

Improving Event Recycling - Baum Stadium Waste Audit

Shana Kolesar & Brooke Mosley

Walton College of Business & Bumper's College of Agriculture

THE PROBLEM

The University of Arkansas is seeking to become zero waste by 2021. The EPA defines zero waste as diverting 90% or more of waste from the landfill (The Office for Sustainability and Academic Programs). To achieve this goal, data must first be collected of all the building types on campus to understand what and how waste is currently being disposed (M. Repovich, personal communication, February 3, 2016). This task includes auditing the event buildings for athletics. Shana Kolesar and Brooke Mosley were tasked by the Office of Sustainability to be the first associated within the office to complete a waste audit on an athletic event center, and were directed to audit Baum Stadium, the baseball arena, and to make suggestions in areas of improvement based on the results. Currently, the recycling at event areas are not sustainable due to several reasons including bin labeling, bin options, and fan awareness.

THE PROJECT

In preparation for the waste audit an analysis of Baum Stadium was made. Observed was how many trash and recycling bins were in and around the stadium including the hog pen, the bottom of the concourse, the suite area, and outside the stadium in the parking lots and gate entrances. Then a second count of bins was made to see how many bins were placed together, known as 1 to 1, and stood alone. A waste flow diagram was created to assess the current stream of materials from beginning to end to show a product from its inception, consumption, and disposal either to a landfill or recycling center. Behaviors of fans were also observed to see how materials were disposed of. From these assessments, a selection was made on what areas to analyze for the waste audit. It was decided a 1 to 1 pair from the hog pen and two pairs behind first and third base were to be collected from. No data was collected in the suite areas due to possible interruption of fans' game day experience. These selections will be used to generalize how the total stadium population sorts their waste. On April 3rd, 2016's baseball game 11 volunteers recorded the usage of ten bins, sorted selected bins based on trash, recycling, and compostable material, and weighed and recorded bags before and after sorting using a Buffalo Outdoors Hanging Scale.

DIAGRAMS & VISUALS

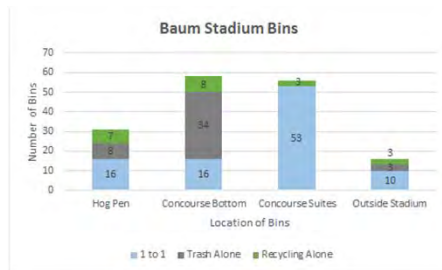


Diagram 1: Total number of bins in and around Baum Stadium by type: 1 to 1, trash only, and recycle only.

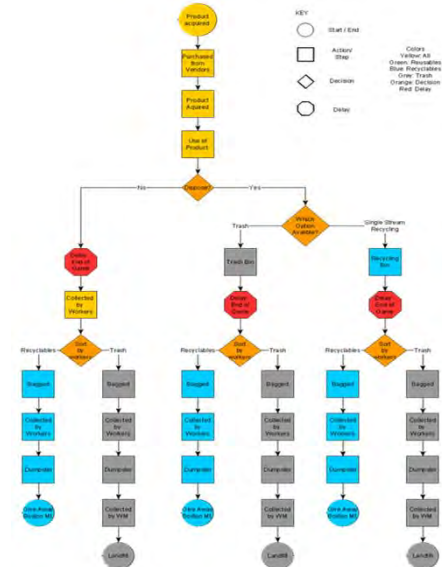


Diagram 2: Baum Stadium's current waste material flow.



Picture 1: Pictured are a 1 to 1 pairing in the hog pen.

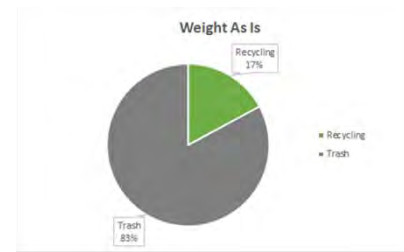


Diagram 3: Percentage of total waste sorted by the fans in trash and recycling bins at five selected locations in Baum Stadium.



Diagram 4: Percentage of total waste after sorting the five selected locations of recycling and trash bins in Baum Stadium.

THE OUTCOME

After analyzing the number of bins in Baum Stadium, data shows the bottom concourse has the highest area with stand alone trash bins, totaling to 34 bins (Refer to Diagram 1). A high impact towards improper waste disposal can be assumed here due to lack of a proper 1 to 1 ratio. It is recommended that when placing waste receptacles to pair them as 1 to 1, meaning a recycle bin and trash bin are within one foot of each other, so users may properly dispose without inconvenience (Refer to Picture 1). The current material flow at Baum Stadium indicates that proper recycling is being completed by an outsourced staff responsible for cleanup after games (refer to Diagram 2). The cleanup staff is tasked with sorting recycle bins and disposing of sorted materials in a nearby recycling compactor. If the fans' perception of recycling changes, they can become the responsible party for separating landfill and non-landfill products at the time of disposal, rather than the cleanup staff. The material stream would potentially become less complex and less money can be spent on cleanup.

Weighing how fans currently dispose of waste, a large percentage of trash, 83%, was collected relative to a small capture of recyclable materials, 17% (refer to Diagram 3). The diversion rate from the landfill after workers sort is currently 23%. Therefore, if everything that is able to be diverted does not travel to the landfill, the diversion rate potentially becomes 93%. To reach zero waste composting will need to occur, which is why the University of Arkansas is considering moving towards adding composting bins across campus (M. Repovich, personal communication, February 3, 2016). Thus, when sorting materials composting was a separation category. After sorting the materials, the amount of actual trash decreased by 76%, due to the waste being comprised of 70% compostable materials. Also, a 6% increase in recyclables indicates not all fans are properly disposing of materials (Refer to Diagram 4). In total, baseball fans produce roughly 0.243 lbs waste/person. The low number, compared to an average of 0.49 lbs waste/person per football game in 2015, can be contributed to the shorter time fans spend occupying the stadium (J. Brown, personal communication, March 17, 2016).

Some **recommendations** for recycling improvement from most to least important include:

- Adding composting bins – to increase the waste diversion rate in the stadium
- Finding sponsors for media campaign – raise fans' awareness for the need to recycle
- Relabeling recycling bins in hog pen and make all bins 1 to 1 – to increase proper waste disposal

SUSTAINABILITY

The sustainability of the institution, the University of Arkansas, is in question. By decreasing the impact of athletic events' waste on the environment, the university's inherent managed and social systems will move towards the sustainable goal of zero waste. The Baum Stadium waste audit addressed the life cycle analysis of fan's used materials in an effort to increase the amount of waste diverted from the landfill. In order to increase the diversion rate, the social environment needs to change towards becoming more sustainable. By doing so through increasing recycling, fans and students' will start to engage in future habitual recycling actions. Lastly, Kolesar and Mosley's research will impact how future athletic event areas are waste audited through their set up and design.