

# **2022 Indoor Recycling Improvement Proposal**

**NORTHERN  
ARIZONA  
UNIVERSITY**

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Office of Sustainability

## Context

Environmental issues are constantly becoming more intricate, multifaceted, and intersectional. The developing nature of environmental issues necessitates an approach to decision making and investment that emphasizes structurization and campus-wide integration, [according to the Journal of Cleaner Production](#).

A lack of structure in NAU's recycling bin system has been an issue for a long time. Without a consistent bin system, students, faculty and staff can't be educated on how to recycle, let alone encouraged to, because bins are placed randomly and have no consistent color scheme. [Many studies](#) have shown increasing the ease of recycling not only improves recycling rates, but oppositely, inconvenience and the time consumed finding a bin have been found to be the two most significant reasons people choose *not* to recycle.

A solution to this problem was introduced through the 2014 Pilot Indoor Recycling Bin Improvement Program. NORESO conducted a survey in 2014 to find out the most impactful way NAU could improve its image of campus sustainability; the top suggestion was improving and expanding its campus recycling program. The pilot program aimed to standardize the indoor recycling bin system through cross-campus consistency in colors, sizes, types, symbols and signage in preparation for enhanced outreach and education about recycling on campus.

Recycling bins for the Union, SBS Castro, Liberal Arts and Babbitt Administrative Center were installed and the feedback was positive. 89.3% of faculty and staff agreed or strongly agreed that the recycling and waste bin colors and symbols implemented in the pilot program were easier to understand. Moreover, contamination rates, lost recycling rates, and diversion rates were better in the pilot buildings than the control buildings.

The pilot program was successful, but it only addressed four of the 95 buildings on campus. A CAPCOT survey conducted in 2017 showed continued cross-campus dissatisfaction with indoor recycling, which reflects that only 5% of campus has been standardized so far. The other 95% of campus still needs a consistent, easy-to-use recycling system and the benefits that come along with that; the 2022 Indoor Recycling Bin Improvement Program will get NAU's recycling system on par with other institutions' and visibly demonstrate NAU's commitment to sustainability. In addition, with the installation of the Green Fund's waste sensors approaching quickly, there has never been a better time to create a streamlined indoor recycling program.

## **Conducting the Assessment**

A [recycling and waste bin assessment](#) was conducted by the waste minimization coordinator of the Office of Sustainability to determine how many and where additional bins are necessary. The assessment utilized the standards outlined in the pilot program, placing emphasis on removing fluctuations in bin location, size, or color. The bin sizes and types used were lobby dual unit, medium recycling, medium trash, small recycling, small trash, office, lab, recycling brute, and trash brute. Every building on campus was included in this assessment except for ten, which were excluded for various reasons listed on the assessment spreadsheet.

Mapped building blueprints from assessments conducted in 2014 and 2015 were used for the majority of this assessment, of which a random 15% sample were reassessed and determined to reflect a trend of demonstrating continued suitability to the building's needs. The buildings that had never been assessed were split between a group of students from a 490C course and the aide. Residence halls were assessed without a walkthrough and instead by blueprint for access reasons. These buildings were divided into categories by shape related characteristics. Each category's shape was assessed generally and then scaled up or down by the amount of dorm rooms and estimated occupants for each hall.

## **Results**

The assessment showed a total of 2,753 additional bins are necessary to create a recycling bin system on campus that is consistent and effective. The buildings included in the assessment were split into use-related categories to show individual totals for academic buildings, administrative buildings, unions and residence halls. The academic total was assessed to be 1,824; the administrative total is 455; the union total is 42 and the residence hall total is 432. The total campus-wide cost for the additional bins necessary is \$571,573.21. By category, the academic total is \$449,769; the administrative total is \$49,298.46; the union total is \$7,145.25 and the residence hall total is \$65,360.50.

## **Recommendations for Prioritization**

The recommended method of prioritization for implementing this project is by the use-related categories outlined in the previous section. The academic building use category has the supposed highest foot traffic, so we recommend these buildings as the first to benefit from

indoor recycling improvement. Given that this use category is the largest, we recommend further prioritization of the buildings within it by either need or use. In a prioritization by need model, the academic buildings that need the most bins would be where implementation occurs first. In a prioritization by use model, the academic buildings actively used by the greatest number of students/faculty/staff would be where implementation occurs first.

Once this project has been implemented across the academic building use category, the buildings within the other use categories would then be addressed. The administrative building category is next in our recommended priority of use categories, followed by unions and then residence halls. These categories are significantly smaller portions of the overall project than the academic building category, so a prioritization method for within these use categories is not suggested. By utilizing these recommendations for prioritization, the process of implementation would be efficient and maximize the impact of this project.

### **Recommendations for Servicing**

Two possibilities for servicing are recommended in this proposal. The first is the current custodial staff servicing the bins after being trained on the new system. Custodians who service the buildings improved by the pilot program have expressed favoring this new system in staff meetings. However, due to custodial services current workload, we recommend creating a team of student workers to service the bins as another possibility. A team that specifically deals with servicing the recycling bins would be able to service bins more often. Moreover, they would be able to put more effort into looking at what is being recycled to see how much of an impact educational efforts are making on the success of recycling on campus.