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Formative research on strategies to improve food donation in grocery retail

Kaitlyn Harper [a] *
Johns Hopkins University Bloomberg School of Public Health

Steffanie Espat [b] and Lee Davis [c]
Maryland Institute College of Art

Nicole Labruto [d]
Johns Hopkins University Krieger School of Arts and Sciences

Roni Neff [e]
Johns Hopkins University Bloomberg School of Public Health

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Abstract

Over one third of food produced in the U.S. goes unsold or uneaten, including a large portion of high-quality food that could be donated to individuals utilizing the charitable food system. This formative research study explored barriers to donation and created strategies to improve donation among frontline grocery retailer workers. In this study, we conducted in-depth interviews with grocery retail workers (n = 28), corporate leadership (n = 6), and donation partners (n = 5), and a series of in-person meetings with a cohort of 10 frontline worker "Champions" from a large U.S. grocery retail chain to identify common barriers to food donation and co-design strategies to reduce wasted food and improve food donation in their stores. We created four strategies: (1) conduct new

[a] * *Corresponding author:* Kaitlyn Harper, Department of Environmental Health and Engineering, Johns Hopkins University Bloomberg School of Public Health.
Kaitlyn Harper is now at the Department of Nutrition, University of California, Davis; 3148 Meyer Hall, Davis, CA 95616 USA; +1-503-956-8071; kharpe@ucdavis.edu; https://orcid.org/0000-0003-1737-7034

[b] Steffanie Espat, Center for Creative Impact, Maryland Institute College of Art; 1200 West Mount Royal Avenue; Baltimore, MD 21217 USA; https://orcid.org/0009-0001-7543-0115

[c] Lee Davis, Center for Creative Impact, Maryland Institute College of Art; 1200 West Mount Royal Avenue; Baltimore, MD 21217 USA; https://orcid.org/0009-0009-3271-7747

[d] Nicole Labruto, Department of Anthropology, Johns Hopkins University Krieger School of Arts and Sciences; 3400 North Charles Street; Baltimore, MD 21218 USA.

[e] Roni Neff, Department of Environmental Health and Engineering, Johns Hopkins University Bloomberg School of Public Health; 615 North Wolfe Street; Baltimore, MD 21205 USA; https://orcid.org/0000-0002-0010-2635

See Disclosures on next page

trainings; (2) utilize updated donation guidelines with posters and detailed handouts; (3) strengthen connections between donation partners, associates, and stores; and (4) run a donation incentives contest. Additionally, Champions highlighted the need for open, clear, timely, accessible, and reciprocal communication and feedback as essential to the success of all four strategies. As organic waste ban policies expand, grocery retailers will need to increase the use of alternative solutions, such as donating, to manage surplus food. This project breaks new ground by not only working to identify and address the barriers faced and prioritized by frontline workers, but also by centering the workers themselves to create responsive strategies.

Keywords
human-centered design, participatory research, qualitative methods, food donation, wasted food, grocery retail

Introduction

Nearly one in seven U.S. households experiences food insecurity, or not having enough food for an active, healthy life (Rabbitt et al., 2025). Although eliminating food insecurity would require systemic changes and a fundamental shift toward sustainable food systems and economic development (Holt-Giménez, 2019), many interventions currently exist to alleviate food insecurity. In the U.S., food insecurity is addressed via two main strategies: distribution of economic benefits (e.g., Supplemental Nutrition Assistance Program) and direct provision of charitable foods. The charitable food system provides food to over 40 million people per year (UConn Rudd Center for Food Policy and Health, n.d.). Food banks and direct distribution partners (e.g., food pantries, soup kitchens) rely heavily on donations from corporate grocery retailers, manufacturers, wholesalers, and farmers. Despite these efforts, there is still a significant portion of safe and nutritious food that could be, but currently is not, donated. This paper focuses on strategies to improve the efficiency of grocery retailers in diverting high-quality food to individuals experiencing food insecurity through the charitable food system.

Surplus Food and Wasted Food in Grocery Retail

Over one third of food produced by the U.S. food system each year goes unsold or uneaten, defined as "surplus food." Although a small portion of this food is donated or fed to animals, the majority becomes what is defined as "wasted food," ending up in landfills, incinerators, sewers, compost piles, anaerobic digesters, spread on land, or left in the fields (ReFED, 2025). In 2023, grocery retail generated 4.5 million tons of surplus food, and although approximately one fifth was donated to local food banks and food pantries, the majority was wasted (ReFED, 2024).

Grocery retailers face financial losses from surplus food. Unsold food contributes to retail "shrink," a term used in the industry to describe the total dollar amount lost from causes other than sales (Johnston, 2023), including discarding and donating food. Shrink also includes money lost in the investment in logistics, storage, and labor for food that never gets sold (Johnston, 2023). Wasted food incurs additional costs from waste hauling and disposal fees at landfills and/or fees related to diversion to composting or anaerobic digestion companies. Shrink is generally used as a key indicator of departmental, store, and retailer performance (Teller et al., 2018).

There is a growing body of literature focused on reducing surplus food in grocery retail, including improving forecasting for more accurate ordering, enhancing food packaging, and changing consumers' buying habits (De Moraes et al., 2020; Filimonau & Gherbin, 2020; Huang et al., 2021;

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Conflicts of Interest
The authors have no competing interests to declare that are relevant to the content of this article.

Riesenegger et al., 2023). These studies focus primarily on prevention of wasted food, which aligns with best practices outlined by the U.S. Environmental Protection Agency Wasted Food Scale (U.S. EPA, 2026). However, grocery retailers face a dilemma; surplus food is regarded as a natural side effect in retail corporations, who aim to offer a broad variety of products and ensure product quality. Customer demands drive retailers to prioritize availability, uniformity, and variety of products, as well as displays that provide a perception of overflowing abundance (Riesenegger & Hübner, 2022). Many retailers also maintain brand protection through high standards for freshness of the foods they sell.

Food Donation in Grocery Retail

To manage surplus food, grocery retailers turn to food donation, which substantially cuts waste hauling and diversion costs. Additionally, many retailers include food donation in their Environmental, Social, Governance plans, which contain written commitments to benefit local communities and the environment. Donation in grocery retail happens in two steps. First, frontline workers pull foods from shelves and store them, usually by refrigeration or freezing. Typically, foods that are close to, but not yet past, the date on the date label are donated. In contrast, foods that are perceived to be past their prime or that have passed the date on the date label, are thrown away. Next, food must be transported from the individual stores to local food donation partners (e.g., food banks and food pantries). Stores make contracts with food donation partners to pick up food on a regular basis (e.g., one or two times per week).

Successful donation depends on communication and coordination across multiple operational and logistical steps. Store-level data on the quality and types of foods wasted in grocery retail is proprietary and therefore difficult to access, so it is not publicly known how much food that is currently wasted could be donated. However, retailers follow strict standards of item appearance and shape. As a result, there is likely a large amount of edible and high-quality food that could be donated. Additionally, there is likely wide variability across retailers and stores in the amount of food that is donated, based on differences in corporate and store-level operations and expectations, in addition to frontline workers' knowledge and expertise, buy-in, and ability to complete required tasks.

To our knowledge, no previous research has focused on improving the food donation process in grocery retail stores. A few studies have focused on the practicalities of implementing solutions to wasted food, including involving those most involved in wasted food management, such as store managers (Gruber et al., 2016) and frontline workers (Ceryes et al., 2021). Further, three projects led by the Pacific Coast Food Waste Commitment (PCFWC) engaged frontline workers in the process of developing solutions to reduce wasted food (Packer, 2025; PCFWC, 2022, 2024). However, these studies and projects were not conducted in grocery retail settings nor did they focus specifically on improving the donation process.

Current Study

In this paper, we describe the results of a study conducted in partnership with "Company X," a U.S. grocery retail company that operates stores in over half of U.S. states. Company X operates a food donation program, a companywide initiative that aims to donate edible food that might otherwise be discarded. The program was initially introduced several years ago. However, after the COVID-19 pandemic, the company began implementing an updated version of its food donation program across all stores. Even after the updates, some stores continued donating few or no products. Through the Food Donation Champions project, Johns Hopkins University, the Maryland Institute College of Art, and Company X collaborated to explore and address this issue. We convened 10 frontline workers (henceforth, Food Donation Champions, or Champions) from four stores in the company's Eastern Seaboard region to explore the existing food donation program and identify strategies to improve in-store utilization of the program by frontline workers.

We answer the following questions: (1) What are common barriers to food donation faced by frontline workers? (2) What strategies do frontline workers recommend to reduce wasted food and improve food donation in their stores?

Materials and Methods

We previously published a full description of methods elsewhere that describes our process, including epistemology, positionality, sampling, participant engagement, data collection, and data analysis (Harper et al., 2025). To avoid duplication, we provide a brief explanation of methods below.

Approach

This project combined research methods from design, public health, and anthropology (National Science Foundation, 2024), and followed the human-centered design (HCD) process (IDEO.org, 2015). HCD is a collaborative, creative process dedicated to understanding the experiences of people at the heart of an issue or problem and designing interventions that better serve their needs and/or alleviate challenges they are facing (IDEO.org, 2015). HCD views problems through the perspective of the people directly impacted by a problem (in this case, the Champions), positions their lived experience as expertise, and involves them as co-creators and experts throughout the design process.

Participants

Company X selected four stores in the Eastern Seaboard region to participate in this study. Selected stores were in urban (n = 1), rural (n = 2), and suburban (n = 1) communities and had various sales volumes (i.e., high-volume stores sell more than low-volume stores). Additionally, the four stores were selected because they either donated no items or inconsistently participated in the program prior to the beginning of the study. Throughout the study, we collected data from four groups of participants: (1) Food Donation Champions (n = 10); (2) Non-Champion workers, including frontline workers and store directors (n = 20); (3) members of Company X national- and regional-level corporate leadership whose main jobs or components of their jobs focused on food waste reduction (n = 6); and (4) donation partners, which included food banks and/or pantries who picked up and distributed donated food from the four stores in the study (n = 5). Recruitment began in May 2023 and ended in August 2023.

Data Collection and Analysis

We conducted in-store research between June 2023 and August 2023, and members of the research team visited each study store five times during this period. Each visit lasted between two and four hours. At each visit, we conducted two to three in-depth interviews for a total of 30 interviews. We also participated in "interactive observations" during each store visit, in which members of the research team were led around the department and/or store by a worker to describe and illustrate their daily tasks. We also conducted unstructured interviews with five donation partners, including at least one who received food from each study store. Finally, we conducted interviews with six members of corporate leadership at various levels (national, regional, and subregional). We synthesized data using deductive and inductive thematic analysis (Proudfoot, 2022).

We held six in-person meetings with Champions over the 10-month study period. Meetings aligned with the steps of the HCD process (IDEO.org, 2015): initial research (two meetings), synthesis, ideation, prototyping, and sharing results. During these meetings, Champions helped the research team with data collection and analysis, including creating and reviewing in-depth interview guides and assisting with the synthesis and interpretation of data. Additionally, Champions brainstormed solutions and collaboratively developed prototypes that aimed to reduce wasted food and improve food donation. The research team tested the desirability, usability, and feasibility of each prototype in stores with Champions before finalizing the prototypes into the four strategies and one recommendation presented in this paper. Champions and the research team co-presented the results of the study to Company X corporate leadership at the final in-person meeting.

This research was determined exempt by the Johns Hopkins University Institutional Review Board (IRB #24459). The IRB approved the use of oral consent procedures in lieu of written consent and approved all oral consent forms. Oral consent was obtained by researchers during the first meeting with Champions and at the beginning of individual interviews with each participant.

Results

In the following sections, organized based on the four final strategies and one recommendation co-created by Champions and researchers, we (1) describe the barriers to donation described by the Champions, non-Champions, Company X leadership, and donation partners; and (2) outline the strategies co-designed by Champions and the research team to respond to these issues.

Strategy 1: Conduct New Trainings for the Food Donation Program

The first strategy involved conducting new trainings for all company employees to better understand and implement the food donation program.

Barriers to Donation

Although workers use date labels to decide what foods may be fit or unfit for sale, they were unsure if these rules always corresponded to what foods may be donated. Workers felt that they received unclear guidance from corporate leadership and used their own knowledge and expertise of food safety protocols, as well as their subjective judgment and personal values, to determine if an item close to or past its date label was safe and fresh enough to donate. For example, many workers opted to discard food rather than donate it, largely citing personal judgment calls ("I wouldn't feed that to my family" [Store 1, Department Manager]) and potential safety concerns. Additionally, individuals in each department had differing opinions on what should be donated, as well as varying levels of understanding and buy-in to the donation program. This led to differences in the types and quality of foods being donated.

Although there was an updated training for the food donation program in recent years, workers said that it provided insufficient guidance. Specifically, they noted that the training, which was conducted virtually with approximately 200 department managers across the region, did not provide adequate details about program processes and did not offer adequate time for workers to ask questions. Additionally, workers felt that there was insufficient training of regional- and subregional-level leadership. They noted that, because corporate leadership was largely unaware of the program, there was an overall weak company culture around donations, which included inconsistent messaging about whether workers should be donating consistently and how much they should be donating. Many workers described feeling confused about whether increasing donations was viewed positively or negatively by the company. Some department-level workers noted that they were actively discouraged or even reprimanded by their bosses for donating because increasing donations was perceived as increasing shrink, whereas others were rebuked for not donating at all:

> I mean, shrink is shrink. It doesn't matter if it's [discarded] or donated. If it's not sold, it's shrink. [Store 3, Department Manager, referring to a perception of corporate views]

Additionally, workers in some departments noted that their performance was evaluated both based on their ability to produce the exact numbers of items dictated by the in-store production software and to sell all the items they produced. However, some workers expressed frustration about being required to produce certain numbers of items despite knowing these items were unpopular among customers. They noted that, when the products did not sell, they were then reprimanded for overproducing.

Many workers at the department level also felt unsure about whom to ask when they had questions about the donation program; they said that their managers typically did not know:

> I think we had a virtual meeting [for the food donation program roll out] and we went through it, but it was very, very vague. We had a lot of questions. We were reaching out, like we were reaching out to people, and [...] they didn't have the answers. [Store 1, Department Manager]

Workers perceived this problem as reflecting insufficient training at the leadership level.

Strategy to Improve Donation

To address these challenges, the Champions recommended that the company conduct new train-

ings about the food donation program for all employees at *all* levels to align communication, expectations, and processes. They noted that such trainings would strengthen the culture of donation by demonstrating leadership's commitment to the program and would build worker motivation and engagement.

The Champions helped create preliminary curricula (Appendix A) for eight training modules adapted to the needs of subregional, regional, and national corporate leadership, as well as regional department specialists, store directors, department managers, inventory managers, and cashiers and courtesy clerks. The trainings cover the following topics: the importance of the food donation program; donation food safety and quality; food donation processes; challenges faced by frontline workers; participation in donation contests and incentives; strengthening connections with donation partners; and roles, responsibilities, and chain of command. The Champions felt strongly that for department managers and their direct supervisors, training should be hands-on, noting that this would be most effective in building knowledge and keeping workers engaged. Additionally, the Champions noted that it was important to include time for those being trained to ask questions and provide feedback about their experiences working with the program.

Members of corporate leadership were in favor of additional trainings to clarify the donation process, but they felt that the strategy created by workers was too intensive. Specifically, they noted that only store-level workers should receive the training "because corporate should already know the process." They also noted that in-person trainings may be logistically difficult and too costly to conduct.

Strategy 2: Utilize Updated Donation Guidelines with Posters and Detailed Handouts

The second strategy involved utilizing posters and informational handouts to educate and remind in-store workers about Company X's updated donation guidelines.

Barriers to Donation

In addition to enhanced training, many workers wanted a daily reference they could use to inform or remind them of which items may be donated. Although the company had provided written guidelines after the initial training, most workers we talked to did not know about the guidelines or how to access them. Those who did have a copy of the guidelines felt that they were confusing, did not apply to their department, contradicted what they had been instructed to do in their stores, or contradicted their own ideas about what to donate (e.g., noting that food could still be safely eaten after its sell-by date). Additionally, we observed that the donation guidelines were not standardized across stores or clearly understood by all workers. For example, laminated signs in the bakery departments of two stores we visited explicitly stated that cakes may not be donated, but department managers at the other two stores did not have signs and regularly donated cakes.

Members of corporate leadership recognized that workers needed clarity around what items could be donated. One member of corporate leadership described the situation by saying,

> It turned into "whisper down the lane" because some departments are different than others. Dairy and frozen are different, along with grocery. So, things just kind of got mixed up. [In] some of the stores, the store director printed out the guidelines, handed them out, and said, "Here, make that happen," or, "Here, start donating" [without providing additional guidance]. [Member of leadership]

Strategy to Improve Donation

To standardize information about the food donation program, the Champions recommended that the company provide posters with department-specific donation guidelines, adapted to the workers' nuanced questions (Appendix B). In addition to hanging laminated posters, departments would also keep more detailed donation handouts available for reference (Appendix C). Building on the company's earlier materials, the research team and Champions co-created new Donations Guidelines Posters and Detailed Handouts. The Guidelines Posters provide simplified overviews of donation guidelines, including item types, storage requirements, timing of donations, and what strictly should not be

donated, to be used as a quick reference when department managers pull items for donation or trash. The Detailed Handouts provide a more comprehensive description of the process and guidelines and could be used as a reference tool for complex or unusual questions about donatable items. These responded to the workers' specific questions and concerns about department-specific donation rules (e.g., which cakes can be donated, and how long can they be refrigerated or frozen before pick-up?) and the process for donating (e.g., should items be scanned before or after being placed on the reduced-price rack?). The new posters and handouts aimed to create a uniform approach to donations within and across all stores.

Members of corporate leadership were in favor of this strategy, noting that it would be realistic and cost-effective strategy that could be rolled out relatively quickly.

Strategy 3: Strengthen Connections between Donation Partners, Workers, and Stores

The third strategy involved building relationships and strengthening connections with donation partners, such as local food banks and food pantries.

Barriers to Donation

Almost all workers with whom we spoke did not know what happened to donated food after it left the store, which reduced their inclination to donate food. Further, workers expressed concerns about the maintenance of food safety protocols after the food leaves the store and about the credibility and motives of donation partners, including potential misuse of the program. They had many misconceptions about who received the food from donation partners and what they did with it. One department manager stated,

> The only thing that I can think of as a negative thing [about the donation program] is people getting it that don't need it and now they don't have to come in the store and buy food because they just received free food. Again, it's a fine line because if people don't come and buy food, I'm out of a job. [Store 4, Department Manager]

Another reported concern was that stores did not have clear and consistent information about each donation partner, including food needs and preferences, and pick-up days.

The Champions discussed these sentiments extensively at the first two in-person meetings. To address these fears and answer questions posed by the Champions, researchers visited and talked with at least one of each participating store's donation partners and presented the information gathered and pictures taken at those visits to the Champions at the third meeting. This was a turning point for many Champions, who, for the first time, learned where donated food goes, who receives it, and the conditions under which it is provided. Many noted they were deeply moved by the presentation because it revealed the real need for donated food in their own communities. They mentioned that if other workers knew more about the donation partners and saw their work firsthand, they would be less skeptical and more motivated to consistently contribute to the donation program.

Strategy to Improve Donations

The goals of this strategy were to cultivate an engaging and trusting relationship between donation partners and workers; enhance the donation culture in stores; improve transparency in the donation process; and encourage store workers at all levels to actively participate in the donation program. The Champions suggested a multipronged approach to this strategy, including (1) three distinct opportunities for workers to learn about donation partners and (2) an onboarding form for new donation partners to enhance communication about their capacity, needs, and specifications. Each approach is described in more detail below.

(1A) Paid Immersive Training with Donation Partners: In this opportunity, department managers and/or other key workers in charge of food donation would receive a fixed number of paid training hours per year designated for on-site training at one of their store's donation partner locations (e.g., local food pantry). Champions recognized that this strategy may be expensive when applied across the corporation, particularly with the tight margins in

grocery retail, and noted that one half-day (4 hours) per year would be sufficient. Activities at donation partner locations would depend on what is needed on the visit day (e.g., pantry set-up, food distribution, etc.). (See Appendix D.)

(1B) In-Store Teach-In: Recognizing that all workers would not be able to participate in the immersive trainings due to cost and logistics, Champions suggested that donation partners visit stores and deliver a 15- to 20-minute presentation similar to the one we presented at their meeting. This presentation would share information and photos about the donation partner (their mission, goals, who they serve, donation needs, etc.). These teach-ins would give all workers the chance to learn about partners and to ask questions. (See Appendix D.)

(1C) In-Store Customer-Facing Event: Champions also suggested that donation partners host customer-facing tables or booths in the front of stores. The tables would provide information about the organization and how they collaborate with the store, helping to build an understanding of community needs and strengthen buy-in for donations among both workers and customers. (Appendix D).

(2) Donation Partner Onboarding Form: In addition to the learning opportunities, Champions suggested creating a form that would collect standardized information from all donation partners at the time of onboarding. The form would serve as an acknowledgment of food safety protocols and would gather donation partner-specific information, including food needs and preferences, pick-up schedules, and interest and willingness to participate in in-store events and to host the immersive training (Appendix D).

Members of corporate leadership were receptive to some aspects of this strategy, including the in-store teach-ins and events, as well as the onboarding form. However, they noted that the paid immersive training would be too expensive and logistics would be infeasible.

Strategy 4: Run a Donation Incentive Contest

The fourth strategy involved creating and implementing a donation incentive contest for in-store workers.

Barriers to Donation

Workers and leadership both acknowledged that there was ample surplus food that could still be donated rather than thrown out. Some workers noted that if the training was enhanced and the guidelines were clearer, they would participate in the donation program simply because it is expected of them (for example, "I think most people were just doing the donations because it's a part of the job" [Store 2, Department Manager]). However, other department managers noted that they had little incentive to donate items and felt apathetic toward the donation program, noting that—even after learning about the guidelines—they still preferred to trash items that could have been donated because they perceived that they were less likely to get in trouble. Additionally, some workers felt that donating items was inconvenient and that they did not have time to do it amidst all their other expected daily tasks. Although the company sought to address this by creating a simplified process for scanning and tracking donations, workers expressed that it was still not part of their daily routine. This combination of perceived inconvenience and feelings of apathy disincentivized some workers from regularly donating.

Strategy to Improve Donation

To build motivation for consistently donating and to solidify donating as a habit, the Champions suggested the use of a donation incentive contest (Appendix E). The contest would use structured incentives to solidify behavior changes for workers involved in the food donation process. This idea originated from existing companywide contests that encourage employees to sell specific products (e.g., whichever store in the district sells the most watermelon during a certain timeframe, wins). The Champions recommended teaching workers about the contest during the enhanced trainings and running the contest consistently for at least a year after it is implemented. They noted that after one year, it may be possible to increase the time between contests or gradually phase it out altogether. Again,

workers were conscious of developing strategies that would be low-cost for the company in the long run.

During the contest, Champions suggested that each store and department work with leadership to articulate contextually appropriate weekly donation goals. Champions noted that working with leadership to develop goals would mitigate their fear of being reprimanded for donation-related shrink, because these donation goals would focus on increasing the proportion of their pre-existing shrink that is donated. For example, if the bakery currently donates 10% of their total shrink, they may set a goal to increase donations to 40% of their total shrink. These proportional goals would decrease the number of donatable items from being trashed without incentivizing workers to donate items that would otherwise be sold. Champions noted that the specific percentage goals must take into consideration store and department characteristics (e.g., a lower-volume store vs. a higher-volume store; the department type and amount of food viable for donation, such as seafood vs. deli). The donation incentive contest would operate at the store level: if all but two departments in a store meet their weekly donation goals, the store would earn a point. This rule was created in recognition that not all departments have items to donate on a weekly basis. Unlike the existing companywide contests that only reward specific department managers, for the donation incentive contest, winning stores would receive recognition as well as pizza parties or other nonmonetary incentives (e.g., in-store coupons, other free food from outside vendors).

Unlike the paid immersive training with donation partners, leadership felt that this idea was more financially feasible. They noted that providing recognition as a prize felt the most feasible, but that other incentives the workers suggested may be too costly when implemented across the company.

Additional Recommendation: Enhance Communications and Feedback Mechanisms about Donations

The Champions and other workers we spoke with described challenges related to communication and feedback, such as difficulty getting clear information about donations, delayed responses to their questions or requests regarding food donation policies and processes, and limited opportunity for input and feedback. Some workers also expressed a desire for greater receptivity to the input and ideas they provide. The researchers and Champions recognized that enhanced communication was a necessary component of all strategies and therefore decided to frame it as a broader recommendation rather than as a separate strategy itself. We recommended prioritizing the following principles related to communication and feedback:

(a) *Prioritizing interactive communication and feedback*. Workers felt that ongoing support from leadership helped them feel secure and welcome in sharing input about the food donation program without concern of recourse. Dissemination of the Champion-developed strategies may also demonstrate that workers' ideas and expertise are valued.
(b) *Developing clearer processes, spaces, opportunities, and points of contact* for workers to raise questions, share ideas and input, provide feedback, and ensure accountability, responsiveness, and follow-through. Workers noted that it would be helpful to have a specific person at the subregional level that they could communicate with about donations.
(c) *Further increasing worker access to tools and technologies* (e.g., phones, iPads, computers) to enable ongoing and timely communication and feedback about the food donation program, including options for anonymity, as well as day-to-day communications about the donation process and other work-related issues.

Workers noted that utilizing these enhanced communication principles in the context of the food donation program might also set a precedent for using similar approaches to improve other company programs and operations.

Discussion

In this project, we used a worker-centered approach to explore common barriers to food do-

nation faced by frontline grocery retail workers and describe co-created strategies to improve food donation. In response to the prioritized barriers to donation, workers recommended four strategies, including conducting new trainings; utilizing updated donation guidelines with posters and detailed handouts; strengthening connections between donation partners, workers, and stores; and running a donation incentives contest. Additionally, the Champions highlighted the need for timely, accessible, and reciprocal communication and feedback as essential to the success of all four strategies and to the food donation program generally.

At first glance, these strategies may not seem groundbreaking or surprising. For example, training workers is a widely recognized, perhaps even obvious, method for improving performance and outcomes (Elnaga & Imran, 2013). However, the strategies presented here are unique in that they were developed *by* workers, *for* workers, and in that they are based on the direct daily experience of engaging in the food donation process. We found that there were large differences in the details and emphasis of strategies currently used by corporate leadership, who may or may not have recent frontline worker experience, and those created by the Champions. This was most clearly demonstrated in the previous training and current donation guidelines, which workers found largely insufficient.

The specific strategies developed by the Champions in this study align with outcomes of previous research. De Moraes et al. (2020) outline numerous ways to reduce and/or prevent retail waste in their comprehensive review, including providing training schemes and advanced professional training and workshops on waste reduction (Strategy 1). Two research articles included in the review, Derqui et al. (2016) and Göbel et al. (2015), emphasized the need to extend these activities to employees throughout the chain of command. Additionally, the U.S. Food Waste Pact (2024) found that holding competitions within or between stores, recognizing employees for meeting food waste targets and milestones, and using monetary incentives to reward food waste reduction achievements were successful strategies to engage employees in reducing wasted food (Strategy 4).

To our knowledge, no previous research studies have focused on strengthening relationships between donation partners and workers (Strategy 3). One strategy for strengthening this relationship might be offering frontline staff paid time off to volunteer. In a survey of 120 companies in various industries, approximately 60% reported having volunteer "time off" policies, in which employees spend a set number of hours per year volunteering while still receiving their regular compensation (America's Charities, 2018). This strategy would require retailers to allocate additional resources to cover time for workers, which may be difficult for grocery retail companies, who notoriously have tight profit margins. At the same time, companies may experience benefits that justify the additional investment. For example, volunteer time off and similar employee volunteerism policies have shown to increase productivity, employee engagement, and improve hiring and retention (Rodell, 2021). Additionally, companies benefit by improving their image in the community and increasing trust and morale among employees (Cycyota et al., 2016; Gómez Santos & Fernández, 2017). The company also benefits from increased skills acquisition by employees (Gómez Santos & Fernández, 2017). Considering this evidence, providing paid time to visit donation partner sites may prove beneficial beyond improvements to the food donation program.

Next Steps for Research, Policy, and Practice

This was a formative research study conducted with the purpose of developing strategies to improve food donation; our goal was not to evaluate the strategies' effectiveness or implementation. Therefore, future studies should focus on evaluating the extent to which the strategies improve the quantity and quality of donated foods. Additionally, studies should assess the external, internal, and individual factors necessary for implementation (Damschroder et al., 2022), as well as specific implementation outcomes (Proctor et al., 2013). Although this study was conducted with one major grocery retail chain, the strategies may be applicable to other retailers. We strongly recommend that any grocery retailer interested in implementing any or all the strategies presented here maintain the

philosophical and practical commitment to centering frontline workers' input, perspectives, opinions, and repeated feedback in their process.

Prior to implementing the strategies at scale, we recommend rigorous pilot testing to assure that the strategies are appropriately adapted. For example, literature on extrinsic motivation suggests behavior often reverts once incentives are removed (Winkler-Schor & Brauer, 2024). Thus, although the workers suggested tapering the donation incentive contest after one year, it may be necessary to continue the contest to ensure long-term participation. Pilots should take place in a variety of stores and contexts (e.g., mix of high- and low-volume stores; urban, suburban, and rural stores; stores that are currently donating at various levels).

Additionally, there is a need for policy change and accompanying education regarding date labels. In the study stores, workers were required to discard foods if they were past the date label. Food date labels are not federally standardized (except for baby formula) and do not provide guidance about food safety. However, many retailers and consumers use date labels as if they were objective measures of safety and/or quality, leading to increased waste at the retail and household levels. Although most donated food can be safely eaten well past the date on its label, many retailers and consumers believe that such food is unsafe or unpalatable. This can prevent retailers from donating food in the first place and create dignity issues for recipients who may feel they are receiving low-quality food (Neff et al., 2025). Additionally, approximately a quarter of food retailers hold misplaced fears about liability related to food donation, despite federal protections under the Bill Emerson Good Samaritan Food Donation Act (Natural Resources Defense Council & Harvard Law School Food Law and Policy Clinic, 2017). Federal standardization of date labels, accompanied by education targeting retailers and consumer, would clarify which foods are safe to eat and could lead to increased food donation and reductions in wasted food.

Strengths and Limitations

The biggest strength in this study was the inclusion of workers in every step of the research process, from identifying the problems to creating the proposed solutions, ensuring the strategies are based on workers' own experiences and insights. Frontline workers bring a wealth of expertise and insight to their work, but far too often their potential is not recognized or factualized. Although Company X and other retail corporations state that they engage workers by listening to and incorporating feedback into their daily processes and new initiatives, there is still room for improvement. In our experience, there were major differences between worker-*engaged* and worker-*centered* approaches, both in terms of process and outcomes. The former can be largely symbolic and reactive, while the latter, illustrated in this study, can be highly motivating and impactful. We encourage all retailers to adopt more worker-centered processes and strategy development which, when facilitated authentically and intentionally, can result in improved ecological, financial, operational, and societal outcomes.

Additionally, the HCD process allowed the research team to learn from the expertise of frontline workers; the resulting understanding improved the rigor of the analysis of interview and observational data. The project also benefited from collecting data from numerous groups (e.g., corporate leadership, donation partners), providing a more comprehensive understanding of the strengths and weaknesses of the existing food donation program and of other issues than could be obtained from workers alone. One limitation we may have encountered in our data collection is the Hawthorne Effect, which occurs when people behave differently because they know they are being watched (Spencer & Mahtani, 2017). Although we were unable to completely mitigate this type of bias, we triangulated the results of our observations with results from our in-depth interviews across all stores and included only results that were consistent across both data collection methods.

One limitation is that the four strategies reflect insights from only the four participating stores, which previously donated little to nothing, and thus are not representative of Company X's full retail chain. Nonetheless, basing the project within such stores aligns with one best practice in HCD: to "design for the extremes," which involves creating interventions that can perform effectively in the

most challenging situations. When we design for extreme users, we assume that solving for the most challenging barriers will improve everyone's experience. Accordingly, while these strategies might be most impactful in stores with limited donations, all may benefit. Additionally, we did not assess donation barriers in other stores or companies and cannot be sure these barriers are industrywide or that the strategies created by workers in this study address the main barriers in all grocery retailers. However, a previous study of workers from various grocery retail chains found similar barriers, such as worker lack of awareness, inflexible procurement requirements, and unclear policies on waste prevention (Ceryes et al., 2021). Additionally, the U.S. Food Waste Pact (2024) conducted sector-specific interviews within their 15 signatories (including Walmart, Aramark, Ahold Delhaize) and found similar strategies for wasted food reduction, such as training workers, holding competitions, recognizing workers for meeting waste reduction targets, and providing monetary rewards.

A final limitation is that corporate leadership expressed resistance to all but one proposed strategy, with feedback centered primarily on cost. This reflects a misalignment between worker-recommended solutions and company investment priorities. Piloting these strategies would allow companies to assess their effectiveness and conduct a full cost-benefit analysis, which may reveal additional social and financial gains. For example, we hypothesize that investing time and money for workers to learn about and build connections with their store's donation partners (Strategy 3) would help build mutual trust and increase the amount of unsold food going to donation partners, which in turn, would reduce each store's waste hauling costs, in addition to benefits such as improving worker satisfaction and company reputation.

Conclusion

Grocery retailers currently donate more food than any other sector, yet they continue to discard vast amounts of high-quality food, and there remains much potential to waste less and donate more. Increasingly, states and cities have implemented laws to keep food out of landfills (US Composting Council, 2025). As policies banning organic waste expand, grocery retailers will need to increase the use of alternative solutions, such as donating, to manage surplus food. Ultimately, realizing this untapped potential will depend on the frontline workers tasked with the everyday decisions about what food can be sold, discarded, or donated, and manually separating that food for donation pickup. This project breaks new ground by not only working to identify and address the barriers faced and prioritized by frontline workers, but also by centering the workers themselves in an HCD process to create responsive strategies.

Acknowledgments

We want to recognize the Food Donation Champions who put their hearts into this project. We are also grateful to our partners at Company X for their willingness to collaborate with us on this important work. Additionally, we are grateful to the many donation partners who make the food donation process possible, and particularly to those who took the time to share their knowledge with us. Finally, we would like to thank our amazing colleagues and friends in our research network, whose ideas and support contributed to this project's convergence and benefits.

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Appendices

Appendix A. Sample of the Curriculum Outline Developed for Strategy 1: Conduct New Trainings for the Food Donation Program

Strategy 1: Conduct New Trainings for the Donation Program

About this Training Guide

In the spring and summer of 2023, the project used an -driven cohort model to explore the end-to-end process of food products entering and leaving stores in the region. Through the project, shared their experiences with and perspectives on existing practices, bright spots, and challenges in the retail setting that impact food donation and waste. The and Johns Hopkins/MICA team used this information to co-design strategies to strengthen donations.

Based on the associates' experiences, expertise, and recommendations, the Champions prioritized developing guides for all and leadership at to be retrained about the Donation Program. The program's success requires and leadership to understand program procedures and their own roles within the program, and to appropriately and consistently know which items should be sold, donated, or discarded. Success may be further strengthened based on knowledge of the program's social benefits, which the training provides. emphasized that it is important for leadership at all levels to be trained to create collective knowledge and buy-in so that they can provide guidance to those who report to them. Cross-level training will also contribute to a more positive culture of food donations within the , as everyone will share knowledge of the processes of food donation and its impact in the community.

Messages from leadership about their priorities make a difference. Store Directors prioritize what their District leaders prioritize; District leaders prioritize what their Division leaders prioritize; and Division leaders prioritize what their National leaders prioritize. If it is clear that this is a priority to all levels of leadership, then that will ultimately impact the associates in stores who making decisions about what is and is not donated.

This document provides outlines of eight training programs adapted to the needs of at all levels of (National Corporate, Division Corporate, District Corporate, Operation Specialists, Store Directors, Department Managers,). The trainings cover:

- The importance of the Food Donation program
- Donation food safety and quality
- Food donation processes (and challenges)
- Donation incentives
- Strengthening connections with Donation Partners
- Overview of roles and responsibilities, and chain of command
- Opportunity for Q/A

DRAFT — 1

Next steps for strategy: These outlines should be further developed into detailed training curricula. It will be valuable to have associates provide input on these curricula prior to piloting and implementation.

Key Principles of Food Donation Trainings

These training guides have been created by emphasizing the following key principles. The training program should prioritize:

- Strengthening the culture of donation at , including by demonstrating leadership commitment to food donation, and by building motivation and engagement
- Keeping the training program rooted in insights from store-level ' lived on-the-ground experience and expertise
- Providing the information and skills associates need to play their roles in the Program
- Including time and space for those being trained to ask questions and provide feedback.
- Combining multiple modalities and provide backup resources, to make trainings relevant, engaging and effective
- Reaching at all levels

Training Delivery

were adamant that for Department Managers and Operations Specialists, in-person, hands-on trainings would be most effective in building knowledge and engagement. At other levels, virtual training via Microsoft Teams may be sufficient. Recorded trainings could be used for refreshers. We recommend a training hierarchy (Figure 1) in which the and the would train other members of National Corporate, Division Food Safety Directors, Division The would select district-level Champions (a new role, explained below), and would train those Champions as well as District Presidents. The new Champions would train both Store Directors and Operations Specialists from each department. The Store Directors would train , while the Operations Specialists would train Department Managers.

emphasized the importance of ensuring participants remain engaged, via interactive, hands-on, and relevant information and activities, and/or by keeping each training session relatively short. Further, **training facilitators and planners need to ensure that attendees prioritize this training and minimize distractions** (e.g., requiring participants to turn on their video, closing out of email inboxes and other messaging apps, silencing phones, etc.)

Based on the importance of these trainings, we recommend they be **mandatory at all levels**, to be completed as the first step of the re-rollout. Makeup sessions may be necessary to accommodate all associates.

DRAFT — 2

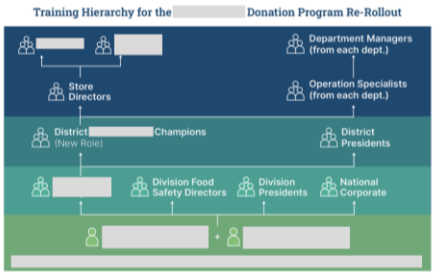


Figure 1: Training Hierarchy

Contents

Division-Level Leadership Training 5
Additional Training for Division Champions to Select and Train District Level Champions 9
National-Level Corporate Management Training 10
District Leadership Training 11
Additional Training for District Champions 11
District-Level: Operation Specialists Training 13
Store-Level: Store Director Training 15
Store-Level: Department Manager Training 16
Store-Level: Department-Level Associates Training 18
Store-Level: Receiver Training 18
Store-Level: Department-Level Associates, Training 21
Summary of Roles and Responsibilities, Chain of Command, Training Hierarchy 22

Note: The Division-Level training is elaborated most fully. The sections for all other trainings indicate ways to adapt that template.

DRAFT — 3

Division-Level Leadership Training

STRUCTURE

Audience: Division Presidents + Division Food Safety Directors + Division Champions
Meetings: One 60-90 min training for full group; One 30-60 minute training for Division Champions regarding additional roles
Format: Microsoft Teams meetings
Led by:

CONTENT

1. Overview of food waste, shrink, donations, and impact

- Overview of food insecurity nationally
  - Magnitude; effects on physical, mental health
- Overview of food waste nationally and in retail
  - Magnitude, including % from retail; effects on environment
- Donations, shrink, and waste at
  - Total amounts
  - Environmental/social impacts of donations
  - Financial impacts for
    - Cost to landfill and manage waste; cost differences between hauling to landfill, divert composting, and donating

2. Food Donation Program Mission and Benefits

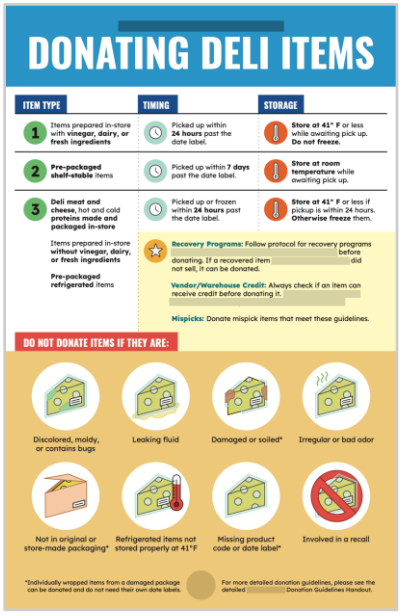
- "With all the above in mind, we created the food donation program…"
- Overview of goals
  - General goals
  - Specific goals (E.g., Every department in every store actively participates in donating; goals for frequency and amount)
- commitment to food donation; benefits of this commitment
  - Financial savings, tax benefits
  - Community goodwill -
  - Environmental goodwill
  - Addresses bans on sending organic waste to landfill in some states/localities
    - Can't forget that primary goal is sales, but when food can't be sold, donation is far better than the alternatives.
- are greatest asset to the donation program
  - Daily actions create program success
  - expertise and experience leads to real world solutions that are helpful in troubleshooting and in further increasing impacts
- Examples of existing partnerships between stores and Donation Partners
  - Include 1-2 examples of Donation Partners and their impact (with photos)

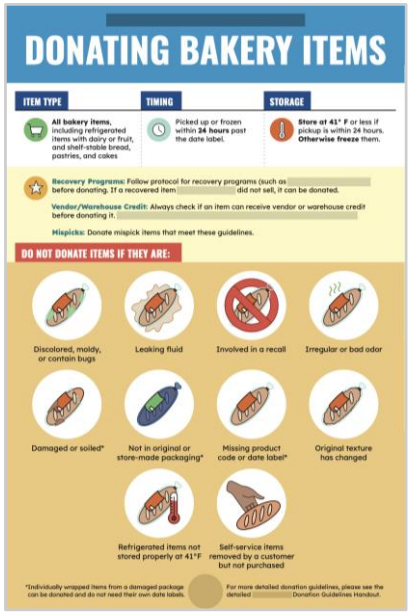
3. Donation Tracking

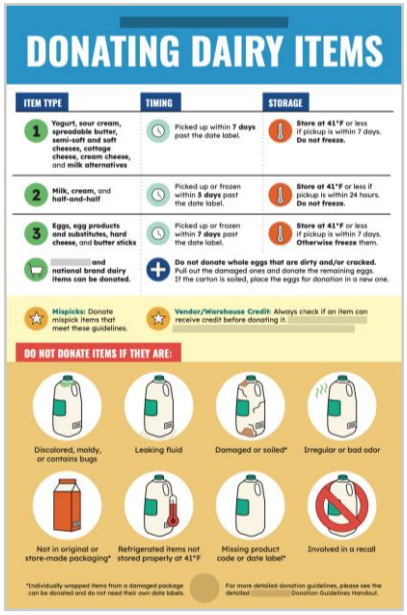
- Describe current donation data, including general trends regarding donation level by Division

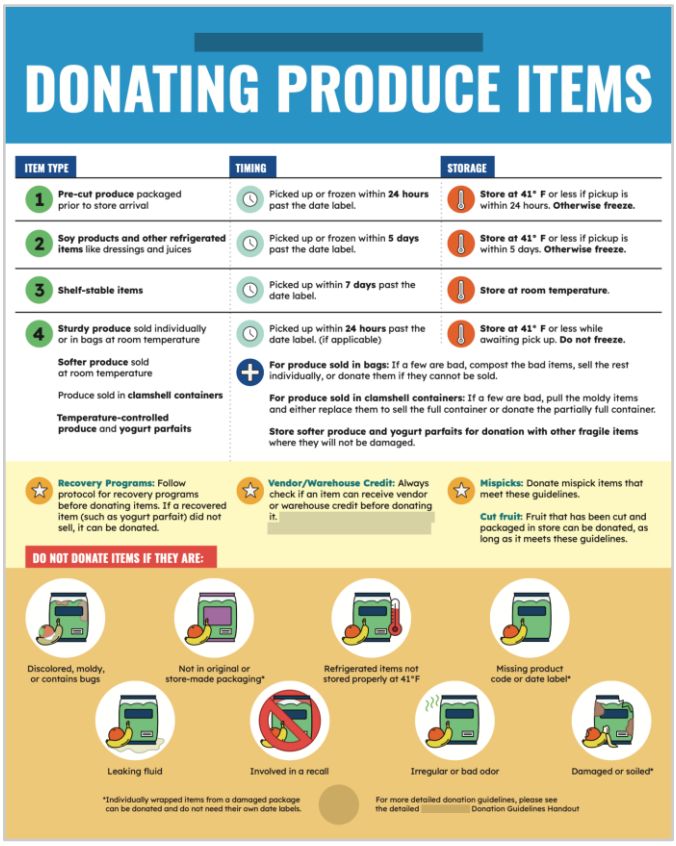
DRAFT — 4

Appendix B. Sample of the Donation Guidelines Posters Developed for Strategy 2
Posters were developed for all department in the stores.











Appendix C. Sample of the Donation Guidelines Detailed Handouts Developed for Strategy 2

Detailed Handouts were developed for every department in the store.

Donating Produce Items

Please do NOT donate items if they are:

- Moldy or contain bugs/insects
- Give off an irregular or bad odor
- Discolored
- Overly soft or mushy or have large soft or mushy spots
- Leaking fluid
- Involved in a recall
- A refrigerated item that has not been stored at 41° F or less or has been stored outside of refrigeration for more than 4 hours
- Packaging is expanded/bloated
- Packaging is damaged or soiled to where it is opened and the food is or could be compromised
  - **For products that contain a bag inside a box:** If the outer box has been damaged or opened but the bag inside is still intact, you can donate it.
  - **For products that contain individually wrapped items:** If the outer package has been opened or damaged, but the individually wrapped items are still intact, you can donate them.
- Not in their original or store-made packaging
- Usually have a product and/or date label or code but it is missing
  - **For individually packaged items that come in a larger box:** the date may be listed on the box. It is still okay to donate if individually packaged items do not have a date as long as the date is listed on the larger box.

[See next page for additional guidelines]

Donating Produce Items

Please DO donate:

Item Type	Timing, Storage, and Additional Guidelines
Sturdy produce that is sold individually and stored in bins at room temperature (Such as whole oranges, apples, bananas, lemons, limes, onions, whole melons)	Store at 41° F or less while awaiting pick up.
Sturdy produce that is sold in bags or sacks at room temperature (Such as potatoes, onions, lemons, apples)	Store at 41° F or less while awaiting pick up. If you have a sack or bag of produce and one or a few in the bag are bad, open the bag and compost the items that are bad. If the rest of the bag can be sold individually, place them out on the floor. If they cannot be sold individually, donate them.
Softer produce stored at room temperature (Such as peaches, plums, nectarines, tomatoes, berries)	Store at 41° F or less while awaiting pick up. Store in a box with other fragile items like bagged salads and put somewhere where that box will not get damaged. Be mindful that soft produce is especially prone to damage and texture changes. If an item has a soft spot, it will not be able to wait long for pick up. Depending on the item, it may need to be picked up within 24 hours after it is pulled/culled from the department floor.
Produce sold in clamshell containers (Such as cherry tomatoes, strawberries, blueberries, blackberries)	Picked up within 24 hours past the date label (if applicable). Store at 41° F or less while awaiting pick up. Store in a box with other fragile items like bagged salads and put somewhere where that box will not get damaged. If there are a few bad items within a clamshell of produce, remove the moldy items and either (a) replace them to sell the full clamshell container or (b) donate the partially full container. If the clamshell is expanded or enlarged do not donate.
Pre-cut produce that was cut and packaged prior to arriving to the store (Such as pre-cut vegetables)	Picked up within 24 hours past the date label. If donation pickup is within 24 hours, store at 41° F or less while awaiting pick up. Otherwise, if donation pickup is in more than 24 hours, freeze at 32° or less for up to one month.
Yogurt parfaits	Picked up within 24 hours past the date label. Store at 41° F or less while awaiting pick up. Do not let them sit out unrefrigerated for any length of time, even while culling/pulling other products from the floor. Store in a box with other fragile items like bagged salads and put somewhere where that box will not get damaged.
Refrigerated soy products (such as tofu, satan, tofurkey)	Picked up or frozen within 5 days past the date label. If donation pickup is within 24 hours, store at 41° F or less while awaiting pick up. Otherwise, if donation pickup is in more than 24 hours, freeze at 32° or less for up to one month.
Shelf-stable items (Such as nuts, salad toppings) and **other refrigerated items** (Such as dressings, juices)	Picked up within 7 days past the date label. Store shelf-stable items for donation pick-up at room temperature. Store refrigerated items at 41° F or less while awaiting pick up.

[See next page for additional guidelines]

Donating Produce Items

Additional Guidance

Vendor/Warehouse Credit: If an item can receive vendor/warehouse reclamation credit, make sure it does. If the credit has been received and the vendor/warehouse does not want the item and is ok with it being donated, then the item may be donated. DO NOT

Recovery Programs: If an item can be recovered into another product for sale, do that first. Examples include recovering cherry tomatoes into a vegetable tray or recovering a partially bad melon into a cut fruit bowl. If the product cannot be recovered or there is already a large stock of the recovery product, then you may donate the items.

- If the product is a recovered item but did not sell and it is still within the acceptable date range, it can be donated.

Cut fruit: Fruit that has been cut and packaged in store (such as watermelon, mixed fruit clamshells, etc.) can be donated as long as it meets the criteria above.

Mispicks: Mispick items within the acceptable date range should be donated.

Appendix D. Service Blueprint was Developed to Demonstrate the Donation Partner Immersive Training

Figure D1. First of the Three Services or Events in Strategy 3 to Strengthen Connections between Donation Partners, Workers, and Stores

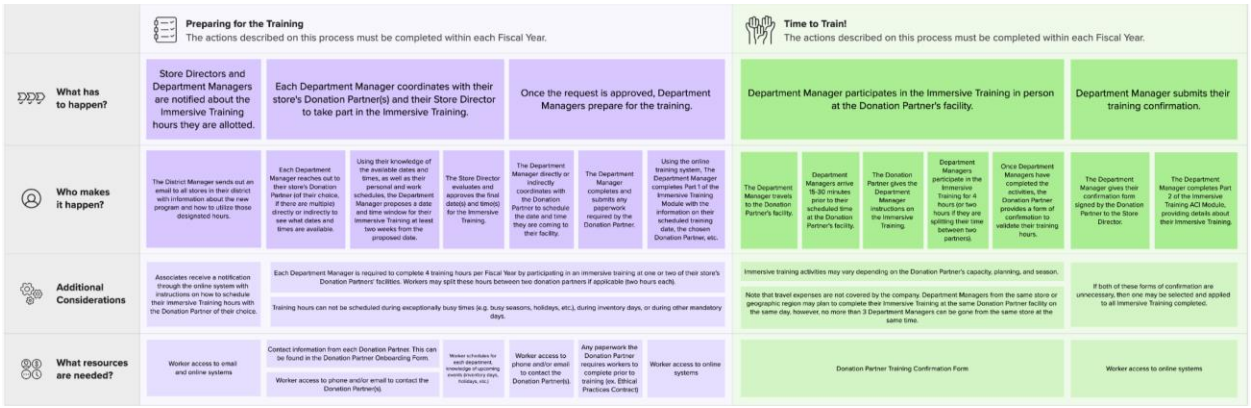


Figure D2. This Service Blueprint was Developed to Demonstrate the Donation Partner Teach-In Visits, the Second of the Three Services or Events in Strategy 3 to Strengthen Connections between Donation Partners, Workers, and Stores

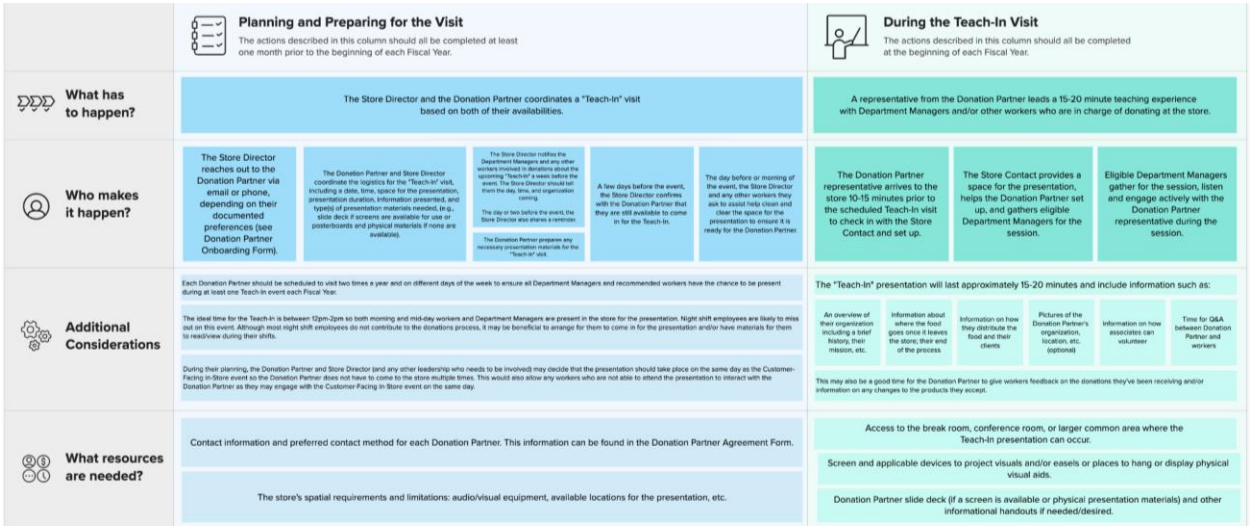


Figure D3. This Service Blueprint was Developed to Demonstrate the Donation Partner In-Store Events, the Third of the Three Services or Events in Strategy 3 to Strengthen Connections between Donation Partners, Workers, and Stores

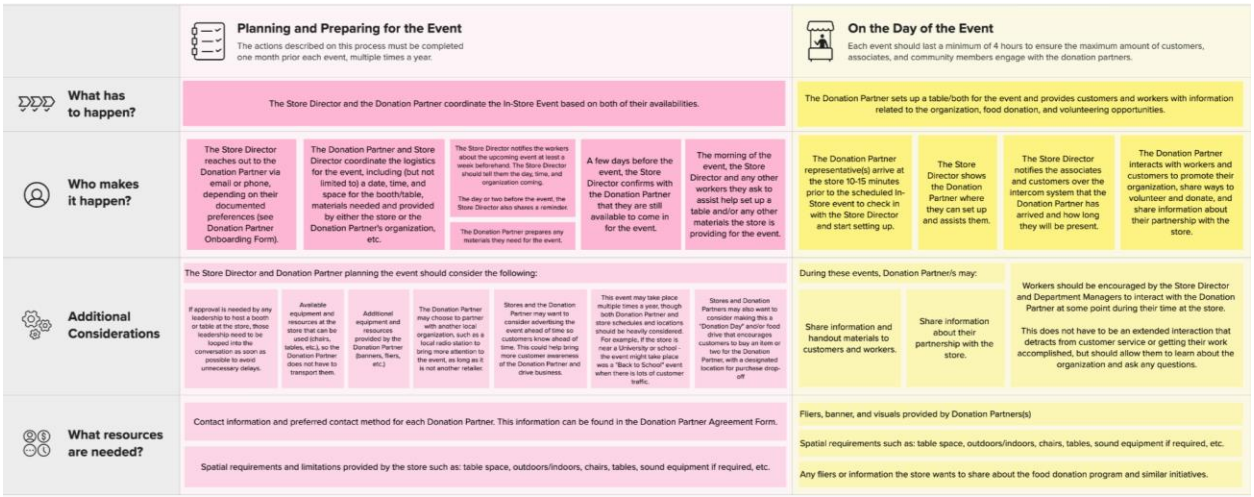
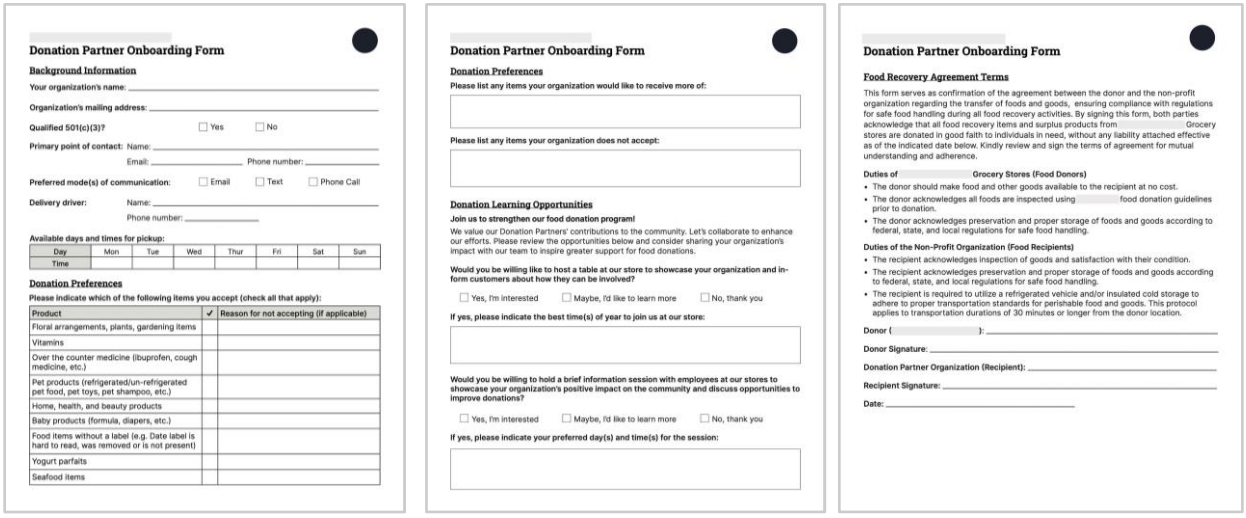


Figure D4. The Donation Partner Onboarding Form, Developed as Part of Strategy 3 to Strengthen Connections between Donation Partners, Workers, and Stores; the Form was also Designed in Black and White



Appendix E. Service Blueprints

Figure E1. This Service Blueprint was Developed to Demonstrate the 12-Week Model of the Donation Incentive Contest for Strategy 4

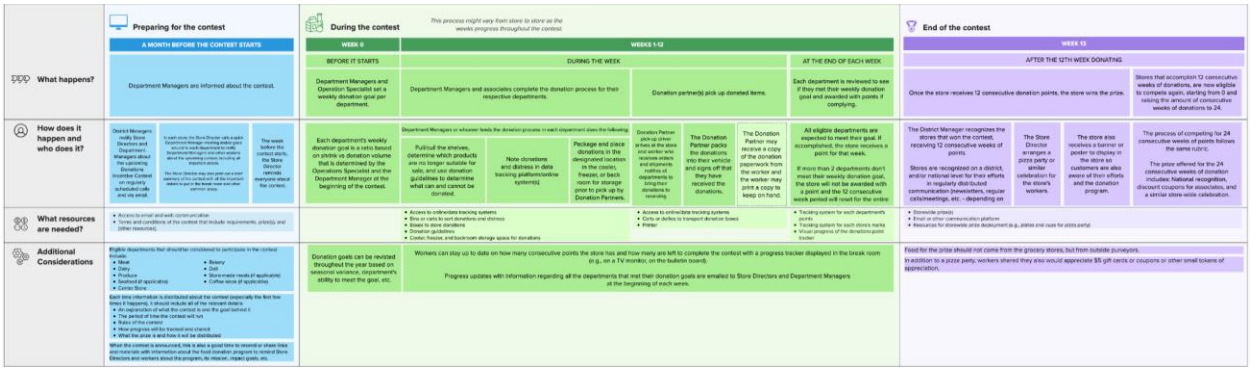


Figure E2. This Service Blueprint was Developed to Demonstrate the Quarterly Model of the Donation Incentive Contest for Strategy 4

