trash coming from the hotel (see Photos 15 & 16).



Photos 15 & 16. Operations staff at the Omni Severin Hotel separating recyclables.

Coca-Cola Recycling donated temporary recycling bins to Scotty's Brewhouse for use on the outdoor patio area. The containers were placed alongside temporary garbage boxes (see Photo 17) and were maintained by the mobile recycling team.



Figure 17. Temporary recycling bins placed alongside garbage containers on outdoor patio.

During peak times when restaurant staff were busy, the mobile recycling team directly assisted by breaking down of cardboard boxes (Photo 18) and emptying of recycling containers in high traffic areas such as patios and loading docks.



Photo 18. Mobile recycling team assisting with breaking down cardboard boxes.

In high traffic pedestrian areas, which included sidewalks around the Lucas Oil Stadium, Indiana Convention Center, and roadways leading to/from the White River State park, 55 gallon recycling containers provided by Coca-Cola Recycling were placed alongside garbage containers placed by Indianapolis DPW (see Photo 19). The locations of these containers were confirmed and mapped by volunteers so that collection crews could ensure they were serviced.. Recycling bins were also placed alongside garbage containers inside the White River State Park during the ‘Big Dance’ Concert Series, at which over 130,000 fans attended.



Photo 19. Recycling bins set up alongside Toter garbage containers on sidewalks.

The ‘Bracket Town’ event at the Indiana Convention Center drew nearly 60,000 visitors over the 5-day event. Recycling boxes were staged alongside every garbage container (see Photo 20) in the convention center during the event. Janitorial crews collected and consolidated recyclables and transported them to the recycling compactor serviced by Republic Services.



Photo 20. Recycling bins placed alongside garbage containers inside the Indiana Convention Center.

Coca-Cola staged several free sampling events over the course of the weekend. During these sampling events, 12 ounce aluminum cans or PET bottles of product were poured into 3.5 ounce sampling cups for distribution. Recycling containers were placed in the immediate vicinity of these sampling stations (see Photo 21) to capture the plastic cups. The cardboard trays, plastic wrapping, and aluminum cans were collected by Coca-Cola Recycling staff and shipped back to the distribution warehouse for recycling (see Photo 22).



Photo 21. Recycling bins placed alongside free product sampling station in front of stadium.



Photo 22. Bags of empty containers inside semi-trailer to be hauled back to distribution center.

Finally, existing recycling bins (approximately 150) inside the Lucas Oil Stadium were utilized to capture beverage containers (see Photo 23). Approximately 45,000 fans attended open practices at the stadium and over 142,000 fans attended the games. No alcoholic beverages were sold during the event and the only beverages were sold in either cups or PET bottles. The containers were provided by Coca-Cola Recycling and were serviced by janitorial crews which transported recyclables to a recycling compactor serviced by Republic Services. In addition, over 400 local Boy Scouts assisted in the distribution of seat cushions at the stadium on April 1st and 2nd. These cushions came in cardboard boxes which were all recovered for recycling.



Photo 23. Recycling bins placed inside stadium during practices and games.

D. RESULTS

All recycling bins, semi-trailers, compactors, and open-top containers were removed by April 6th and transported to local sorting centers. Prior to the event, haulers were alerted to the need to provide weights and accounting for the recyclables. All numbers were provided to the mobile recycling team by April 16th. Over **32 tons of clean, marketable recyclables were collected and recycled** during the event weekend, as detailed in the following tables:

Material	Recycled (tons)
Cardboard	20.1
Aluminum Cans	0.9
Glass Bottles	1.7
Paper	2.3
Plastic Bottles	1.0
Mixed single stream	6.4
Total	32.4

Table 3. Event recycling totals broken down by commodity.

Restaurant	Bags	WT (lbs)
RAM	29	670
Scotty's	31	323
BW3	7	125
Weber Grill	2	64
Champps	2	40
Total	71	1222

Table 4. Collection data from participating restaurants.

Hotel	Bags	WT (lbs)
Omni Severin	82	1481
Crowne Plaza	25	434
Hilton	18	206
Wyndham Airport	2	56
Total	127	2177

Table 5. Collection data from participating hotels.

LOCATION	WT (tons)
Lucas Oil Stadium	8.51
Indianapolis Convention Center	0.78
Street containers	0.124
Restaurants & hotels - collections	4.52
Hotels – existing containers	18.44
Total	32.374

Table 6. Collection data from major event locations.

EPA's Waste Reduction Model (WARM) was used to calculate the total metric tons of carbon equivalent (MTCE) saved through recycling efforts. The analysis showed that approximately **24 MTCE was saved by recycling** rather than incinerating the materials collected. **24 MTCE** is equivalent to the CO₂ emissions from the **consumption of 9,912 gallons of gasoline or the emissions generated by the electricity use of 10 homes for 1 year.**

E. LESSONS LEARNED & RECOMMENDATIONS

During the event, recycling staff made notes and met periodically to discuss strategy and implementation issues. In addition, a post-event debrief meeting was held with partners and waste haulers to evaluate the event, discuss issues and suggest improvements on May 6th. The following lessons learned and recommendations may be helpful in planning future events.

Planning

- Planning should begin when overall event planning starts with host committee and venue management to define roles and to clarify expectations for recycling. Planning with individual target sites and waste haulers should begin at least 4 months prior to the event.
- A volunteer strategy should be developed so that event planners can source and allocated volunteers to the recycling effort.
- Waste reduction and recycling information should be included in preliminary marketing information sent to exhibitors participating in the 'Bracket Town' event.
- In person follow-up with as many staff, supervisors, and managers involved in working the event (i.e., floor stewards, kitchen managers, trade workers, dock supervisors, janitors, security, DPW crews, etc.) before the event starts is critical. Once the event begins, these individuals cannot be distracted from their jobs. Also, it was necessary to brief each shift manager, as many times there is little communication between shifts, and the facility may change over as many as three times over a 24-hour period.
- Many large hotels have existing 'green teams.' If possible, recycling committee staff should attend one of their meetings prior to the event to discuss the plan and solicit input.
- An orientation or training should be held for recycling volunteers to make sure they are aware of the overall plan, recycling procedures, safety and scheduling.
- Waste haulers for all target sites should be contacted well in advance and notified that accounting for both trash and recycling containers will need to be provided during the event. Accounting should begin the week prior to the event to obtain a baseline.
- The greening and recycling efforts should be publicized either via the Daily Bulletin distributed by NCAA or a press release prior to the event.
- The use of clothing that utilizes recycled material should be considered for the volunteer uniforms.
- The 2010 results should be promoted in 2011 along with a challenge to improve.
- Either an incentive (beyond green marketing) or target goals should be considered for hotels and restaurants participating in the collections.
- A post-event meeting should be held with all partners and waste haulers to evaluate the event, discuss issues and suggest improvements.

Collections

- All recycling staff should wear high visibility reflective vests, gloves and eye protection. They should have cell phones or two-way radios for easy communications and carry box cutters to assist with breaking down cardboard. They should also have rain gear available in the event of inclement weather. All collection vehicles should be easily identified with door signs and flashers and should contain a first aid kit.
- Green t-shirts with a recycling logo and the words "ASK ME" worked well to identify and highlight volunteers.
- Phone numbers for all participating waste hauler dispatchers should be obtained to check on the status and confirm drop-off and pick-up of containers on off hours and weekends.

- Collection crews must arrive prior to very early morning garbage removal by trucks to avoid disposal of blue bags. Many garbage crews claimed to be under instructions from the local Board of Health to remove all materials from staging areas, including blue bags or cardboard staged alongside garbage bins, to comply with sanitation standards.
- A targeted effort should be made during set-up activities for 'Bracket Town' at the ICC to break down and recycle cardboard.
- Downtown areas should be avoided completely two hours prior and after any practice or game at the stadium for safety and traffic congestion reasons.
- The 55 gallon street containers when empty were susceptible to blowing over during high winds. In addition to securing the lids, the containers should be weighed down to prevent them from blowing over during storms. In addition, extra blue liners should be placed at the bottom of the container to facilitate easy replacement during peak times.
- Cardboard recycling bins in the ICC would benefit from additional instructions on the lids to prevent contamination from food, plastic flatware, and other non-recyclable items.
- Signage should be placed in any areas where materials for recycling are being staged or stored to prevent anyone from confusing the material with trash. In one case, materials staged inside a semi-trailer were disposed of by a dock worker who thought they were helping clear the area around the trailer of garbage.
- The black lids on the street containers are necessary as during peak times, the crowd density is such that one cannot see the side of the container (see Photo 24).



Photo 24. Dense crowds on the streets outside the stadium made bin signage difficult to see.

- Homeland Security crews should be consulted prior to placement of recycling bins on or near the stadium property. These areas may be under increased security.
- All new shift managers should be contacted at the beginning of their shift to reiterate recycling plans and collection procedures to ensure a clear understanding of roles and expectations. Most garbage removal by DPW crews occurs during the night shift, so a mobile recycling team member should meet the crew to receive blue bags or a clearly marked area should be designated so they can be logged (see Photo 25).
- Consideration should be given to collection of athletic shoes during the sporting goods donation event(s). Several programs exist for shoes where they are donated overseas.



Photos 25 & 26. Designated area for blue bag staging and signage on collection container.

- Signage must be placed on the open-top container to prevent disposal of unwanted materials in the bin (see Photo 26). Safety cones should be placed near the back of the bin so that the area is not blocked and the rear door can swing open (see Photo 25).
- If open-top containers are used, crews should have heavy-duty tarps and strap-downs readily available in the event of a storm to protect the cardboard from getting wet (see Photo 27). In addition, pallets should be placed down prior to cardboard placement to prevent it from getting wet in the event the container fills with water.



Photo 27. Tarp deployed to protect cardboard during rainstorm.

- In most cases, recovery and recycling of cardboard and beverage containers saved significant space in existing dumpsters, making it easier for facilities to manage waste during the peak periods of the event.
- During seat cushion unpacking and distribution in Lucas Oil Stadium, the open-top container filled quickly, and boxes needed to be placed on skids for removal. Additional containers should be made available in the future in the event containers are overwhelmed.

- Improved and consistent messaging placed directly on the recycling bins is essential to reduce contamination. For example, Coca-Cola Recycling utilizes the ‘Give It Back’ message on recycling bins. Volunteers need to be ready to replace or modify messaging as the need arises and potential contaminants change. Signage should be in both English and Spanish (see Photo 28).



Photo 28. Recycling signage in both English and Spanish.

For Additional Information

For additional details or questions, please contact any of the individuals listed below:

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Appendix A

Volunteer Green Pledge Card



Join the Green Team



Dear Final Four Volunteer,

You may not be personally lacing up your sneakers and taking the floor with your team during the 2010 NCAA® Men's Final Four®, but you do have a chance to play a key role on another team that is part of March Madness. It's the Green Team. **And we want you on it!**

The Green Team is an initiative which encourages volunteers to evaluate their current environmental practices, pledge to make simple changes and assist with the environmental initiatives at the Final Four. In sports, a key team member is called a "difference-maker". By completing the Green Pledge Card and joining the Green Team, you will be a difference-maker and someone who will make a significant contribution to make the Final Four in Indianapolis a greener event, and someone who makes a difference in our world when it comes to sustainability and our environment!

How to join

1. Complete and sign the enclosed Green Pledge card, committing to perform ten or more actions or behavior changes which will positively impact the environment.
2. Submit your Green Pledge Card at one of the volunteer orientation sessions taking place March 18, 21, 22 and 23rd at the University Place Conference Center at IUPUI.
3. Upon signing up, Green Team members will receive a special environmental Final Four pin to be worn as an official part of your volunteer uniform. The wearing of this pin will be a visual sign to Final Four visitors that Indianapolis is a city that cares about the environment, and that you as a volunteer are taking steps to make a difference.
4. Completion of Green Team pledges is on the honor system, but a follow-up questionnaire will be sent to Green Team members to assist in measuring the success of this program.
5. If successful, the Indiana Sports Corporation may implement the program in subsequent events, giving volunteers an opportunity to collect a set of green volunteer pins.

Special Opportunities for Green Team members

1. **Electronic recycling program**

In coordination with Final Four volunteer orientation, a convenient drive-thru recycling drop-off lane will be set-up. The drop-off location will be at the circular drive in front of the main University Place Conference Center entrance off of W. North Street. We recommend that you arrive at the recycling location one full hour prior to volunteer orientation. The drive-thru recycling lane will remain open for one hour after the start time of volunteer orientation for family, friends and colleagues. Here is the electronic recycling / volunteer orientation schedule:

<u>Date</u>	<u>Volunteer Recycling</u>	<u>Friends/Family Recycling</u>	<u>Volunteer Orientation</u>
3/18	5:30 pm – 6:15 pm	6:30 pm – 7:30 pm	6:30 pm – 8:00 pm
3/21	4:30 pm – 5:15 pm	5:30 pm – 6:30 pm	5:30 pm – 7:00 pm
3/22	5:30 pm – 6:15 pm	6:30 pm – 7:30 pm	6:30 pm – 8:00 pm
3/23	5:30 pm – 6:15 pm	6:30 pm – 7:30 pm	6:30 pm – 8:00 pm

Electronic devices collected are basically anything that you can plug in (computers, laptops, printers, game systems, fax machines, VCRs, microwave ovens, motors, vacuum cleaners, radios, toasters, telephones, cell phones, etc.). Television sets will also be collected for a \$10 fee.

Workforce, Inc. has agreed to assist the Final Four in recycling the electronic equipment. As an Indiana Registered recycler, the Workforce team will recover components from the electronic waste to be re-used in industry.

2. **Zero-variance volunteer uniform program**

Reduce, Re-use, Recycle. In support of this concept, volunteers are offered the opportunity to trade in a gently used shirt and/or jacket in exchange for their Final Four volunteer uniform. The used clothing will be collected at volunteer orientation and re-distributed to people in need.



Green Pledge Card



I, _____, a volunteer for the 2010 NCAA® Men's Final Four®, agree to perform **ten or more** items, as indicated by a check mark below, as my part to help make the Final Four a greener event and to positively impact the environment on a daily basis.

Specific volunteer activities

- I will participate in the volunteer electronics recycling program by bringing used electronic equipment (see explanation above) to volunteer orientation for recycling.
- I will participate in the zero-variance volunteer uniform program. In exchange for receiving a Final Four volunteer uniform, I will bring a gently used shirt and/or jacket to volunteer orientation for re-distribution.
- I will bring a reusable bag to collect my volunteer uniform.
- I will ride the bus, walk, bike, or carpool to volunteer orientation and/or to my volunteer shifts.
- I will bring my own water bottle to use while volunteering.
- I will actively assist in recycling at the Final Four (e.g., help others use proper recycling containers and assist as needed to ensure that waste is recycled).

Behavioral changes at home

- I will begin or increase the recycling I do at home and find creative ways to reuse products that would otherwise be thrown in the garbage. Go to <http://www.Earth911.com> for ideas.
- I will change my thermostat settings to conserve energy.
- I will install compact fluorescent light bulbs in my home.
- I will activate a new transportation behavior (e.g., walk to work on Fridays, have kids ride the bus to school, carpool to the grocery store with a neighbor, etc.).
- I will change my dietary habits (e.g., add one meatless meal a week, buy locally raised, humane, and organic meat, eggs and dairy).
- I will stop buying bottled water (e.g., install a water filter at home, carry own BPA-free water bottle).
- I will change a buying habit (e.g., obtain secondhand products from craigslist, FreeSharing, garage sales, consignment shops, thrift stores or trade with friends).
- I will wash clothes in cold water, use a drying rack and/or wear clothes that don't need to be dry cleaned.
- I will change shower/hygiene behavior (e.g., take shorter showers, turn water off while shaving, install a low-flow shower head).
- I will take a measure to better insulate my home.
- I will start a sharing program with my neighbors for power tools and other appliances.
- I will compost kitchen scraps and/or yard waste.

Other activities

- I will donate used clothes to an organization.
- I will use the library or used book store instead of buying new books.
- I will plant and care for a tree.
- I will lobby my government to increase spending on sidewalks and bike lanes.
- I will work with a senior, neighbor, school or others to activate any of the above practices.
- Write-in a practice _____
- Write-in a practice _____

Volunteer Signature _____

Date _____

Appendix B

Recycling Plan – External Sites

Recycling at Supporting Sites
2010 Men's Final Four - Indianapolis
Work Plan
3/31/10

Overview

The 2010 Men's Final Four event will bring many visitors to downtown Indianapolis that will generate additional amounts of solid waste, much of which can be recycled. Many visitors will be lodging, eating and visiting local hotels and restaurants. The local organizing committee will maximize recycling at the principal event locations in Table 1. A recycling team has been established by the LOC to work with businesses (found in Tables 2 & 3 and Figures 2, 3 & 3A) to enhance existing recycling programs during the event weekend (April 2-5th). The objective of the project is to enhance and document quantities of recyclables collected for metals, glass, cardboard and paper at these sites.

Approach

The team contacted target sites to evaluate current solid waste/recycling management and identify opportunities for enhanced collection efforts. Simple instructions were provided to participating target sites during follow-up visits to explain how the enhanced collections will work. The proposed approach is to distribute simple instructions and signage to target sites prior to the event. Blue colored plastic liners will be the day prior to the event for collecting cans/bottles inside the target sites. Cardboard will either be integrated into existing containers or collected by crews. Additional containers will be placed in the vicinity of target venues to collect cans/bottles. Coca-Cola Recycling (an NCAA corporate partner), will provide additional bins as needed. During the event weekend, volunteers will make continuous rounds to target sites to train staff, ensure containers are in place and collections are underway, and conduct pick-ups. Roll-off containers will be staged in the loading dock area at the Indianapolis Convention Center for collected materials according the schedule in Table 6. The collected recyclables will be transferred to the respective sorting facilities. A final accounting of materials collected will be assembled in cooperation with haulers/recyclers. A final report will be prepared by the team.

Workplan

- Task 1: Conduct assessments of target sites/meet with manager to discuss objectives
- Task 2: Develop draft plan and discuss with haulers, recyclers (see Table 5)
- Task 3: Finalize plan and develop instructions for participating target sites
- Task 4: Conduct follow-up visits to participating target sites and explain procedures
- Task 5: Conduct site visits during the event to train staff and confirm participation
- Task 6: Assemble and report data on recyclables collected

A timeline for these tasks is found in Table 4.

Table 1. Target Event Sites

Site	Name
1	Lucas Oil Stadium
2	Indiana Convention Center
3	White River State Park
4	IUPUI University Place Conference Center

Table 2. Target Restaurants

Site	Name
3	Scotty's Brewhouse
4	RAM Restaurant & Brewery
5	Champps
6	Buffalo Wild Wings

Figure 2. Target Restaurants and Main Event Sites



Table 3. Target Hotels

Site	Name
1	Westin
2	Indianapolis Marriot Downtown
3	Courtyard Downtown
4	Conrad Indianapolis
5	Omni Severin
6	Sheraton City Centre
7	Hilton Indianapolis
8	Crowne Plaza Union Station
9	Hyatt Regency
10	Embassy Suites Downtown
11	University Place
12	Hampton Inn Downtown
13	Hilton Garden Inn Downtown
14	Fairfield Inn & Suites Downtown
15	Springhill Suites Downtown
16	Comfort Suites City Centre
17	Holiday Inn Express & Suites City Centre
18	Staybridge Suites Downtown
19	Courtyard Capitol
20	Canterbury Hotel
21	Homewood Suites
22	Columbia Club
23	Residence Inn
24	Candlewood Suites City Centre
25	Marriot East
26	Holiday Inn North
27	Sheraton & Suites
28	Wyndham
29	Ramada I-70 East
30	Radisson Airport
31	Crowne Plaza Airport
32	Courtyard Airport
33	Wingate by Wyndham
34	Ramada Airport
35	La Quinta Inn East
36	Fairfield Inn & Suites East
37	Hyatt Place Airport
38	Fairfield Inn Airport

Figure 3. Regional Map of Target Hotels

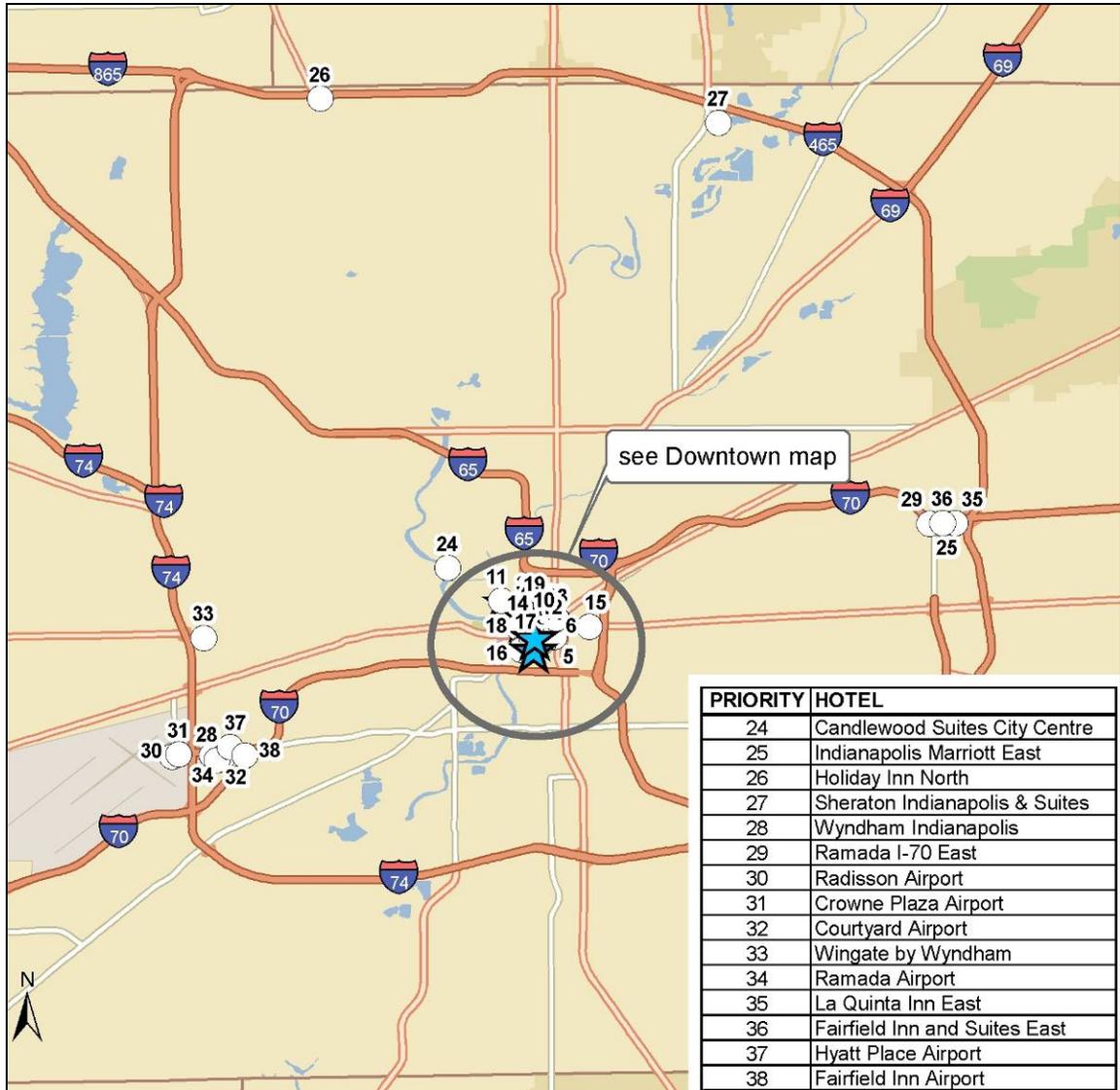


Figure 3A. Target Hotels and Event Sites in Downtown Indianapolis

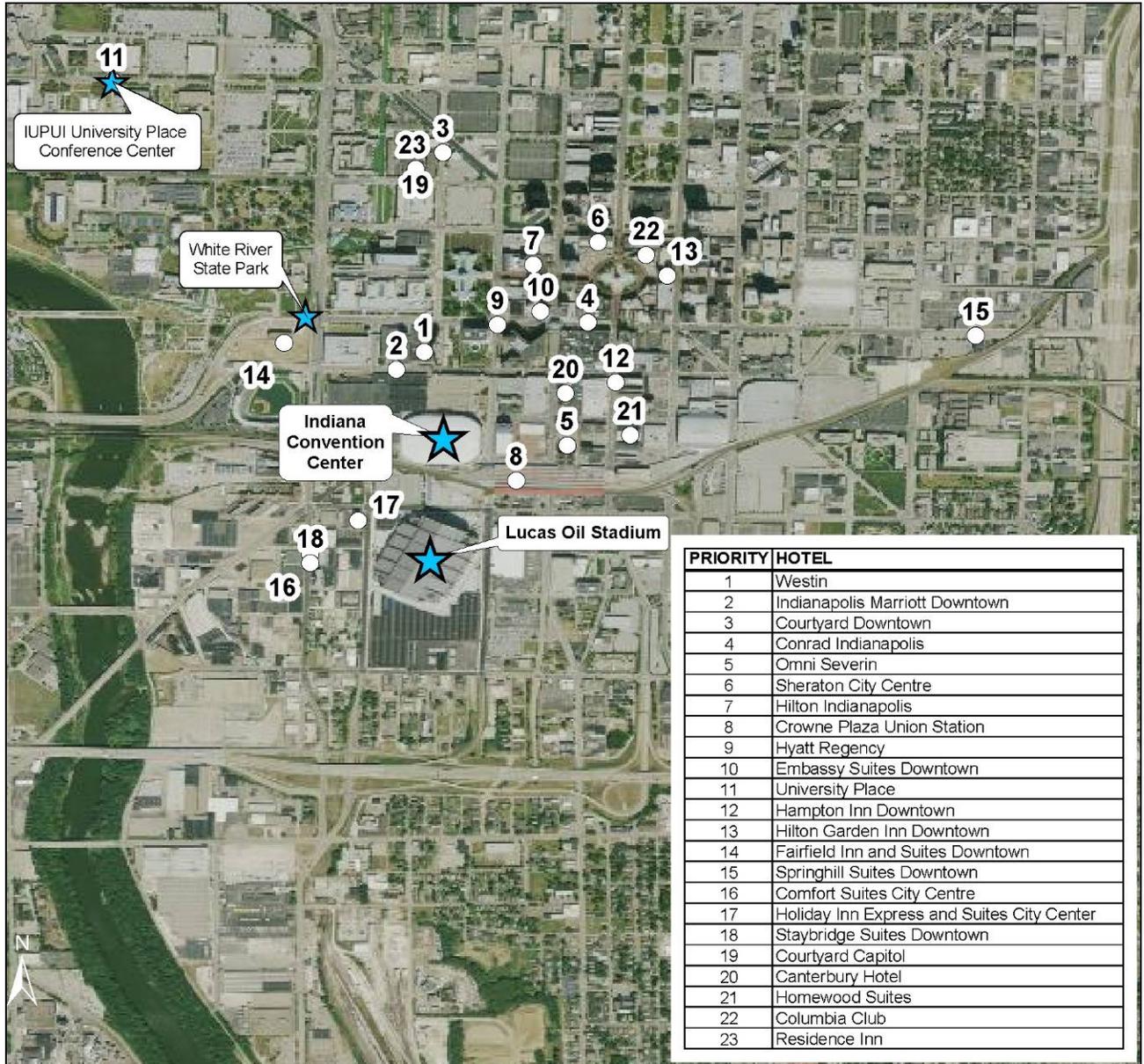


Table 4. Timeline

Task	Description	Timeframe
1	Site Assessments	2/26
2	Meet w/ haulers & recyclers	3/12
3	Info sheet to target sites	3/26
4	Conduct site briefings	4/1-2
5	Collections	4/2-4/6
6	Data collection and final report	5/3

Table 5. Contacts

Name	Org	Phone	Email
Connie Israel	ISC	317-237-5093	connie.israel@indianasportscorp.com
Ed Peszek	August Mack	317-468-8148	epeszek@augustmack.com
Carey Hamilton	IRC	317-632-5915	carey@indianarecycling.org
Don Brown	IRC	317-534-8468	donel1313@aol.com
Paul Ruesch	EPA	312-617-7212 109*423917*15	ruesch.paul@epa.gov
Jacob Hassan	EPA	312-886-6864	hassan.jacob@epa.gov
Steve Pruitt	DPW	312-223-1493	spruitt@indy.gov
Earl Craig	ICC / LOS	317-262-3453	earl.craig@icclos.com
Michelle Wallace	Coca-Cola Enterprises	317-446-7257	miwallace@cokecce.com
Bill Marty	Coca-Cola Enterprises	317-270-4335	bmarty@cokecce.com
Mark Root	Coca-Cola Recycling	404-317-6926	maroot@cokecce.com
James Saxe	Republic Services	317-716-0685	jsaxe@republicservices.com
Calvin Davidson	Ray's Trash	317-339-7857	cdavidson@raystrash.com
Todd Hunter	Ray's Trash	317-539-2024	thunter@raystrash.com
Dean Schmuhl	Strategic Materials	317-484-2550	dschmuhl@strategicmaterials.com
Brandi Meyer	Waste Management	317-607-9480	bmeyer@wm.com
Greg Weil	Southern Trash & Recycling	317-881-6427.109	sss4467@sbcglobal.net
Jeff Snyder	Indianapolis Recycled Fiber	317-634-7571	jsnyder@rocktenn.com

Table 6. Dumpster Staging at ICC Loading Dock¹

Box	Date	Hauler	Drop Off	Pick Up
1	4/1	Ray's	3:00 PM	dispatch ⁴
2	4/3	Ray's	dispatch ⁴	3:00 AM
3	4/3	Republic	6:00 AM	6:00 AM swap
4	4/4	Republic	6:00 AM	3:00 AM
5	4/5	Waste Man	6:00AM	3:00 AM swap
6	4/6	Waste Man	3:00 PM	dispatch

Notes:

1. Target area for boxes is at the **SW corner of the ICC loading dock along construction fence.**
2. Drop location may change - drivers please confirm w/ loading dock before drop.
3. Earl Craig or Paul Ruesch will sign tickets if needed.

4. Box 2 (Ray's) may not be necessary as sweeps start 4/2 - will confirm with dispatch.
5. Boxes may be partitioned if sufficient OCC is collected.

Appendix C

Recycling Plan – High Traffic Pedestrian Areas

Recycling in High Traffic Pedestrian Areas
2010 Men's Final Four - Indianapolis
Work Plan
3/30/10

Overview

The 2010 Men's Final Four event will bring many visitors which will be walking around in the downtown area before, during and after the events. The local organizing committee (LOC) is seeking to provide recycling containers along key pedestrian walkways near the principal event locations. The LOC is working with the Indianapolis Department of Public Works (DPW) and Coca-Cola Recycling (an NCAA corporate partner) to establish recycling during the event weekend (April 2-5th). Project contacts are found in Table 5. Recycling bins will be set out and quantities of recyclables collected will be documented.

Approach

High traffic pedestrian zones were identified near areas where large product sampling events will be taking place (see Table 1). In addition, certain street closures will lead to increased pedestrian traffic along certain streets (see Table 2). The following is the general plan for the recycling in these target areas during the Final Four event:

- 1) Coke will deliver 50 recycling bins (55 gallon white plastic barrels) along with blue plastic can liners to the DPW warehouse located at 1735 South West Street (hours 7am – 3pm).
- 2) On Thursday, April 1st a recycling volunteer will accompany the DPW crew when they deploy the bins alongside targeted Toters in the high traffic areas.
- 3) Six recycling containers will be dropped off at the recycling container at the ICC for deployment by volunteers on an as-needed basis.
- 4) DPW crews (see shift information in Table 3) will maintain the recycling bins, removing the blue bags with recyclables and bringing them to the ICC loading dock.
- 5) Volunteers will assist DPW crews to ensure that all recycling containers are maintained and do not become overloaded. Contact will be maintained with crew chiefs and simple instructions will be provided to DPW crews.
- 6) Volunteers may dispatch recycling containers in the vicinity of the outdoor patios at the target restaurants.

A schedule for the project is found in Table 4. A roll-off container will be staged in the loading dock area at the Indianapolis Convention Center (ICC) for collected materials and will be staffed by mobile recycling team volunteers. The collected recyclables will be transferred to the respective sorting facilities daily. A final accounting of materials collected will be assembled in cooperation with haulers/recyclers.

Table 1. Target Sampling Events & Sites Generating Recyclables

Date	Activity	Location	Time
4/1	Coke/Vitamin Water	Monument Circle	7-9:30am, 4-6:30pm
4/2	Coke Sampling	Lucas Oil Stadium ¹	10:00am - 8:00pm
4/2	Coke/Vitamin Water	Monument Circle	7-9:30am, 4-6:30pm
4/2	Coke/Vitamin Water	White River SP ²	4:00pm - 10:30pm
4/3	Coke Sampling	Lucas Oil Stadium ¹	3:00pm - 11:30pm
4/3	Coke/Vitamin Water	Monument Circle	10:00am – 10:00pm
4/3	Coke/Vitamin Water	White River SP ²	12:00pm- 8:00pm
4/4	Coke/Vitamin Water	Monument Circle	7am-2pm, 4-6:30pm
4/4	Coke/Vitamin Water	White River SP ²	3:00pm- 10:00pm
4/5	Coke Sampling	Lucas Oil Stadium ¹	7:00pm – 11:30pm

Notes:

1. Lucas Oil Stadium ‘Activation Area’ extends 1 block NORTH, EAST & WEST of the stadium.
2. White River State Park pedestrian traffic will be along Maryland and Washington Streets.

Table 2. Anticipated Street Closures

Day	Date	Street	Event	Time
Saturday	4/3	South St. from Capitol to Missouri	Sponsor activation	2:00pm – post game
Saturday	4/3	Capitol Ave. from Maryland to McCarty	Pedestrian safety	4:30pm – post game
Saturday	4/3	South St. from Missouri to West St.	Shuttle staging	post game - ??
Monday	4/4	West St. vicinity of WRSP	NCAA Dribble	3:00pm – 4:00pm
Monday	4/4	New York St. vicinity WRSP	NCAA Dribble	3:00pm – 4:00pm
Monday	4/5	South St.	Pedestrian safety	6:00pm – post game
Monday	4/5	Capitol Ave.	Pedestrian safety	6:30pm – post game
Monday	4/5	South St. from Missouri to West St.	Shuttle staging	post game - ??

Table 3. DPW Crew & Shift Information

Day	Date	Time	Supervisor	Phone
Friday	4/2	4:00pm – 12:00am	Mark Hancock	223-1501
Saturday	4/3	12:00am – 8:00am	Tawnya McClaren	677-5566
Saturday	4/3	4:00pm – 12:00am	Mark Hancock	223-1501
Sunday	4/4	12:00am – 8:00am	Don Griffin	223-4278
Sunday	4/4	4:00pm – 12:00am	Danny Quintana	538-9673
Monday	4/5	4:00pm – 12:00am	Willie Harrington	223-1502

Table 4. Timeline

Task	Description	Timeframe
1	Coke drops off drums/lids/liners at DPW	3/31
2	DPW deploys drums alongside Toters	4/1
3	DPW & volunteer crews maintain drums	4/2 - 4/6
4	DPW recovers drums	4/6
5	Coke picks up drums from DPW	4/7
6	Data collection and final report	5/3

Table 5. Contacts

Name	Org	Phone	Email
Connie Israel	ISC	317-237-5093	connie.israel@indianasportscorp.com
Ed Peszek	August Mack	317-468-8148	epeszek@augustmack.com
Carey Hamilton	IRC	317-632-5915	carey@indianarecycling.org
Don Brown	IRC	317-534-8468	donell1313@aol.com
Paul Ruesch	EPA	312-617-7212 109*423917*15	ruesch.paul@epa.gov
Jacob Hassan	EPA	312-886-6864	hassan.jacob@epa.gov
Steve Pruitt	DPW	770-298-0707	spruitt@indy.gov
Earl Craig	ICC / LOS	317-262-3453	earl.craig@icclos.com
Mark Root	Coca-Cola Recycling	404-317-6926	maroot@cokecce.com
Bill Marty	Coca-Cola Enterprises	317-270-4335	bmarty@cokecce.com

Table 6. Dumpster Staging at ICC Loading Dock¹

Box	Date	Hauler
1	4/1	Ray's
2	4/3	Ray's
3	4/3	Republic
4	4/4	Republic
5	4/5	Waste Man
6	4/6	Waste Man

Notes:

1. Target area for boxes is at the **SW corner of the ICC loading dock along construction fence.**
Enter off of West Street.

Appendix D

Instructions – Hotels & Restaurants

FINAL FOUR WEEKEND RECYCLING ADVISORY

The local organizing committee for the Final Four tournament will help you recycle at your hotel from April 2nd – 5th.

A volunteer will give you enough **BLUE BAGS** on April 1st – 2nd.

Use **BLUE BAGS** in existing bins at the bar or service stations.

BLUE BAGS can also be provided to housekeeping staff carts.

You will also be given **RECYCLING SIGNAGE** to minimize contamination in the **BLUE BAGS**.

**PLEASE USE THE BLUE BAGS FOR EMPTY
BOTTLES & CANS ONLY !!**

**SEPARATE BLUE BAGS WITH NEWSPAPER WILL
BE ACCEPTED**

Bags with trash or food cannot be recycled and will be thrown out.

Do NOT put full **BLUE BAGS in dumpsters**

Volunteers will collect full **BLUE BAGS** from loading docks on the following dates:

FRIDAY, APRIL 2nd
SATURDAY, APRIL 3rd
SUNDAY, APRIL 4th
MONDAY, APRIL 5th
TUESDAY, APRIL 6th

Contact **Paul Ruesch** at **312/617-7212** anytime with questions.

THANK YOU FOR HELP AND COOPERATION

Appendix E
Recycling Signage

WE RECYCLE !!

This restaurant is participating in a special recycling project this weekend during the Final Four[®].

-  Restaurant staff will be collecting as many empty cans & bottles as possible for recycling.
-  There are over 40 local businesses participating in the program.
-  Lessons learned from this project will help shape the recycling effort for the Super Bowl in 2012!
-  You can help by leaving your empty bottles & cans out for recycling.

Local volunteers will be picking up our recyclables in **BLUE BAGS** and making sure these materials are recycled into new products locally.

**THANK YOU
FOR HELPING US**

GO GREEN !!

BLUE BAG RECYCLING

EMPTY

BOTTLES & CANS ONLY!!!



Use existing bins at bar or service stations.



Bags with trash or food CANNOT be recycled and will be thrown out.

Do NOT put **BLUE BAGS** in dumpsters.

Volunteers in **GREEN** shirts will collect full BLUE BAGS from loading docks on:

FRIDAY, APRIL 2nd

SATURDAY, APRIL 3rd

SUNDAY, APRIL 4th

MONDAY, APRIL 5th

TUESDAY, APRIL 6th

If you need more, contact **Paul Ruesch** at **312/617-7212**.

THANK YOU

BOLSAS AZULES - RECICLAJE

SÓLO

BOTELLAS Y LATAS VACIAS!!!



Se usan los botes en el bar o las estaciones de meseros.



Las bolsas con basura **NO** se puede reciclar.

No pongan **las bolsas azules** en los
contenedores en la calle.

Voluntarios en playeras **VERDES** van a pasan por las bolsas azules en:

Viernes 2 de Abril
Sábado 3 de Abril
Domingo 4 de Abril
Lunes 5 de Abril
Martes 6 de Abril

Si necesitan informacion, favor de llamar **Paul Ruesch** en **312/617-7212**.

GRACIAS

Appendix F

Press Release

EPA: United States Environmental Protection Agency

A-Z index

News Releases By Date

An Assist: EPA and Local Partners Enhance Recycling During Basketball Tournament

Release date: 04/05/2010

Contact Information: Karen Thompson, 312-353-8547, thompson.karen@epa.gov

Immediate Release
No. 10-OPA037

(INDIANAPOLIS – April 5, 2010) U.S. Environmental Protection Agency Region 5 participated in a coordinated effort to assist local hotels and restaurants with recycling during the 2010 Men's Final Four^R basketball tournament last weekend in Indianapolis.

EPA staff, in partnership with the Indiana Recycling Coalition, the Indiana Sports Corporation, the Indianapolis Department of Public Works, August Mack Environmental, Coca-Cola Recycling, Waste Management, Republic Waste Services, Ray's Trash Service, Strategic Materials, Southern Trash & Recycling, and Indiana Recycled Fibers, worked directly with select hotels and restaurants to enhance recycling.

Following the games, a report will detail the success of the hotel and restaurant recycling effort. In addition, EPA will calculate the environmental benefits from an electronics collection drive involving volunteers from the Local Organizing Committee.

#

Appendix G

WARM Model Results

Appendix H

Results of Green Team Survey

2010 NCAA Men's Final Four
Green Team Survey Results

Q1 - Did you join the Green Team by making a pledge to make ten or more behavioral changes?

Yes	74.3
No	25.7

Q2 - How successful were you in completing your pledge to the Green Team?

I completed or will complete 10 or more items	51.3
I completed or will complete 5-9 items	37.4
I completed or will complete 1-4 items	10.3
I did not complete any items	1

Q3 - Did you wear your Green Team pin on your volunteer uniform?

Yes	79.9
No	20.1

Q4 - Did any Final Four visitors ask you about the Green Team pin?

Yes	26.6
No	73.4

Q5 - As an awareness tool, how would you rate the "Join the Green Team" program?

Excellent	10.1
Very Good	28.8
Good	36.4
Fair	19.8
Poor	4.8

Q6 - What was your impression of the recycling effort made during the Final Four?

Excellent	17.6
Very Good	31.7
Good	31.8
Fair	15.3
Poor	3.6

Q7 - Do you think ISC should implement a volunteer-based initiative like the "Join the Green Team program at future events?

Yes	89.6
No	10.4

Appendix I

Electronics Environmental Benefits Calculators Model Results

RESULTS AS EQUIVALENCIES

based on grand totals:

Data summed for:	Purchasing:	Use:	EOL:
	Product 1: no input	no input	no input
	Product 2: no input	no input	no input
	Product 3: no input	no input	no input
		CPU's	reused CPU's
		CRTs	reused CRTs
		LCDs	reused LCDs
		Notebook computers	reused notebooks
			reused mobile phones
			5,386.4 recycled mixed electronics (kg)

Metric:	Equivalency:
Energy Savings =	electricity to power 10 US household(s) in a year
Greenhouse Gas Reduction* =	removing 3 passenger car(s) from the road per year
Solid Waste Reduction =	solid waste generated by 3 US household(s) in a year
Primary Material Savings* =	the weight of 42 refrigerator(s)
HW Reduction =	the weight of 660 brick(s)
Toxic Material Reduction:	
all toxics, including Hg =	the weight of <0.01 brick(s)
mercury only =	the mercury in <0.01 mercury fever thermometer(s)
Air emissions* =	23 metric ton(s) of air emissions
Water emissions* =	1 metric ton(s) of water emissions
Cost savings =	\$11,222.75

* These may be proportionally greater than other metrics as they include all material inputs, including those from upstream processes. These estimates do not account for impacts from product/material substitutions that might replace restricted materials.

Data and assumptions for equivalencies:

	Equivalency Factor	Reference
Annual Household Energy Use	11,965 kWh/household/year	EPA Greenhouse Gas Equivalencies Calculator (http://www.epa.gov/cleanenergy/energy-resources/calculator.html). Updated December 8, 2008.
Annual Passenger Car Emissions	5.46 metric tons CO ₂ equivalents/passenger car/year	EPA Greenhouse Gas Equivalencies Calculator (http://www.epa.gov/cleanenergy/energy-resources/calculator.html). Updated December 8, 2008.
Annual Municipal Solid Waste (MSW) Generation per US Household	1,489 kg CE/passenger car/yr 1,993 kg MSW/household/year MSW/person/day; Assumes 4.62 lbs 2.6 average people/household	U.S. EPA, Municipal Solid Waste in the United States: 2007 Facts and Figures, November 2008 (http://www.epa.gov/epawaste/nonhaz/municipal/msw99.htm) & US Census Bureau, 2005-2007 American Community Survey (http://factfinder.census.gov/servlet/STTable?_bm=y&-geo_id=01000US&-qr_name=ACS_2007_3YR_G00_S1101&-ds_name=ACS_2007_3YR_G00_)
Weight of Refrigerator	129 kg (285 lbs)/ full-size refrigerator	Average of 10 full-size refrigerators offered for sale at Best Buy (www.bestbuy.com) in Nov. 2006, ranging in size from 18 Cu Ft to 26 Cu Ft capacity.
Weight of Bricks	2 kg (4.5 lbs)/brick	Manufacturer technical data. Standard brick defined as 3 5/8" X 2 1/4" X 8".
Amount of Mercury in a Fever Thermometer	0.61 g Hg/thermometer Assumes 95 percent of clinical thermometers are oral/rectal/baby thermometers, which contain approximately 0.61 grams of mercury.	US Environmental Protection Agency, <i>Mercury Study Report to Congress, Volume II: an Inventory of Anthropogenic Mercury Emissions in the United States</i> . EPA-452/R-97-004, December 1997.

NOTES:

The Electronics Environmental Benefits Calculator (EEBC) was developed to estimate the environmental benefits of greening the purchase, use and disposal of electronics. The model and instructions can be found at the following website: <http://www.federalectronicschallenge.net/resources/bencalc.htm>