

Executive Summary

A waste management plan, whether it is as simple as taking a trash bag out of a single-family home and putting it out on the sidewalk or as complex as coordinating the waste in a multi-resident apartment building, is an essential part of maintaining a clean and hospitable living environment. Recycling is an ever expanding and important aspect of these plans and the waste management system at 52 High Street is lacking recycling. Recycling would substantially reduce the amount of waste put in their single waste dumpster, allowing for fewer weekly pickups and reducing the issue of the dumpster being overfilled. The thrift shop alone produces roughly 40% of the trash placed in the dumpster on a weekly basis, and nearly half of that is recyclable cardboard. Not only is recycling one of the best things that each person can do to help the environment, but it is also a cost saving measure, as many waste haulers charge less to pick up recycling than they do to pick up waste. As the positives of recycling are being more widely realized, apartment managers have implemented it into their waste management plans. Abby Kelley Foster House in Worcester, Massachusetts was one such organization. Amid a much-needed renovation at their 52 High street location that is costing over sixteen million dollars, Abby's House enlisted the help of our project team to assist in the planning of an overhaul of the existing waste management system. When renovations have been completed, the building will be able to accommodate 56 women in need of a varying amount of support, personal advocacy, but most importantly a home. Not the same as an individual home, and not the same population as an apartment complex, Abby's House needed special consideration in not only the planning of a new waste management system, but how it would incorporate recycling into the building for the first time in its history.

Abby's House struggled with managing waste in their 52 High Street building in a few key areas which resulted in inter-resident conflict as well as conflict between residents and the staff at Abby's House. Education on the current waste system and tenant responsibilities was limited, leaving questions as to what could be thrown away and where. Residents were not adequately educated on the process of disposing of waste. Abby's House has also struggled with holding residents accountable for disposing of trash properly. The flowchart below portrays the 52 High Street waste management system before the renovations. It shows where waste was produced, who was responsible for disposing of that waste, and where it was to be

brought.

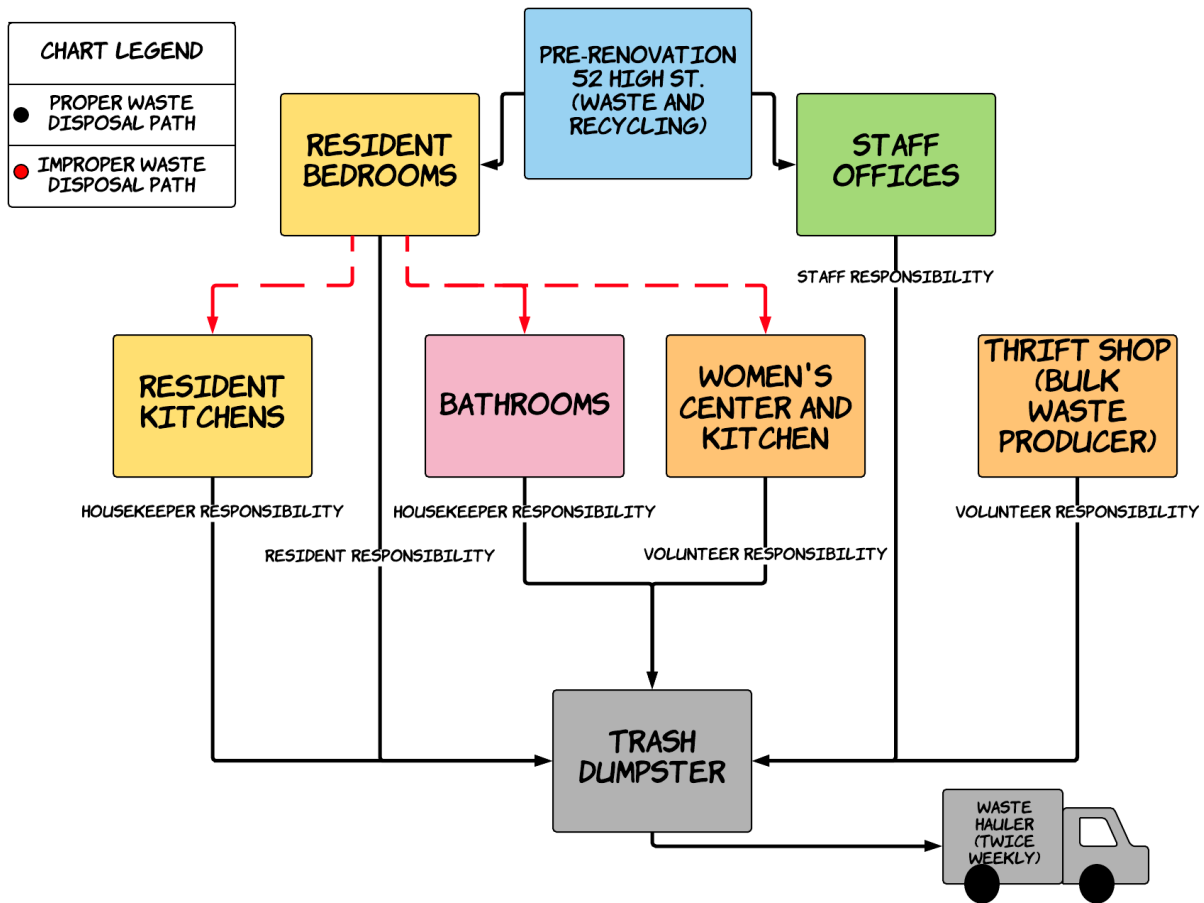


Figure 1 Pre-Renovation Waste Flow

The overall goal of this project was to identify the current waste management system at Abby's House and work with the residents, staff, and volunteers to create a new waste management system, with the inclusion of recycling, that would best fit the needs of their living environment considering the upcoming renovations. Creating this new waste management system was intended to increase the dynamic between staff and residents as well as encourage independence and responsibility for residents.

To implement the most effective waste and recycling program for Abby's House, our team focused on accomplishing specific objectives. First, we assessed the current waste management system in place. Our group did this by handing out surveys, as well as meeting with staff and residents and receiving input on their daily trash obstacles. We then investigated local waste haulers in the area through a comparative cost analysis to determine which company provided

the best economic benefits. These waste haulers were also compared against the current waste provider for Abby's House, AJ Letourneau. Next, our group met with the architects and the project managers to discuss and analyze the post-renovation floor plans. Once these tasks were completed, educational literature regarding trash and recycling was obtained through the local waste haulers our group was in contact with. Collecting this educational literature was important given that recycling had not been previously offered.

Ensuring residents bring trash to the dumpster and not common trash bins throughout the building is a challenging task which could be better solved by more in-depth education of their responsibilities, and the rules regarding their personal trash. Implementing recycling required a change in waste hauler. AJ Letourneau (Abby's House's current waste hauler) did not provide single stream recycling services, but current costs of their services were used as a benchmark of for cost comparison. It was determined that the new waste hauler needed to provide single stream recycling, limited fees, a flexible contract, and cost-effective services. Two waste haulers submitted proposals, E.L. Harvey and Sons and Waste Management. It should also be noted that Casella waste services were reached out to but did not submit a proposal, and therefore were no longer considered as an option. While both haulers were close in costs, there were a few major differences which set them apart. They are listed below.

- AJ Letourneau only provides cardboard and paper recycling.
- Waste Management and E.L. Harvey and Sons provide single stream recycling.
- Waste Management charges a \$75 initial fee for dropping off the dumpsters, and a \$150 fee for changing dumpsters.
- E.L. Harvey and Sons does not have a drop off fee or a fee for changing dumpsters.
- E.L. Harvey and Sons currently donates to Abby's House.

Ultimately, E.L. Harvey and Sons was chosen as the recommended waste hauler. They had nominally cheaper annual costs for services, the most flexible contract options, and no associated fees with dumpster drop off or change out.

Our recommendations for the leaders at Abby's House regarding the waste management system at 52 High Street are as follows:

- Recycling should be implemented at 52 High Street.

- 52 High Street should use E.L. Harvey and Sons as a waste hauler and take advantage of their single stream recycling program and comparatively lower costs.
- Residents should be responsible for disposing of their personal trash and recyclables.
- The housing manager, working in lieu of paying rent, should be responsible for emptying the waste and recycling containers in resident kitchens, laundry rooms, and the women’s center.
- The housekeeper should be responsible for emptying the waste containers in the bathrooms on each floor.
- All residents should be provided with educational literature that describes their responsibilities, what can and cannot be recycled, and why adhering to these rules is important.

Below is a visual representation of how the proposed waste management system would work.

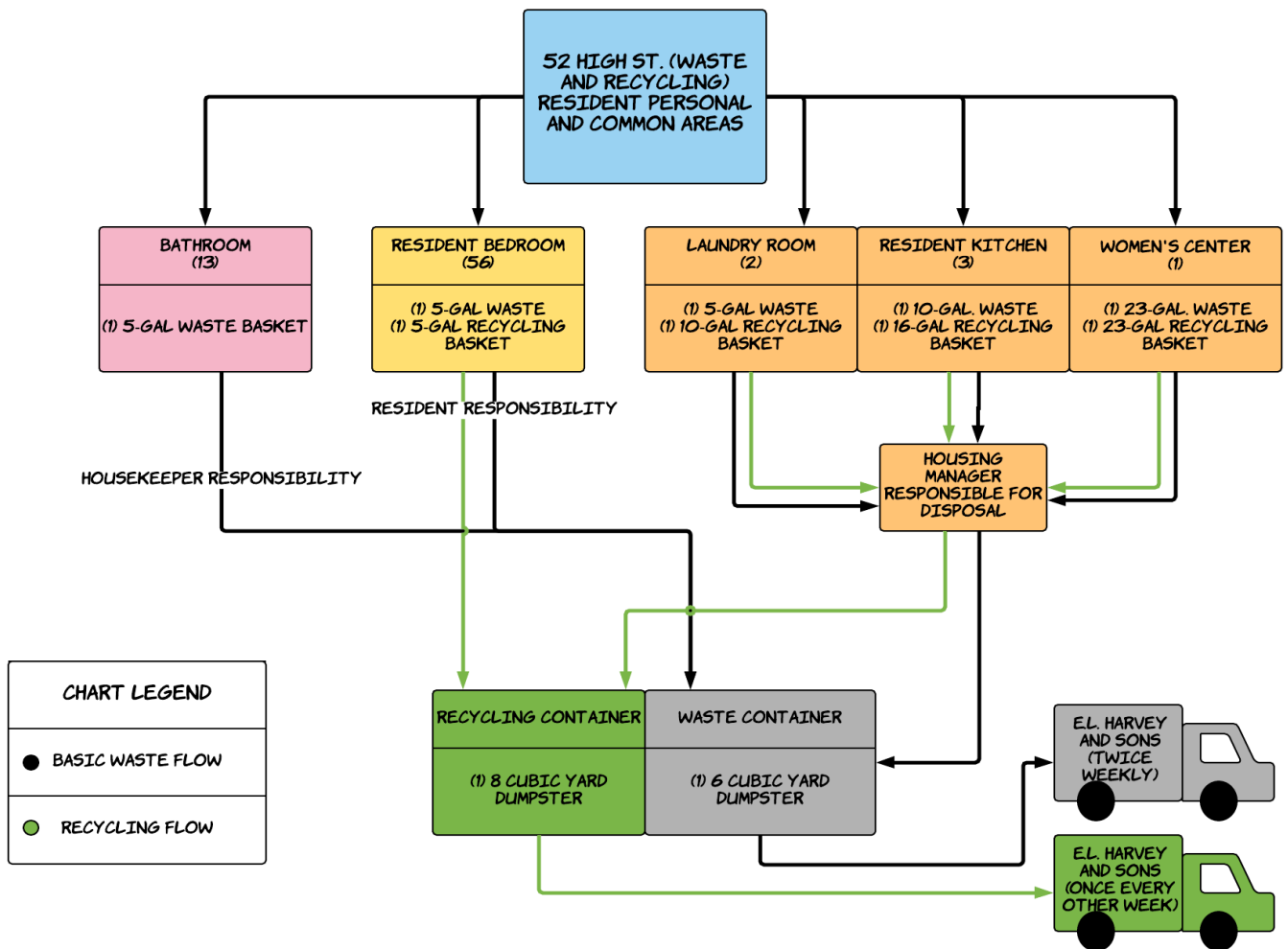


Figure 2 Post-Renovation Residential Waste Flow