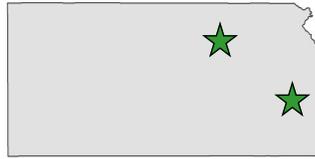


## 2018 Case Study

# Food Recovery

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### Project background

Food waste is a major social, environmental and economic problem. The USDA estimates nearly 133 billion pounds of food is wasted nationally each year, accounting for between 30 and 40 percent of all food produced and about 21 percent of the total municipal solid waste stream, with a total cost of about \$218 billion.<sup>1</sup> At the same time, the USDA Economic Research Service estimated in 2016 that 12.3 percent of U.S. households were food insecure.<sup>2</sup>

Wasted food means wasted resources, and the National Resource Defense Council estimates that 19 percent of cropland and 21 percent of agricultural water usage goes toward producing food that is wasted.<sup>3</sup> Landfilled food waste also emits methane, a powerful greenhouse gas (GHG), which contributes to climate change. The EPA and USDA have set a national goal to reduce food loss and waste by 50 percent by 2030. With funding from the USDA Rural Utilities Service, food recovery staff from the Kansas State University Pollution Prevention Institute (PPI) conducted food recovery assessments of two hospitals, two grocery stores and one restaurant in rural Kansas communities to identify opportunities to reduce food waste and divert waste from the landfill, following the EPA Food Recovery Hierarchy.<sup>4</sup>

### First hospital

**Background.** The kitchen serves breakfast, lunch, dinner and evening snacks to patients, employees and visitors every day. The food director estimates an average of 105 customers are served each day.

**Assessment.** PPI staff weighed 14.75 lbs. of food waste during the assessment, composed mostly of trimmings from meal preparation, but also some spoilage and buffet excess. All of this waste was landfilled. Upper management provided free pizza

during lunch on the day of the assessment without much advance notice to the kitchen. On this occasion, meal preparation was adjusted, which caused lower measurements of waste during the assessment (meaning the annual baseline estimate for this facility is probably conservative). These events sometimes cause excess waste when insufficient advance notice is given to the kitchen. The kitchen already practices some effective waste reduction and diversion strategies, including preparing many foods as needed during meal times to minimize over-preparation, repurposing leftovers into other dishes, selling outdates at a discount and allowing patients to indicate items they don't want before meal preparation.

**Recommendations.** Most of the food waste was not useful for human consumption, so PPI recommended diverting these scraps to the local zoo where almost all of them will be used to feed animals. PPI also recommended the facility create a standard for reporting special meal events to the kitchen well in advance of the date, so the kitchen will have sufficient time to adjust meal preparation and reduce waste.

### Second hospital

**Background.** The kitchen serves breakfast, lunch and dinner to patients, employees and visitors every day. The dietary manager estimates the kitchen serves an average of 150 customers each day.

**Assessment.** The intern weighed a total of 31.72 lbs. of food waste composed mainly of trimmings, buffet excess and plate waste, all of which was landfilled. About 13.71 lbs. were eligible to be donated for human consumption, and another 16.02 lbs. could have been donated for animal consumption. This facility also has waste reduction and diversion strategies already in place, including an extensive recycling program for all kinds of solid waste, saving

<sup>1</sup> [www.epa.gov/sustainable-management-food/sustainable-management-food-basics](http://www.epa.gov/sustainable-management-food/sustainable-management-food-basics)

<sup>2</sup> [www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/key-statistics-graphics.aspx#foodsecure](http://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/key-statistics-graphics.aspx#foodsecure)

<sup>3</sup> [www.nrdc.org/sites/default/files/wasted-2017-report.pdf](http://www.nrdc.org/sites/default/files/wasted-2017-report.pdf)

<sup>4</sup> [www.epa.gov/sustainable-management-food/food-recovery-hierarchy](http://www.epa.gov/sustainable-management-food/food-recovery-hierarchy)

leftovers from the breakfast and lunch shifts for employees to eat at night and allowing them to take home outdates, incorporating unused foods nearing their shelf-lives into other dishes and sourcing some meats from a local market when the usual vendor does not supply a sufficiently small amount.

Recommendations. PPI recommended diverting excess and outdates eligible for human consumption to a local domestic violence shelter and diverting the rest to a local farmer who will use the scrap to feed animals.

### **First grocery store**

Background. This grocery store operates 360 days per year and serves an approximate average of 50 customers per day. The store has grocery, dairy and meat departments stocked with packaged items as well as fresh produce. It is in the process of transitioning from a typical grocery store to a food cooperative supplying more locally sourced foods. It is planning major building and equipment renovations, as well as working through back-stock from a prior vendor.

Assessment. The intern weighed a total of 18.32 lbs. of food waste composed entirely of spoiled fruits and vegetables from the produce department. All of this waste was landfilled, though food is sometimes donated for human or animal consumption. The store has a markdown program in which packaged items that have passed their sell-by dates are kept on sale at a discounted price, and then offered to employees or donated to Feeding America. Other current strategies to reduce and divert waste include sourcing as much food locally as possible and sometimes donating food scraps for animal consumption.

Recommendations. Since the food waste measured during the assessment was entirely spoilage, the intern recommended the waste be donated to a local organization that maintains a compost pile in support of the community garden. It is also recommended the manager conduct another food recovery assessment after store renovations are complete, because operations will likely change significantly.

### **Second grocery store**

Background. This traditional grocery store operates every day of the year and serves an average of 220 customers each day. The store has fresh produce and meat departments, along with deli and dairy departments offering packaged items. Most of the

items are stocked from a vendor but some produce is sourced locally when it is in season.

Assessment. The intern weighed a total of 172.76 lbs. of food waste composed entirely of fruits and vegetables, beef and poultry from standard culling, and trimming in the produce and meat departments, all of which was landfilled. This store also has a markdown program in which packaged outdates are sold at a discount until spoilage. Outdated milk is sold seasonally at a discount to be fed to pigs. The meat department saves all trimmings and uses them in preparing ground products to specific fat percentages, and some produce is sourced locally.

Recommendations. Most of the food waste measured during the assessment was spoilage, which is useful only for composting. The intern recommended the waste be given to a local childcare facility that maintains a compost for its garden. Staff there teach the children about composting and environmentally responsible gardening.

### **Restaurant**

Background. This restaurant is a bar and grill that operates around 334 days each year, and serves lunch and dinner to nearly 100 customers per day from a salad bar, buffet and by order from a menu. As much food as possible is sourced locally, including both pickups from the local farmers' market and produce deliveries from home gardens of local residents.

Assessment. The intern weighed a total of 4.71 lbs. of food waste from the lunch service, composed of fruit and vegetable trimmings from the kitchen and plate waste from customers. All of this waste is generally landfilled, though food scrap is sometimes donated to local residents for composting in home gardens. The owner and manager already try to keep the restaurant as close to zero-waste as practically possible, and practice too many waste reduction and diversion strategies to list entirely. The most effective strategies include ensuring items ordered have at least three uses in the kitchen; weighing portions during preparation and adjusting these portions based on demand and continuous observation of plate waste; and saving trimmings to use in soups, salads, dips and dressings.

Recommendations. Most of the food waste measured was plate waste and scrap, useful only for composting. PPI recommended this waste be donated to a local organization that maintains a compost pile in support of the community garden.

## Common recommendations

- All of the facilities had effective waste reduction and prevention strategies in place, and PPI recommended these strategies continue to be practiced.
- Food donated for human consumption may be eligible for enhanced tax deductions in accordance with Section 170 of the Internal Revenue Code. PPI recommended the facilities donating food should track and claim appropriate tax deductions.
- Recycling solid waste was not an option for three of the facilities, so PPI recommended the managers stay alert for new opportunities. One facility had recycling means available but was not utilizing it

because of an obstruction caused by construction activity. PPI recommended moving the recycling bins so they could be utilized.

- Waste tracking is a key waste reduction strategy and waste was not currently being tracked at any of the assessed facilities. Making annual estimates of facility baselines and impacts of recommendations assumes a year of operation can be modeled from the information collected during the assessment. This is not true in practical terms as inventory and demand are variable, and facilities, therefore, produce different amounts and kinds of waste at different times. To address this problem and encourage continuing waste reduction behavior, PPI recommended self-audits be conducted at each facility, and offered resources and continuing support.

### Summary of 2018 P2 food recovery assessments and recommendations

| Facility background |                  | Estimated annual baseline |  |                     | Estimated annual impact of recommendations |  |             |
|---------------------|------------------|---------------------------|--|---------------------|--|--|-------------|
| Facility            | Local population | Tons of waste             | GHG emissions (MTCO <sub>2</sub> E) <sup>5</sup> | Cost/value of waste | Tons diverted                              | GHG emissions reduction (MTCO <sub>2</sub> E) <sup>5</sup> | Status      |
| First hospital      | 4,000 people     | 2.69                      | 1.46   | \$7,449             | 2.2  | 1.2  | Implemented |
| Second hospital     | 5,500 people     | 5.79                      | 3.14   | \$14,141            | 4.4  | 2.39   | In progress |
| First grocer        | 600 people       | 3.3                       | 1.79   | \$10,585            | 3.3  | 2.37   | Recommended |
| Second grocer       | 1,800 people     | 8.14                      | 4.42   | \$38,139            | 5.01                                       | 3.6  | In progress |
| Restaurant          | 5,500 people     | 0.76                      | 0.43   | \$2,335             | 0.67                                       | 0.5  | Recommended |
| <b>Totals</b>       |                  | <b>20.68</b>              | <b>11.24</b>                                     | <b>\$72,649</b>     | <b>15.58</b>                               | <b>10.06</b>   |             |

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<sup>5</sup> EPA Waste Reduction Model (WARM) Tool version 14 used for GHG emissions calculations.