



Photo: Kid-Friendly Nashville

Nashville Food Rescue Landscape Analysis

Emmett McKinney
JoAnne Berkenkamp
Linda Breggin

Nashville Food Waste Initiative

For more information, please contact

JoAnne Berkenkamp
jberkenkamp@nrdc.org

Linda Breggin
breggin@eli.org

Table of Contents

Executive Summary	2
Introduction	6
Methods	7
Results	8
Last Mile Organizations	8
Organizational Types	8
Current Operations	8
Interest in Receiving More Donations of Prepared Food	10
Pros and Cons of Prepared Food	10
Barriers to Expanding LMOs' Meal Services	12
The Likely Impact of Additional Prepared Foods	14
Institutions	14
Current Donation Practices	14
Interest in Expanding Donations	15
Challenges for Institutions	16
Restaurants and Caterers	17
Current Donation Practices	17
Interest in Expanding Donations	17
Challenges for Restaurants and Caterers	18
Potential for a Smartphone Application	19
High Priority Features	20
Concerns	21
Summary and Next Steps	22
Endnotes	24

Executive Summary

Up to 40% of food goes to waste every year in the United States.¹ At the same time, over 16% of Middle Tennessee residents suffer from food insecurity. Feeding America estimates that residents of Davidson County experience a total food budget shortfall of over \$60.8 million, equivalent to roughly 19.3 million meals per year.² The Second Harvest Foodbank of Middle Tennessee (“Second Harvest”) alone is estimated to distribute approximately 7 million meals per year with food from a wide variety of sources, covering 36% of this gap.³ Other organizations in the community add to this figure, although the remaining gap – potentially over 10 million meals – illustrates the need to continue expanding food donation efforts, along with complementary strategies to address the underlying drivers of hunger in the community.⁴

Recent research by NRDC explored the potential to expand food rescue from consumer-facing businesses (such as institutional foodservice, restaurants, caterers, convenience stores and retail grocery) located in Nashville, Denver and New York City.⁵ The analysis for Nashville found that the equivalent of 9.3 million additional meals could, hypothetically, be rescued from these business sectors per year under optimal conditions. This includes the potential for an additional 2.4 million meals from restaurants, 1.8 million meals from institutions including hospitality (mainly hotels), healthcare, colleges, universities and K-12 and an estimated 200,000 meals from caterers. Much of the potential from these foodservice sectors would likely be in the form of prepared foods. If the potential from institutions, restaurants and caterers could be realized, it would meet an additional 23% of the meal gap in Davidson County. The possibility of expanding donation of high quality prepared food thus presents a significant opportunity in Nashville.

To further assess the landscape for prepared food rescue in Nashville and identify barriers and opportunities, NFWI conducted a series of interviews and surveys with 28 “last mile organizations” (“LMOs”) working to address food insecurity needs. We focused on those “last mile” non-profits that interact directly with food-insecure Nashvillians by providing prepared meals, including homeless shelters, family resource centers, transitional housing organizations, educational enrichment programs, and others. These included large non-profit hunger assistance organizations and a wide range of small community and/or faith based groups. This study does not address donations by grocery stores or food manufacturers, or food pantries and other non-profits that do not handle prepared foods. To better understand the perspective of potential food donors, we also conducted interviews and surveys with 16 institutions and restaurants.ⁱ

The primary objectives of this research were to assess: the current practices and challenges related to donation of prepared foods (such as entrees, side dishes and sandwiches) that are experienced by last mile organizations and potential donors; the interest and capacity of LMOs and donors to expand prepared food rescue; and whether and how a smartphone application could support increased rescue of prepared food in Nashville.

Key findings are discussed below.

ⁱ In this report, “institutions” encompasses the restaurant, catering, counter-serve, and all other food services provided at a given location. “Restaurants” refers to full or limited service dining locations, and “caterers” refers to businesses that focus on catering services. “Businesses” refers to restaurants and caterers collectively, excluding institutions.

Interest in Expanded Prepared Food Donations

- LMOs consistently expressed interest in receiving more prepared food, and a **substantial portion of LMOs, 48%, said they could increase the number of meals served by modest amounts** with their current staff and facilities. About 25% of LMOs interviewed estimated that they could serve between 300 and 600 more meals per week, and 25% indicated that they could increase meal services by fewer than 100 meals per week. The majority, however, raised concerns about having limited organizational capacity to handle significantly more food, with **52% of LMOs reporting that without additional staff or facilities, they could not serve more food.**
- Many LMOs suggested that, in the near-term, increased donation would primarily enable them to **replace purchased food with donated food** and thus reduce their food purchasing costs, or improve their food offerings for the same number of clients. Increased food donations could be beneficial within their organizational capacity to handle them, but would not always translate directly into more meals served.
- To increase the number of meals served over the long term significantly, donation efforts need to be paired with **increased investment in LMOs' organizational capacity** to distribute the food.
- Few LMOs cited food availability as a major constraint at this time, with most reporting that they are **able to obtain the food necessary to serve their clientele**, whether by purchasing it or using donated food.
- Overall, restaurants, caterers, and institutions that **currently donate** surplus food expressed a strong interest in expanding donations, while those that **do not** currently donate reported being hesitant to start.
- LMOs and potential donors are **extremely diverse in their needs, operational dynamics and objectives.** LMOs also differ widely in how they prioritize different types of foods, and the taste preferences and dietary restrictions of their clientele. Effectively matching new partners based on the unique attributes and needs of each is a key consideration.

Barriers to Increased Prepared Food Rescue

- **Staffing, storage, and funding constraints** limit LMOs' ability to scale up their operations in the near term. For most LMOs, funding constraints are reported to be a greater constraint than food availability.
- Many LMOs currently use staff or volunteers to pick-up food from donors' locations during the LMO's business hours. Few have **staff or volunteers to pick-up or receive donations late at night or on weekends.**
- Restaurant and institutions emphasized that their staff are willing to assist with food donations, but they have very limited time to do so. Interviews suggest that staff are able to set aside prepared food for donation, but usually are not able to deliver surplus food to receiving organizations.
- Most restaurants and institutions would prefer that receiving organizations provide packaging for donations. Businesses with catering operations, however, expressed greater willingness to provide containers. For most LMOs, the idea of **providing food packaging** to donors would be problematic given their limited organizational budgets.

- **Limited cold storage space** to receive prepared foods was highlighted as a challenge by numerous LMOs.
- Most restaurants and institutions indicated they have sufficient cold storage space to **hold donations overnight** to be picked up in the morning, though donations held for too long can impede business operations. Prompt and reliable pick-up by non-profits is key.
- Both potential donors and LMOs expressed concern about **making sure food is handled safely** throughout the donation process. This will make some type of vetting and/or trust-building effort between LMOs and donors important.
- Lack of knowledge about **federal and state liability protections** among businesses and institutions may be deterring donations. We found a lack of knowledge about existing liability protections and tax incentives to be particularly acute among businesses that do not currently donate, though even existing donors could benefit from more education. A lack of knowledge about federal tax incentives for food donation was also widespread among the small businesses interviewed.
- Institutions, restaurants, and caterers also report needing **more information about non-profit organizations** that could receive donated food from them.

Smart Phone Application Considerations

- **LMOs are enthusiastic** about how a smartphone app could help share information on available donations, identify sources of available food, and communicate key logistics information. Concerns remain, however, among LMOs about limited staff and volunteer availability to monitor an app and pick-up food outside of business hours (with many LMOs preferring to pick-up food on a regular schedule as they do now), food safety, and the effort required to adapt to a new technology.
- **Restaurants and institutions expressed more limited interest** in a smartphone app. Restaurants cited concerns about staff availability, while institutions highlighted logistical needs (such as tight security at large facilities) and concerns about the food safety practices of potential partner organizations and drivers.
- Given the time constraints faced by both food businesses and non-profits, any food donation platform must be **easy to join and work well the first few times it is used**. Success also depends on having a **critical mass of participants** committed to using an app and a significant stream of donations posted on the app so that it is worthwhile for users to monitor.

Next Steps for Stakeholders

Based on this research, specific avenues that stakeholders may want to explore further include:

- Educate institutions, restaurants and other food businesses on federal and state **liability protections**.
- Educate businesses on **federal tax incentives** for food donation.
- Disseminate Metro Nashville's **food safety guidance** for food donors.
- Compile and share **lists of organizations** interested in receiving additional donations of prepared food.

- Facilitate **LMO/food donor connections** to identify those with complementary needs and objectives.
- Explore strategies for supplying LMOs and/or food businesses with **packaging for donated food**.
- Brainstorm additional approaches to increasing donations of highly valued foods, such as meats and produce, particularly from donors that have the potential to provide significant volumes of prepared food.
- **Engage city officials**, such as health inspectors, to more proactively encourage food donation by institutions, restaurants and other businesses and incorporate food donation issues into health inspectors' interaction with licensed food facilities.
- Expand the scope of **public recognition initiatives** such as the Mayor's Restaurant Food Saver Challenge, which has led a substantial number of restaurants to start or expand food donations.
- Further assess whether LMOs have sufficient **interest and capacity** to pick up or receive donations shared through a smartphone app, and whether the **level of food donation achieved** is large enough for such a platform to be useful.
- If warranted, develop or adapt an existing food donation **smartphone app tailored to Nashville's needs**, including identification of a lead organization(s) that could recruit donors and LMOs to use the app, vet participating organizations and provide necessary food safety assurances, arrange transportation where needed, and provide on-going relationship management, record-keeping services and other necessary support. This could include recruitment of **volunteer drivers to pick up and drop off food** outside of normal business hours if expanded food volumes warrant it in the long term.
- Study options for financing and otherwise supporting **expansion of LMOs' operational capacity** with the goal of enabling expanded food rescue of prepared food and more fully responding to food insecurity in Nashville.

Introduction

Up to 40% of food goes to waste every year in the United States.⁶ On the Environmental Protection Agency's Food Recovery Hierarchy, donation of surplus food ranks highest among strategies for addressing wasted food, following the prevention of food surpluses.⁷ Surveys of the foodservice industry suggest, however, that only 2% of unsold food is currently being donated.⁸ NRDC estimates that fewer than 5% of the more than one-million restaurants in the United States currently donate food.⁹

Donation of surplus food plays an important role in addressing food insecurity, an issue of particular importance to the Nashville area. Feeding America estimates that over 16% of Middle Tennessee residents experience food insecurity, and Davidson County residents experience a total annual food budget shortfall of over \$60.8 million, equivalent to roughly 19.3 million meals per year.¹⁰

Numerous organizations are now working to address this gap by rescuing and distributing food (predominantly grocery items provided by retailers and manufacturers) to Nashville's food insecure. Some of the largest organizations include the Second Harvest Foodbank of Middle Tennessee ("Second Harvest"), which distributes the equivalent of 7 million meals per year in Davidson County; the Nashville Rescue Mission, which serves approximately 600,000 meals per year; and Room in the Inn, which serves about 158,000 meals per year.

In addition, the non-profit One Generation Away (OGA) rescues surplus food from restaurants and other retailers. OGA distributes the equivalent of roughly 250,800 meals in Davidson County per year, both through partner organizations and directly to families at monthly distributions. The Nashville Food Project (NFP) provides roughly 154,000 prepared meals per year, mainly through food donated and gleaned from farms, donated by grocery stores and grown in NFP gardens. The Society of St. Andrew also gleans produce from nearby farms and distributes to other agencies in Nashville. Collectively, the other non-profits that were interviewed or responded to the survey for this study serve an additional 986,000 meals per year.

Current efforts by the organizations participating in our study appear to meet 42% of the estimated meal gap for Davidson County. If documented LMO meal service figures are extrapolated to LMOs that were identified but did not participate in this research, it appears that up to 45% of the meal gap may be met by current efforts.

That leaves a gap of roughly 10 million more meals per year than are currently being provided through existing food donation channels.

There were several past efforts to rescue more prepared foods in Nashville that are no longer operating. Beginning in 1989, Nashville's Table collected surplus food from restaurants and institutions, which was then delivered to a range of non-profits. Nashville's Table merged with Second Harvest in 2005, becoming the Middle Tennessee's Table program. The Middle Tennessee's Table program now focuses exclusively on rescuing grocery items, and Second Harvest no longer accepts prepared foods.

In many cities, donation-matching software platforms and other tech-aided models supplement other hunger relief efforts. Knoxville-based Food Donation Connection facilitates relationships between restaurants, convenience stores, coffee shops and other donors (mainly national chains) and food assistance organizations across the country, including some of those interviewed for this study.

Platforms such as 412 Food Rescue, Copia (formerly Feeding Forward), and Food Rescue US (formerly Community Plates) have found success in other cities, each taking a different approach to the transportation, funding, and volunteer challenges described below. In 2015, the Chicago-based company Zero Percent introduced a smartphone application in Nashville to expand food rescue efforts, though ultimately this effort did not gain enough traction to be sustainable.

A few similar efforts are just beginning in Middle Tennessee. OGA, based in Franklin, Tennessee, recently launched a smartphone application to organize food donation through their network, which is now used by a handful of non-profits and donors in Nashville. Feeding America is now beginning to roll out their new MealConnect app through food banks around the country and planning to introduce the app in Nashville by the end of 2017.

To assess the current prepared food rescue landscape in Nashville, we conducted a series of interviews and surveys with “last mile organizations,” (LMOs) – non-profits that provide prepared meals to food insecure Nashvillians (also referred to here as “receiving organizations”) – as well as a selection of institutions, restaurants and caterers. We also gathered input from several organizations that engage in food rescue or support LMOs more broadly.¹¹

The principal objectives of this research were to assess:

- The current rescue and donation practices of LMOs and area businesses and the donation-related challenges they experience;
- The capacity and interest of LMOs and potential donors in expanding donation efforts for prepared food; and
- The interest and concerns of LMOs and potential donors regarding a smartphone application to support rescue of prepared food in Nashville.

Methods

We gathered input from LMOs, institutions and restaurants through electronic surveys and one-on-one interviews (nearly all in-person at the organization’s place of business). We were able to identify and invite participation by over 60 LMOs that provide prepared meals in Nashville. We interviewed 18 LMOs and received ten electronic survey responses, reflecting input from 28 different organizations in total, a response rate of 44%. We also spoke with 16 current and potential food donors, including nine institutions (six by interview and three through an electronic survey) and seven restaurants (through four interviews and three by survey). This is clearly a modest subset of Nashville’s LMOs and foodservice operators, so caution should be used in applying the findings reported here to LMOs or foodservice businesses in the community more generally.ⁱⁱ

We sent the electronic survey to an extensive list of LMOs in Davidson County compiled from public databases such as United Way Nashville Agency Partners, Second Harvest Partner Agencies, Nashville Social Services, and Guidestar, as well as the NFWI contact list and a Google search for similar

ⁱⁱ Some institutions, such as hotels, operate dine-in restaurants as part of their food services. In this report, “institutions” encompasses the restaurant, catering, counter-serve, and all other food services provided at a given location. “Restaurants” refers to full or limited service dining locations, and “caterers” refers to businesses that focus on catering services. “Businesses” refers to restaurants and caterers collectively, excluding institutions.

organizations. Contact information for food businesses was compiled through the NFWI contact list, as well as targeted outreach to the Nashville Originals, Greater Nashville Hospitality and Restaurant Association industry groups.

Below we share our findings, focusing first on LMOs and then turning to institutions, restaurants, and caterers. For LMOs, we summarize key aspects of their current operations, interest in receiving more prepared foods, perceived barriers to expanding meal services, and impact they would expect from additional donation of prepared food. For institutions, restaurants and caterers, we describe their current donation practices, their interest in expanding donations, and the challenges they perceive. Lastly, we share feedback on the perceived benefits and challenges of adopting a food donation smartphone app in Nashville to support rescue of prepared food.

Results

Last Mile Organizations

Organizational types

Interviews and surveys revealed three general categories of LMOs. The first group includes **food-focused non-profits** that identified serving meals to the food insecure as a primary organizational objective. These organizations include homeless shelters, church groups that host meals, and other non-profits that prepare and deliver meals. The second category is **transitional housing organizations**. These organizations serve meals as part of a residential housing program for individuals returning from prison, rehabilitation centers, and other contexts. A third category of **other service organizations** provide a small number of meals to supplement their primary, non-food related services such as employment assistance, medical care, educational enrichment, and support for victims of human trafficking.

Current Operations

Current organizational capacity: Within each category, organizations participating in our study vary significantly by size and capacity for handling food. Broadly, interviews suggest that there is a large number of LMOs in Nashville serving a relatively small number of meals each week, and a handful of LMOs serving a very large number of meals per week.

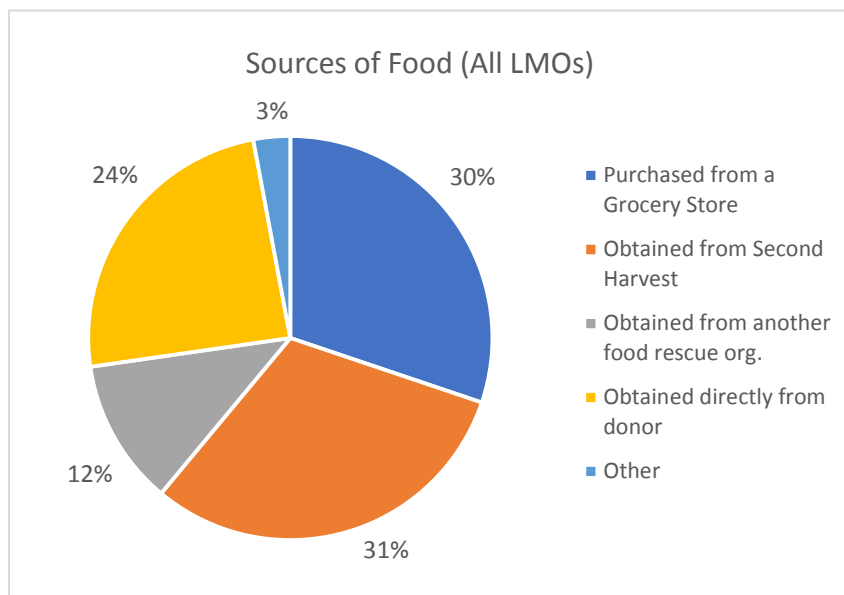
Across all organizations interviewed, the median number of meals served is 600 per week per organization (i.e. half of the participating LMOs serve more than 600 meals per week, and half serve fewer).

Growth potential: Interviews and survey responses suggest that a significant portion of these LMOs – 48% – have the capacity to receive and serve more donated food given their current staff and facilities. 24% of LMOs (including most of the LMOs that serve the largest number of meals per week) estimated that they could serve between 300 and 600 more meals per week. Another 24% indicated that they could increase meal services by fewer than 100 meals per week given their current organizational capacity.

The remaining 52% of these LMOs reported that they currently operate at or near their organizational capacity and could not serve more food in the near term.

Current sources of food: As shown below, participating LMOs report that almost one-third of the food they use for prepared meals is purchased from a grocery store. A similar portion of food is received from Second Harvest. In addition, 24% is donated directly from individuals or businesses to the LMOs, 12% is received from another food rescue organization, and 3% is received from other sources (e.g. an on-site garden).

We found that transitional housing organizations and food-focused non-profits (like homeless shelters and churches that provide meals) relied most heavily on purchased food from a grocery store or other commercial source, purchasing an average 33% and 46%, respectively, of food they serve. Meats and produce make up the largest proportion, by pounds, of food purchases across all LMOs, followed by dry goods such as grains, pasta, and snacks.



For the 31% of the food sourced from Second Harvest, LMOs select which foods they want and pay an administrative fee to the foodbank. While LMOs do not technically “buy” food from Second Harvest, the administrative fee and selection process prompted many interviewees to describe the food obtained from Second Harvest as “purchased.”

Combined, foods obtained from grocery stores and Second Harvest represent 76% of the food served by transitional housing organizations, 64% of the food served by food-focused non-profits, and 45% of the food served by other service organizations. Together, these figures underscore that LMOs spend significant sums obtaining food and highlight the potential for increased donations of prepared food to relieve some of the pressure on organizational food budgets.

Staff and volunteers: On average, LMOs reported that they employ just two full-time equivalentⁱⁱⁱ paid staff members and, that they rely heavily on volunteers. Smaller LMOs tend to spread food-related responsibilities among staff and volunteers who also serve other functions. Large non-profits are more likely to have staff dedicated to specific foodservice operations (e.g. cooks and kitchen managers). Frequently, LMOs partner with nearby community organizations that help provide occasional meal services (e.g. a church that organizes a meal once per month).

ⁱⁱⁱ Two half-time employees would be measured as equal one full-time equivalent (FTE) employee.

Facilities: Almost all LMOs reported having both dry and refrigerated storage, space for meals to be served, as well as office space. Large food-focused non-profits and large transitional housing organizations (organizations serving more than 1,000 meals per week) typically have a commercial kitchen, dedicated dining space, and at least one walk-in freezer and/or cooler. Small food-focused non-profits and transitional housing organizations (serving fewer than 1,000 meals per week), and other service organizations (e.g. after-school programs, employment assistance programs) usually operate modest kitchens with one or two household-size refrigerators, a freezer, an oven / four-burner stove, and a small space for dry storage.

Timing and location of meal services: Transitional houses and large food-focused non-profits usually serve breakfast, lunch, and dinner, seven days per week. Smaller organizations report that they conduct the majority of their meal services between Monday and Friday, most commonly serving a noon meal. Some also serve dinner several nights per week. Overall, LMOs report serving about three quarters of their meals on-site (i.e. clients come to them) and delivering about a quarter of the meals they provide.

Picking-up donated food: Most frequently, LMOs reported that the timing to pick-up donated food is planned in advanced with donors, though most organizations said they sometimes pick up or receive donations on a more flexible basis. LMOs reported that 79% of their food pickups (either trips to purchase food or to rescue donated food) are conducted in vehicles owned personally by staff or volunteers. However, 60% of LMOs report that at least some pickups and deliveries are carried out in organization-owned vehicles, indicating that many LMOs have vehicles that could potentially be used for additional pick-ups assuming the vehicles and staff /volunteer drivers are available when needed.

Interest in Receiving More Donations of Prepared Food

Overall, LMOs expressed a strong interest in receiving more donations of prepared food, rating their interest a 7 out of a 10 (10 signaling maximum interest) on average. Interviewees noted a similar level of interest in receiving additional donations of grocery donations, citing pros and cons for each as discussed below.

Our interviews underscored the widely varying standards that LMOs apply when determining what types of food to serve. One LMO kitchen manager stated, “I want the food to come out of here to be the best meal of *my* week.” Another was less discerning: “We are not picky; just thankful, as long as (donors) are following food safety guidelines.”

Pros and Cons of Prepared Food:

LMOs identified these advantages of prepared food donations when compared to grocery items:

- **Reducing labor time:** Prepared foods donations can reduce the labor time required to prepare meals from scratch. This was perceived as particularly advantageous for small organizations with very limited staff and for organizations that do not specialize in meal services.
- **Improving food offerings:** Prepared food donations could potentially increase LMOs’ access to nutritious foods that are costly to purchase (for instance, highly quality proteins are especially valued). Prepared food donations may also help LMOs offer a wider array of foods to their clients.

In addition, several LMOs expressed interest in freezing prepared foods and then providing them to clients who otherwise receive only shelf-stable goods.

However, LMSO's also expressed these concerns:

- **Food safety:** LMOs want to know how prepared foods have been handled before receiving them (e.g. whether they have been kept at a safe temperature), and, importantly, be able to assure their clients that the food is fresh and safe to eat.

Three LMOs described negative experiences in the past where a business had donated food that turned out to be spoiled or moldy. About a quarter of LMOs interviewed expressed a general skepticism about potential donations (“What I want to know is, ‘why are you giving it away?’”). This suggests that relationship building among donors and LMOs and use of appropriate packaging to maintain the appearance of the food is important.

- **Clients' taste preferences:** Several LMOs noted that their clients have grown accustomed to eating fast-food and may be averse to food that is unfamiliar, if more nutritious. Some LMOs that serve children reported a similar challenge. Regarding her clients, one director remarked that “if they see something they're unfamiliar with, they just won't touch it.” Nonetheless, several of these LMOs reported making healthier choices a priority.
- **Dietary restrictions:** LMOs need to navigate clients' food allergies and/or religious restrictions. This highlights the need to match LMOs with donors that have appropriate types of food and/or can provide information about the ingredients in donated prepared foods.
- **Nutritional value:** About a third of LMOs emphasized that they were interested in more nutritious foods, especially in dishes containing vegetables and those that are low in sodium and sugar. For selective organizations, it may be difficult to find prepared food donations that match their nutritional preferences.

The most selective organizations were typically large food-focused non-profits that have the resources to be selective about what foods to purchase and which donations to pursue, and other service organizations serving a small number of meals. Small food-focused non-profits, like homeless shelters and church groups, as well as transitional housing organizations, expressed greater willingness to accept any type of donated prepared food.

- **Minimum quantities:** LMOs expressed a variety of opinions when asked about the minimum size of food donation per pick-up that would be attractive to them. Large non-profits (and a few small organizations) frequently set 25 servings as a desired minimum per pick-up. In addition to the potential packaging and transportation costs and logistical challenges of picking up food, integrating small donations into meal services for a large number of people can be difficult. For some non-profits, it may also be important to serve the same meal to all clients.

Small food-focused non-profits and transitional housing organizations typically expressed greater flexibility, noting that smaller donations could be handed out to individuals or families in need, apart from their regular meal services. Likewise, transitional housing organizations indicated that small donations could make good pack lunches or snacks for residents.

For food that would be dropped off by a donor, LMOs tend to be interested in any quantity.

Altogether, numerous interviewees recognized that many non-profits serving food insecure populations experience similar challenges, and they expressed a desire for closer coordination among non-profits in Nashville to overcome these challenges together.

Barriers to Expanding LMOs' Meal Services

Few LMOs cited food availability as a major constraint in their operations. Nonetheless, these LMOs would be able to use modest amounts of additional foods in the near-term, in order to improve their services or offset their purchased food costs.

The barriers most frequently cited by LMOs include:

- **Funding:** The most significant barrier to expansion cited by LMOs was funding to hire additional staff, extend their hours, or invest in expanded kitchen facilities.
- **Staff and volunteers to pick-up food:** A shortage of staff and volunteers to pick up food, especially outside of normal business hours, was a commonly cited operational challenge for expanding meal services. This was most true outside of normal business hours (i.e. 9:00 am – 5:00 pm), though most LMOs stressed that their staff are very busy, even during the day. LMOs therefore have some capacity to pick up food during business hours, but this capacity is limited by staff availability. Overall, 50% of LMOs identified this as a potential challenge.

Each LMO's capacity to pick-up food depends in part on the scope of its services. Small food-focused non-profits tended to report that staff would be available to receive donations of prepared food only during the hours immediately before and after their food service (usually in the morning and early afternoon). Other service organizations were likely to only have staff available during business hours (9:00 am -5:00 pm, Monday through Friday). Larger food-focused non-profits and transitional housing organizations were more likely to have staff on-hand to pick up or receive food 24/7, suggesting they do have more capacity to pick up food donations.

In terms of timing, pickups outside of normal business hours presented the greatest challenge. Altogether, only 22% of interviewed LMOs said that they presently have staff or volunteers available to pick up donations late at night after events have ended and restaurants have closed. However, the majority of LMOs, 77%, expressed a general openness to organizing volunteers over the long term to accommodate off-hours pickups. As one LMO director put it, "Where there is a will, there is a way. There is always an opportunity to call somebody." Notably, almost all LMOs indicated that their volunteers had personal vehicles that they were willing to use. Such volunteers would need to be provided access to non-profits' facilities so that donated food could be promptly put into cold storage.

LMOs reported widespread use of scheduled pick-ups that currently take place during LMOs' business hours and noted that this generally works well for them and their donors. This approach could address many of the concerns about off-hour pick-ups, where donors can hold donated food overnight. This approach would also place a premium on closely matching donors and LMOs' schedules to minimize the holding time for donors.

Each approach could present additional challenges, such as making sure that the individuals handling food have been trained on proper handling and safety procedures (a key concern for many donors and LMOs). If donations were to expand beyond LMOs' capacity to handle pick-ups, one strategy could be to develop a corps of volunteers who could pick up donations on behalf of LMOs. Potentially, operators of a smartphone app or local stakeholder organizations could assist with organizing and training drivers for expanded food rescue. Several LMOs (as well as restaurants) suggested the idea of leveraging existing transportation capacity, such as recruiting ride-sharing or food delivery services to assist with food delivery.

- **Refrigerator and freezer storage:** Another challenge highlighted by 60% of LMOs is refrigeration and freezer storage capacity. This challenge was particularly pressing among small food-focused non-profits (such as soup kitchens and homeless shelters) and other service organizations non-profits (e.g. employment assistance and anti-human trafficking organizations). Within a given LMO, the availability of refrigerator and freezer space fluctuates greatly during the week depending on the timing of meal service. For example, an organization serving meals on Wednesday evenings said that they have no storage space for extra food after they return from the grocery store on Tuesday. On Thursdays, they have much more refrigeration space available.

Potentially, a smartphone app or more relationship-based effort to pair donors and LMOs could address this challenge by enabling LMOs to seek out donations when they have sufficient storage capacity.

Other LMOs and restaurants suggested that a shared-use cold storage space where food donations could be dropped off and picked up on a flexible schedule could be helpful, although this type of facility would require careful management protocols to ensure food safety, provide assurances needed by both donors and LMOs, and enable equitable distribution of available resources.

- **Packaging:** LMOs varied in terms of whether and how they provide packaging for donated food. One large food-focused non-profit that partners with several nearby institutions purchases disposable aluminum pans and delivers them to donation partners. Another LMO picks up food in metal hotel pans that had been donated to them a few years earlier. In addition, one donor reported that their LMO partner brings re-usable tubs to pick up food donations.

Providing packaging to donors appears to encourage donation and to be well-received by donors. Other LMOs, however, may not be well-positioned financially to provide packaging. While caterers expressed willingness to provide packaging (perhaps in part because they transport food as part of their core business model), most other foodservice donors expect receiving organizations to provide the packaging that is needed.

- **Effective outreach:** Despite the scale and persistence of food insecurity in Nashville, several LMOs reported having difficulty conducting effective outreach for meal services. Most LMOs said they never turn anyone away, and a few of the largest meal providers noted that the number of meals fluctuates in sync with the City's homeless population. As neighborhood demographics have shifted, a few smaller organizations noted a steady decline in clients over the years. Organizations like these, which already serve everyone who comes to their door, may also need to expand their outreach efforts in order to serve more food.

A few interviewees highlighted other challenges with regard to attracting new clients. For example, it may be difficult for clients to leave work and other obligations to attend additional meal services. Likewise, one LMO serving a largely immigrant community noted the linguistic challenge associated with attracting new clients. LMOs will need to consider the most effective modes of outreach given the substantial unmet need for food among Nashville's food insecure population.

The Likely Impact of Additional Prepared Foods

This research suggests that a sizeable portion of LMOs (including about half of those in our study) say they currently have the capacity and facilities to serve more meals and that expanded prepared food donations could help them do so.

More prepared food donations could also reduce pressure on LMOs' food budgets, given that many rely heavily on food purchases. Another likely impact would be to allow some LMOs to reallocate staff hours from food preparation to other activities. This is especially true of other service organizations, where staff are often responsible for a range of other activities in addition to preparing and serving meals. Others may choose to serve the same number of meals, but use prepared food donations to improve the quality or variety of the food they offer.

Conversely, about half of LMOs say they lack the staff, volunteers, and/or facilities to significantly expand their meal services. Over the longer term, efforts to better fund these organizations could position them to serve more food to more clients, enabling them to more fully address on-going food insecurity in the community.

Institutions

This study reflects feedback from an array of institutions that run foodservice operations in Nashville including two university dining facilities; an amusement park; a sports and concert venue; a hotel; a public school dining department; a museum; and a large facility for conferences and other events. Individual institutions varied widely in terms of their needs, interests, and capabilities. This group includes both non- and for-profit businesses, as well as public entities.

Given the wide variety, but small number, of institutions involved in our research, we do not subdivide this group into categories, nor should our findings be generalized across these industries.

Current Donation Practices

These institutions' approaches to food service vary widely, running the gamut from nimble cook-to-order services to catering for large events. While cooking-to-order enables managers to closely control amounts of food prepared, large events require batch cooking that can lead to over-production. Numerous institutions reported providing both types of service, along with other formats.

Five of the nine institutions interviewed and surveyed currently donate surplus food. Three of these institutions donate food on a weekly basis, while one donates occasionally, depending on their donation

partner's ability to come get the food. Only one institution, whose foodservice is run by a national foodservice management company, reported having a written policy on food donation.

Institutions that do more made-to-order service said they expect very little food to go to waste. One manager said, "For the most part – at all of our big houses and restaurants – we know how to manage that food cost. We wouldn't be in our positions if we couldn't." This suggests that there may be less potential for donation in made-to-order contexts and more in environments focused on batch-cooking, catering and large events.

That said, few institutions reported tracking the amount of food actually donated or estimating how much could potentially be donated. However, two estimated that over 2,300 pounds (about 1,900 meals) could potentially be available to donate from each institution per month and one estimated roughly 1,000 pounds (about 833 meals) per month. The fourth institution estimated only 100 pounds (about 89 meals) of surplus per month.¹²

Interviews and surveys revealed no single day of the week when institutions are most likely to have surplus food available, given their varied schedules, but that donations may become available throughout the week. Institutions were also split on whether they preferred flexible timing or a regular schedule for donations. Institutions that can foresee when extra food will become available (for example, after large events) tend to prefer working with one or two LMOs to schedule donations and pick-ups in advance. Institutions with less predictable surpluses reported more comfort scheduling as needed.

Interest in Expanding Donations

Generally, institutions that already donate surplus food expressed strong interest in expanding donations, rating their average interest an 8 out of 10. By contrast, institutions that *do not* currently donate expressed more limited interest beginning to do so, providing an average rating of 6.75 out of 10.

Though even institutions that do not currently donate expressed fairly strong interest in beginning to do so (6.75 out of 10), it is notable that current donors expressed even stronger in expanding donations. Some current donors may have grown comfortable with donation over time, while others may have instilled a culture of donation and be willing to take on new challenges. Institutions that do not currently donate may benefit from additional engagement to help them overcome the initial challenge of trying something new.

All institutions interviewed said they would allow partners to pick up only a portion of the food available at any given time, if preferred. This is advantageous, as few LMOs are equipped to receive the large quantities that could potentially be available after major events.

Most institutions said their staff would be willing to set aside surplus food for donation, but that they would not be able to transport it to another location. With one exception, all institutions that currently donate rely on LMO partners to pick up the food and provide transportation.

Each of these institutions reported that their current donation partners provide packaging for the food, and at least three work with the same donation partner, a large food-focused LMO. This LMO purchases

and provides disposable aluminum pans to transport donations, which appears to be a success factor in this relationship.

Importantly, several institutions noted their current practice of offering surplus food to staff. This would tend to reduce the amount of food available for donation but likely assist some foodservice workers who are challenged to meet food needs within their own families.

Challenges for Institutions

In order of importance, the challenges most frequently highlighted by institutions were:

- **Liability concerns:** Potential legal liability for any harm arising from donated food is addressed in the federal Bill Emerson Good Samaritan Donation Act which protects donors of apparently wholesome food from civil and criminal liability except in cases of gross negligence or intentional misconduct.¹³ Tennessee law also provides broad, civil and criminal protections to food donors who make donations in good faith to non-profits that provide meals to address poverty and hunger.¹⁴ Awareness of the liability protection laws appears to be limited, however, and institutions remain uncertain about how the federal statute relates to state and local health codes and liability laws.
- **Finding an organization to take donated food:** Many institutions reported uncertainty about how to identify a non-profit to take donated food. Almost all interviewees said they were aware of Second Harvest, but few knew of organizations interested in received prepared food. Directing potential donors toward LMOs seeking prepared food donations will be key to increasing such donations.
- **Prompt pick-up:** After liability concerns and identifying partners, the most frequently mentioned challenge was that donated food needs to be picked up quickly after it becomes available. This reflects limited staff time to wait for a non-profit to pick up food after closing time and the need to free up refrigeration space promptly.

Nevertheless, three of the institutions interviewed affirmed that they would be willing to (and some currently do) hold food overnight, to be picked up the next morning. This approach could potentially help donors connect with LMOs that have limited bandwidth to pick up late at night.

- **On-site pick-up logistics:** Some institutions highlighted the difficulty of physically connecting with a food donation partner at a large facility where there are multiple entrances and large numbers of people passing through key areas when donations would need to be picked up. Security is also a significant concern for some institutions (e.g. arenas) where access is highly restricted. For these businesses, donation partners would need specific directions and advance permission (potentially down to the name of the driver picking up the food) to access secure areas.
- **Communication by city health inspectors:** Though the Metro Public Health Department developed and has posted food donation guidance on its [website](#), none of the institutions reported having discussed food donation with health inspectors or other city officials.¹⁵

In light of these concerns, the majority of institutions reported a preference for establishing direct relationships with one or two non-profits that are known to them, rather than making food available to organizations with which they lack a prior relationship. This approach would allow donors to secure any food safety assurances they desire, provide specific logistical directions to food donation partners, and set expectations for packaging and transportation.

Restaurants and Caterers

Input was gathered from five restaurants and two catering businesses. The majority of interviewees and survey respondents were independent restaurants who participated in the Mayor's Restaurant Food Saver Challenge. The feedback described here may therefore reflect a sample that is more attuned to food waste and food rescue issues than other Nashville eateries.

Current Donation Practices

None of the five restaurants reported that they currently donate. In fact, many restaurant owners/managers reported having very little surplus food given their focus on avoiding purchasing or producing too much, and because flexible menus allow their chefs to re-use leftover ingredients in new dishes.

Both catering businesses reported that they currently donate food, often late at night once events have ended. One caterer, who operated out of a community kitchen, delivers donated food to non-profits and homeless individuals in her personal vehicle. The other catering business, which is part of a brick-and-mortar restaurant, has a non-profit pick up donated foods that have been packaged and stored at the restaurant. This same caterer noted that surplus food consists most frequently of salads and other side-dishes, suggesting potential for this food to help address LMOs' interest in serving more produce.

The interviews suggest that heightened visibility of initiatives like the Mayor's Restaurant Food Saver Challenge and greater customer awareness are spurring restaurants to donate food (e.g. about 40% of businesses participating in the Challenge said they plan to begin donating or expand their donations of prepared food). Regarding the public response to donation efforts, one restaurant owner said "I think people care. It shows that you're a leader in the community." The same manager noted that other businesses which produce relatively little surplus may still have the potential to donate: "There is an opportunity (to donate) once a month for everyone."

Both restaurants and caterers reported that surpluses tend to become available sporadically, most frequently on Fridays and Saturdays. Like some institutions, several restaurants that do not currently donate also reported that surplus food is given to staff. None of the restaurants or caterers reported having a written policy on food donation.

Interest in Expanding Donations

As with institutions, businesses who currently donate – just the caterers in this sample – are more enthusiastic about expanding donations (10 out of 10 average interest rating) than non-donors are in beginning to donate (5 out of 10, on average).

Notably, both caterers we interviewed currently provide packaging and transportation as part of their regular business models, which greatly aids in donation.

Restaurants echoed the preference of LMOs, mentioned above, that the other party involved take responsibility for packaging and transportation. One restaurateur highlighted that “there are a lot of parallels in the non-profit world, because margins are so slim, and resources are so limited. You're doing the most you possibly can with a fewer number of people. It feels like emergency triage every day.”

Similarly, restaurants reported preferring to hand off all of their food to one LMO at one time, noting that this minimizes the time required to make the donation and alleviates storage capacity issues.

Challenges for Restaurants and Caterers

The restaurants and caterers in our study highlighted most frequently the following challenges:

- **Liability and food safety concerns:** All of the restaurants that do not currently donate highlighted significant concerns about liability and food safety. However, the caterers did not consider this a barrier, perhaps reflecting their long-running donation programs. Confusion about how liability laws apply in Nashville and doubts that food will be properly handled by receiving organizations need to be addressed.
- **The reliability of partners:** Interestingly, three restaurants and one caterer described having had one or more negative experiences in the past when trying to donate food. They attributed these to an LMO’s perceived unreliability or inconsistency in the point of contact at the LMO. In two cases, the restaurateurs had packaged and set aside food for donation which was never picked up – resulting in wasted expense and effort. All three restaurants stopped donating as a result of these experiences.

A few restaurateurs queried whether an app could help overcome these reliability challenges by featuring a feedback system (similar to that used by Uber and Lyft) that would allow both donors and recipients to rate their experiences with a given partner.

- **Staff time:** The majority of restaurateurs flagged the staff and labor time required to set aside food for donation as at least a significant challenge. One owner of a restaurant summed it up this way: “I am already the plumber and the book keeper and the cleaner. I am already working 80 hours per week; I am not going to work 90.” In light of this constant stress, restaurants emphasized the importance of minimizing the time and effort required to donate food.
- **Limited cold storage:** The large majority, 85%, of the restaurants and caterers surveyed or interviewed highlighted limited cold storage as an important consideration for food donation. A similar proportion, 85%, cited the need for food to be picked up quickly.

Several restaurants, however, said they had sufficient storage hold food for a few hours, or overnight to be picked up the next morning. This suggests that prompt pick-up by LMOs can alleviate this storage challenge with a reasonable time frame. As one restaurateur summed it up, “If it's 5 hours, whatever. If it's 2 days, it's different.”

- **Finding donation partners:** Another prominent challenge for restaurants was finding an appropriate LMO to work with. However, 100% of restaurants and caterers said that they were aware of local organizations that could receive donated food. This seeming contradiction suggests that efforts to more strategically pair restaurants with a non-profit partner could be very helpful.
- **Packaging:** Notably, both caterers reported willingness to package food for donation given that packaging is already integrated into catering service. Restaurants, by contrast, expressed concerns about the cost that would be associated with providing packaging. In some cases, this appears to inhibit donations.
- **Awareness of available resources:** Interviews also revealed that many businesses are unaware of resources available to help overcome these challenges. For example, in December 2015, Congress extended the tax deductions for food donation to smaller businesses such as independent restaurants, enabling them to access significant tax deductions. 70% of restaurants were unaware of these tax deductions. A similar proportion, however, said they would be interested in taking advantage of these tax deductions to offset donation-related costs. This suggests that more strategic efforts to share information about the federal tax incentives could be helpful.

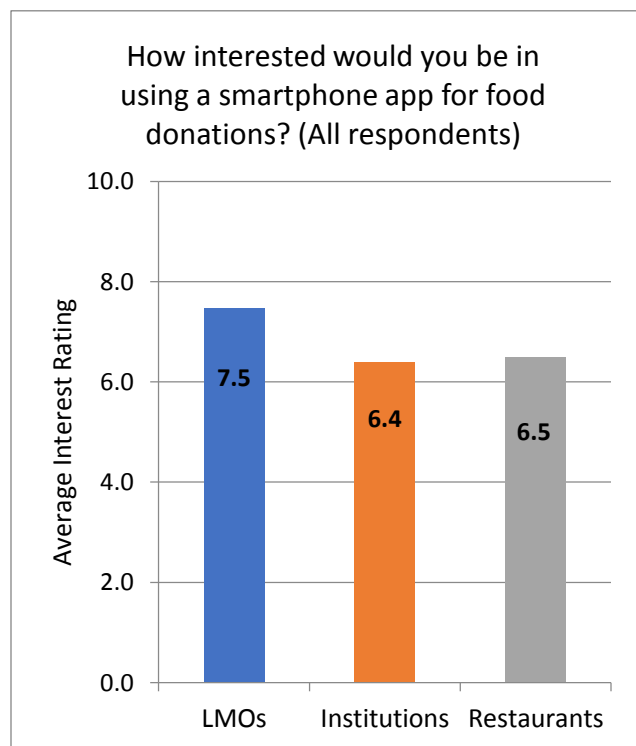
Likewise, many restaurants and caterers reported awareness of Metro Nashville’s food waste reduction efforts, but none had been encouraged by health inspectors to donate food, or been provided with Metro Public Health Department guidance on how to do so.¹⁶ City officials could help catalyze food rescue by directly sharing this guidance and other information through the Department’s website and by distributing printed materials during inspections.

Potential for a Smartphone Application

LMOs expressed strong interest in using a smartphone application to facilitate donation of prepared foods, although a variety of concerns were also raised about logistical feasibility. Across all types of LMOs, the average reported interest in an app was a 7.5 rating out of a maximum 10.

Institutions and restaurants expressed more moderate interest, scoring their interest at 6.4 and 6.5 out of 10, respectively.

Data revealed a difference in opinion between institutions, restaurants, and caterers that currently donate and those that do not. On average across all groups, current donors rated their interest in an app at approximately 8 out of 10, while interview and survey respondents that don’t currently donate rated their interest around 5 out of 10. This gap underscores that while a smartphone app can help overcome



some donation-related barriers, other challenges need to be addressed in order to engage a wide range of new donors.

High Priority Features

High priority features for a smartphone application, according to those interviewed and surveyed, would include:

- **Information on the quantity and type of food available:** Quantity information might include the number of servings or weight of food available for donation, and whether the donor requires the recipient to take all of the food available.

Numerous LMOs expressed particular interest in receiving a short description of the food (e.g. “chicken enchiladas” or “pasta with cheese and broccoli”), to help them navigate clients’ tastes, food allergies, and dietary restrictions. Among LMOs that prioritize serving healthy food (about a third of interviewees identified themselves as such), information on ingredients would be valued. Finally, many LMOs specified the need for assurances that food had been handled safely by the donor during the hours before donation.

- **Logistics information:** Numerous LMOs, restaurants, and institutions said it would be important that an app be able to provide logistical details such as where to park at the donor’s location, how to enter the building, and who the driver should ask to see upon arrival. LMOs would also value information on the travel distance required, which would inform how to allocate staff and volunteers.
- **Donors’ expectations regarding packaging, transportation, and the time frame for donation:** Restaurants and institutions vary widely in their willingness to provide packaging and transportation for donations, as well as how long they are willing to hold the prepared food for pickup. Information on donors’ expectations would help LMOs decide whether they are interested in the available food and set appropriate expectations. Numerous restaurants said they would like the ability to pre-set their preferences in the app, rather than specifying for each donation.
- **A mechanism to ensure that once a donation has been “claimed,” it will be given to the proper recipient organization:** Several LMOs described past experiences where they had been notified that surplus food was available for donation by call or text, but by the time they arrived to pick it up, the food had been taken by another organization because the donor had notified multiple organizations. Similarly, several restaurants and institutions emphasized their desire to avoid confusion and make sure to hand off donated food to the correct person. Any smartphone app should make sure to address this issue by removing donations from the platform once claimed and providing personal contact information for both the recipient and donors.
- **A platform for tracking donations:** Many businesses said they would like a record of the amount of their donations and the receiving LMOs for tax purposes. Restaurant chefs, who tend to personally manage their businesses’ finances, expressed the strongest interest in this feature.

Concerns

Frequently mentioned concerns about using a smartphone app include:

- **Transportation, particularly outside business hours:** The majority of LMOs reported that they would not have staff or volunteers available to pick up donations late at night (e.g. at 11:00 pm) or on weekends. Likewise, both restaurants and institutions expressed very limited willingness to deliver food. In situations where food would need to be picked up outside the hours when LMOs have staff or volunteers available (and perhaps even within business hours if donations increased substantially), an additional mechanism would need to be found to handle transportation. This would put a premium on using an app that has transportation capacity in place or perhaps partnering with an existing food delivery business, if possible.
- **Cost:** Institutions and restaurants in Nashville expressed very limited willingness to pay directly for food to be picked up, rating their willingness a 3 out of maximum 10, on average. Food recovery smartphone apps have taken a variety of approaches to charging for their services, including fees based on the weight of the food picked up, fees per pick-up, monthly fees, and sharing of related tax savings for those donors that take the tax deductions. If an app is pursued, it would be important that its financial model be compatible with donors' willingness to pay for related services.
- **Food safety concerns:** Both donors and recipients expressed concerns about food safety, noting that it would be important to ensure that any participants be properly equipped to safely handle the food. Several institutions said they would prefer to meet personally with any new donation partner, but the majority of potential donors and LMOs said they would be comfortable working with an unfamiliar partner, provided that the app includes some vetting process for participants.¹⁷
- **Ease of use:** All groups stressed that a new system should be easy to join and use. LMOs and restaurants, in particular, emphasized that their staff are busy and have very limited time to familiarize themselves with a new platform, in addition to adjusting their practices to expand or start donating. Users would need to be given sufficient instruction on use of the app upfront. It would also be important to set appropriate expectations about food availability when the app is new and users are just beginning to get on board. A related challenge experienced by other apps is that users with a personal relationship to the food rescue organization may prefer to communicate via text or phone call with the staff, rather than use the app.

To summarize, an app could potentially add value by disseminating key information on the food available for donation, connecting donors and LMOs in real time, and providing logistics instructions. Limited LMO staff and volunteer availability, uncertainties about how transportation would be provided (especially off-hours), concerns about food safety, and the limited labor time to adjust to a new system, however, remain significant challenges. Apps also require frequent posting of new donations to be worthwhile for users, making a critical mass of participation essential for a new app to be introduced effectively.

Before an app is pursued, it would be important to ensure that there is adequate demand for an app in the community and that a sufficient number of donors and LMOs are committed to using it. Sustained

engagement by a dedicated third party to oversee and support the introduction and on-going operation of an app and enlist new partners to use it would also be necessary for success.

In the nearer-term, one opportunity would be to focus on matching interested donors with appropriate LMOs using a relationship-based approach, and scheduling pick-ups during LMOs' business hours to handle transportation of the food. In parallel, educational efforts on food safety assurances, liability concerns, tax benefits, and perhaps a pilot to provide food packaging could address an array of barriers to more donors getting involved. If food volumes ramp up sufficiently to justify introduction of an app, additional research could be undertaken to identify an app (or business-based food delivery service) that is suited to Nashville's needs.

Some key questions to consider for a smartphone app include:

- If community interest and food volumes are sufficient to warrant a smartphone app, are there organizations in Nashville that are well-positioned to expand the use of an existing app or develop a new app to meet the needs of donors and nonprofits?
- In the alternative, are there apps used in other cities that could work well here and that are interested in expanding to Nashville?
- How would the various challenges here be addressed, including liability and food safety concerns, packaging, etc.? What lessons can be learned from apps currently in use elsewhere?
- Could existing transportation capacity (e.g. food delivery services, ride sharing services, or taxis) be leveraged for food delivery either on a for-profit or pro-bono basis?

Summary and Next Steps

Altogether, this research suggests that there are many opportunities for businesses in Nashville to increase donations of prepared food and support non-profits that address food insecurity in the community.

LMOs are generally interested in receiving more prepared foods, and a sizeable portion of LMOs in our study indicate they have the capacity and facilities to scale up their meal services to some degree in the near term. Likewise, institutions and restaurants report interest in donating, though current food donors are more enthusiastic about expanding donations than non-donors are about beginning to donate. The largest surpluses are likely to come from institutions on a sporadic basis, especially those that prepare food in large quantities for events.

A range of key barriers need to be addressed for Nashville to fully realize its potential for expanded donation of prepared foods. LMOs are in many cases limited by funding; refrigerator and freezer space; and the availability of staff and volunteers. Likewise, potential donors highlighted liability and food safety concerns, limited staff time for donation, cold storage constraints, the reliability of partners, and provision of packaging as potential issues in food donation.

A smartphone app for information sharing could eventually be a useful tool for connecting LMOs and donors. However, various logistical challenges and demonstration of adequate demand for an app would need to be addressed before an app is pursued.

A number of key actions could support increased donation of prepared food:

Providing Information

- Educating potential donors about federal and state liability protections.
- Informing potential donors about available tax deductions for food donation.
- Disseminate Metro's food safety guidance for food donors.
- Engaging Metro Nashville officials, such as health inspectors, in more actively encouraging food donation by businesses.
- Compiling and sharing a list of organizations that are interested in receiving more prepared food donations, including preferences with respect to amounts and types of food, in addition to timing of donations.

Mobilizing Resources

- Exploring strategies for providing LMOs and/or donors with packaging for donated food.
- Working with local organizations to organize and train volunteers to transport food outside of normal business hours when pick-ups during business hours are not an option.
- Examining opportunities to help LMOs expand their cold storage capacity or share storage among organizations.
- Identifying financial and other support for expanding LMOs' staffing and physical infrastructure.

Making Connections

- Promoting the donation of high-quality foods such as meats and produce, particularly from locations that have potential to provide significant volumes of prepared food and/or a steady supply.
- Identifying and building relationships among interested LMOs and food businesses with complementary needs and interests.
- Assessing whether a food rescue smartphone app tailored to Nashville's needs (whether app is new or already existing in Nashville or elsewhere) would be worthwhile given local interests and rescue dynamics.
- Researching models of smartphone-based food donation apps that have helped overcome similar challenges in other cities and, if warranted, identifying an appropriate organization to take lead responsibility for introducing and providing on-going management of an app in Nashville.

ENDNOTES

- ¹ Dana G. Gunders, et al., *Wasted: How America is Losing Up to 40% of its Food from Farm to Fork to Landfill*, Natural Resources Defense Council, Report 17-05-A (August 2017) <https://www.nrdc.org/sites/default/files/wasted-2017-report.pdf>.
- ² Feeding America, "Food Insecurity in Davidson County," 2015, <http://map.feedingamerica.org/county/2015/overall/tennessee/county/davidson>.
- ³ Kim Molnar, Chief Operating Officer, Second Harvest Food Bank of Middle Tennessee, personal correspondence via email October 11, 2017.
- ⁴ Other leading organizations include the Nashville Rescue Mission (approximately 600,000 meals in FY 2016), One Generation Away (576,923 meals), the Nashville Food Project (approximately 110,000 meals), and Room in the Inn (approximately 62,000 meals). See: Nashville Rescue Mission, *Annual Report 2015-2016 Fiscal Year*, (2016) https://nashvillerescuemission.org/content/uploads/2017/03/Annual-Report_1516.pdf; Christa Ross, Kitchen Manager, Nashville Food Project, personal correspondence via email October 18, 2017; Chris Whitney, Founder/Director, One Generation Away, personal correspondence via email September 25, 2017; Room in the Inn, "Crisis Support to Long Term Solutions: Program Information 2014-2015," (2015), <http://roomintheinn.org/sites/default/files/Program%20Information%202014-2015.pdf>.
- ⁵ JoAnne Berkenkamp and Caleb Phillips, *Modeling the Potential to Increase Food Rescue: Denver, New York City and Nashville*, Natural Resources Defense Council, Report 17-09-B, (October 2017), <https://www.nrdc.org/sites/default/files/modeling-potential-increase-food-rescue-report.pdf>
- ⁶ Dana G. Gunders, et al., *Wasted: How America is Losing Up to 40% of its Food from Farm to Fork to Landfill*, Natural Resources Defense Council, Report 17-05-A (August 2017) <https://www.nrdc.org/sites/default/files/wasted-2017-report.pdf>.
- ⁷ United States Environmental Protection Agency (US EPA), "Sustainable Management of Food: Food Recovery Hierarchy," <https://www.epa.gov/sustainable-management-food/food-recovery-hierarchy>.
- ⁸ Food Waste Reduction Alliance, *Analysis of U.S. Food Waste Among Food Manufacturers, Retailers, and Restaurants*, (2016), P. 28, http://www.foodwastealliance.org/wp-content/uploads/2013/05/FWRA-Food-Waste-Survey-2016-Report_Final.pdf.
- ⁹ JoAnne Berkenkamp and Caleb Phillips, *Modeling the Potential to Increase Food Rescue: Denver, New York City And Nashville*, Natural Resources Defense Council, Report 17-09-B (October 2017) <https://www.nrdc.org/sites/default/files/modeling-potential-increase-food-rescue-report.pdf>.
- ¹⁰ Feeding America, "Food Insecurity in Davidson County," 2015, <http://map.feedingamerica.org/county/2015/overall/tennessee/county/davidson>.
- ¹¹ These include One Generation Away, the Second Harvest Food Bank of Middle Tennessee, The Community Foundation, and Food Donation Connection.
- ¹² The United States Department of Agriculture estimates that one standard meal weighs 1.2 pounds of food, according to USDA, Agricultural Research Service, Beltsville Human Nutrition Research Center, Food Surveys Research Group (Beltsville, MD) and United States Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics (Hyattsville, MD), *What We Eat in America*, (May 2014), <https://www.ars.usda.gov/northeast-area/beltsville-md/beltsville-human-nutrition-research-center/food-surveys-research-group/docs/wweianhanes-overview/>.
- ¹³ 42 U.S.C.A. §1791
- ¹⁴ T.C.A. §53-13-102. For a comparison of Tennessee's liability protections with federal protections, see: Harvard Food Law and Policy Clinic, NRDC, *Don't Waste, Donate: Enhancing Food Donations Through Federal Policy*, (March 2017), http://www.chlpi.org/wp-content/uploads/2013/12/Dont-Waste-Donate_March-2017.pdf
- ¹⁵ Nashville Metro Public Health Department, "Guidelines for Donating Food & Handling Surplus Foods," <https://www.nashville.gov/Portals/0/SiteContent/Health/PDFs/FoodProtection/FoodDonationGuidelines.pdf>.
- ¹⁶ Nashville Metro Public Health Department, "Guidelines for Donating Food & Handling Surplus Foods," <https://www.nashville.gov/Portals/0/SiteContent/Health/PDFs/FoodProtection/FoodDonationGuidelines.pdf>.

¹⁷ To date, food recovery apps have taken a variety of approaches to addressing food safety and liability concerns that range from insurance to indemnification to training of drivers and receiving organizations. For examples of various approaches, see: Linda Breggin, Carol Jones, & Emmett McKinney, “FOOD WASTE: Food Donation Receives a Technology Boost,” Environmental Law Institute, March 22, 2017, <https://www.eli.org/vibrant-environment-blog/food-waste-food-donation-receives-technology-boost>.