Mobile Farmers Markets
Taking Food Access on the Road

Voorhees Fellows
Camille Charles
Naweed Karimi
Sarah Lin
Ananyasri Thiriveedhi
Anjanette Vaidya

Ralph W. Voorhees Public Service Fellows
December 2017

Table of Contents

Introduction

Food insecurity, food accessibility, and food deserts have generated national concern as social justice issues. To combat these injustices, groups from across North America have created mobile food markets. A modern-day mobile market established in West Oakland, California in 2003 helped to spur the mobile food movement (Albala 2015). Shortly thereafter, the idea of bringing affordable and healthy food to low-income communities took off across North America. Typically, mobile markets use repurposed or retrofitted vehicles to distribute culturally appropriate, farm-fresh products to low-income, low-food-access neighborhoods (Bartley & Best 2013) and promote healthier food choices (Zepeda & Reznickova 2013). Many provide subsidies to make fresh food more affordable, which increases food accessibility and food security for those in need. Recent academic research suggests that increased access to fresh vegetables and fruits has been linked to an increase in vegetable and fruit consumption in food deserts (University of Wisconsin 2015; Widener et al. 2013). Though some mobile markets aim to improve health outcomes by providing communities with healthy food, others seek to address food *and* economic sustainability by expanding the market for food that is grown and distributed within a metropolitan area.

Project Overview

The New Brunswick Community Farmers Market (NBCFM) is considering adding a mobile produce market to increase resident access to fresh, affordable food. NBCFM was established in 2009, with a mission to decrease barriers to fresh vegetable and fruit consumption for New Brunswick residents at risk of food insecurity and to support New Jersey agriculture. New Brunswick is home to 55,181 people, more than a third (38% +/-3%) of whom are are immigrants from Mexico, the Dominican Republic, Honduras, Colombia, El Salvador, Guatemala, Nicaragua, and Ecuador. Many residents are younger than 21 in part because of the city's large college student population and also because there is a high number of children and youth (Burton *et al*. 2017). And about 36% of residents live below poverty level (American Community Survey 5-Year Estimates 2012-2016).

The NBCFM accepts federal food assistance benefits through the Supplemental Nutrition Assistance Program (SNAP), includes vendors who accept Women Infants and Children (WIC) and Senior Farmers Market Nutrition Program (SFMNP) benefits, and offers a "Market Bucks" program that provides vouchers that can be redeemed for fruits and vegetables at the market. The NBCFM sells primarily fresh fruits and vegetables and includes other products as well (Cuite *et al.* 2017). To encourage community engagement, the NBCFM features an on-site community garden at its Jones Avenue market location. Gardeners pay an annual fee of $15.00 to reserve a garden bed where they typically grow a mix of vegetables, herbs, and flowers. Given NBCFM's experience in operating a market, and its ability to build community partnerships through the New Brunswick Community Food Alliance and with other organizations, NBCFM is well positioned to add a mobile market to its existing activities and to further its mission of increasing food access for New Brunswick residents.

The purpose of this report is to explore how mobile markets are organized and funded, what programming they offer, what type of vehicle they use, how they source and handle food, and how they engage community residents. Finally, we present recommendations to the

NBCFM and those interested in creating a new or enhancing an existing mobile farmers market to assist with the successful implementation of the project.

Methods

To learn more about how mobile farmers markets function, we conducted a national search to identify mobile markets for further research. We selected a wide variety of mobile markets to study and intentionally included markets with participatory community governance structures and those that prioritize economic development outcomes. We selected seven mobile farmers markets in the United States and Canada. Most are located on the U.S. East Coast in metropolitan areas and seek to deliver food to underserved populations (see figure 1). This is by no means an exhaustive study; we sought to highlight various aspects of mobile markets and discuss examples that could inform future decisions made by the NBCFM.

We used a variety of methods to learn about the markets. We collected information from farmers market organization web pages, Instagram feeds, and YouTube videos. To better understand how mobile markets operate in their respective communities, we conducted semi-structured conversational phone interviews with representatives from each mobile market who were knowledgeable about daily market operations. Our interviewees' official titles include Community Market and Outreach Coordinator, Executive Director, Supervisor, Senior Coordinator, and Food Access Coordinator. We asked open-ended questions that allowed for expressive and informative answers. Two research team members conducted each interview and took notes. The research team reviewed the field notes to identify common themes and synthesized the data into this report. We developed our recommendations based on this small sample of case studies.

Figure 1. Mobile Market Locations

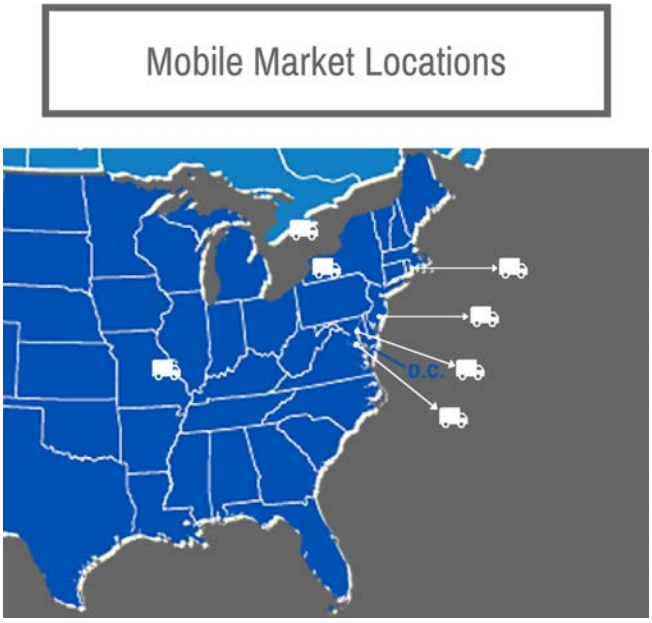

Table 1. Mobile Farmers Markets Interviewed in this Study

Mobile Market	Location	Year Founded	Organization Type
Massachusetts Avenue Project	Buffalo, New York	2000	Nonprofit
Civic Works Real Food Farm Mobile Market	Baltimore, Maryland	2011	Program of Nonprofit
Food on the Move	Rhode Island	2011	Program of Nonprofit
Mobile Good Food Market	Toronto, Canada	2012	Program of Nonprofit
Arcadia	Washington D.C. Area, Maryland	2012	Nonprofit
St. Louis Metro Market	St. Louis, Missouri	2015	Nonprofit
Virtua's Mobile Farmers Market	Burlington and Camden Counties, New Jersey	2017	Nonprofit

Findings

In our review of mobile food markets, we focused on each market's history and objectives, organizational structure, funding approach and staff, and degree of community involvement. We also explored a number of topics about market operations and logistics, including outreach strategies, schedules, benefits, programming, vehicle choices, food sourcing and storage methods, and general reflections. We summarize interviewee responses to these questions below.

History and Objectives

The mobile markets in our study were all founded with the objective of improving access to fresh produce in communities that were identified as 'food insecure' or 'food deserts'. How mobile market staff members conceptualize "access" varies and is dependent upon the market's objectives and assessments of their target population. Some markets define access in terms of increasing affordability, whereas others defined it based on local access to healthy foods. Many mobile markets used USDA's' Food Access Atlas[1] to understand their communities' needs (USDA ERS 2017). Others found that their communities' food needs were not thoroughly captured by this tool. Food On the Move found that USDA's food desert definition does not apply well to Rhode Island due to the state's small size and limited public transport system. Residents can live near a supermarket but be unable to get there by foot. They explained how a lack of access to public transportation or limited physical mobility due to other factors can hinder access to healthy, affordable, and fresh food (Cohen 2017). Representatives from Mobile Good Food Market and the St. Louis Metro Market explained the importance of considering the

[1] Economic Research Service (ERS), U.S. Department of Agriculture (USDA). Food Environment Atlas. https://www.ers.usda.gov/data-products/food-environment-atlas/

barriers and challenges that prevent individuals from using geographically close grocery stores; they stressed *affordability*. Civic Works Real Food also mentioned pricing; it tackles food access through: pricing, proximity, and familiarity (Proctor 2017). The Massachusetts Avenue Project usually lets their partner sites define 'access' and follows their lead (Rovillo 2017). The St. Louis Metro Market is "open when it needs to be open" to expand access (Signorelli 2017).

In spite of these differing conceptualizations of access, the target populations of all mobile markets include vulnerable populations located within densely populated urban centers. Nearly all participants mentioned the desire to positively impact social determinants of health, to educate the public on nutrition, and to support local and sustainable agricultural practices. Arcadia described its efforts to improve the local economy by sourcing local produce (Hess 2017). The Massachusetts Avenue Project and Civic Works Real Food Farm went a step further by stressing urban farming as an *economic development tool*, with a specific focus on training youth. This novel approach is considered in further detail in the section on Economic Development Approaches.

Organizational Structure

Partnerships

The markets in our sample came to fruition differently, but almost all were established in a context of increased consciousness surrounding food access in the past decade. Most mobile markets emerged out of health initiatives or as a result of university research; thus, many markets have large institutional partnerships. In some cases they grew out of grassroots organizations that sought to meet community-identified needs. Interviewees identified both *reliable* and *dynamic* partnerships as integral to the formation and function of their mobile markets.

Mobile market personnel identified local universities, community groups, and health organizations as reliable foundational partners. The Civic Works Real Food Farm in Baltimore, for example, was established out of a partnership between Safe Healing Foundation, a local non-profit, and the University of Maryland Eastern Shore in 2009 (Proctor 2017). The St. Louis Metro Market emerged from a collaboration between college students and staff at St. Louis University who wanted to increase community access to healthy food (Signorelli 2017). Food on the Move partners with Brown University and grew out of a major public health research study created by the Rhode Island Department of Health as well as a "coalition of community-based organizations" (Cohen 2017). Likewise, both the Mobile Good Food Market in Toronto and Virtua's mobile farmers market, located in southern New Jersey, emerged within a health framework. The Mobile Good Food Market was created in collaboration with the city's Toronto Public Health department in 2012. Virtua's mobile market was the brainchild of its assistant vice president, Suzanne Ghee, who is quoted as saying that the idea to create a mobile market came to her after she attended a conference with the New Jersey Hospital Association, where novel ideas to address health disparities were discussed (Dowd 2017). The Virtua mobile market functions as part of a larger health system.

"Food Is Medicine": Close-Up detail from the St. Louis Metro Market's bus[2]

After initially partnering to bring corporate employees fresh food, The St. Louis Metro Market has taken on a "more traditional non-profit approach" that includes community gardens, urban farmers, and a partnership with a children's hospital to help restore access to healthy, affordable foods in St. Louis.

Dynamic partnerships are also important, as partnerships were either created or dissolved based on a market's ability to carry out its mission and objectives. For example, staff at Arcadia's market offered cooking demonstrations, but as they got busier, and found this difficult to sustain, they partnered with a community organization that is now responsible for conducting the demos (Hess 2017). The St. Louis Metro Market first partnered with corporations that had campuses of more than one thousand people each and decided to supply employees with produce (Signorelli 2017). However, this partnership was terminated due to financial challenges and a lack of community impact and support (Signorelli 2017). Civic Works Real Food Farm realized that its market was not reaching Baltimore's refugee population, so it partnered with a local grassroots organization, the International Rescue Committee (Proctor 2017). It also partners with organizations that coordinate interpreters which enables the market to reach into communities where language barriers are present (Proctor 2017). Food on the Move, located in Rhode Island, partners with a local food distributor that provides cold storage space for their produce on weekends (Cohen 2017), and the Massachusetts Avenue Project partners with a number of different local organizations to run each of its mobile market stops (Rovillo 2017). We saw this need for partnerships to be both reliable *and* dynamic across our sample.

Funding and Staff

Partnerships with outside organizations can also provide mobile markets with access to important resources such as funding and staff. All study participants explained that much of their funding comes from federal and local grants, corporate sponsorships, and donations. These grants are often focused on improving health and increasing agricultural sustainability. Food on the Move received a USDA grant to support its 'Rhody Bucks' program that doubles SNAP benefits for Rhode Island residents when they purchase produce aboard Food on the Move's mobile market (Cohen 2017). Many of the mobile markets mentioned that grants helped them to fund operations and programming and increased their buying power and community impact. Interviews with mobile market staff provided further insight about how funding is distributed among operation costs, staff, and complementary non-food services. Civic Works Real Food Farm receives funding from federal and private grants and uses money from sales to decrease

[2] Lucas Signorelli granted permission to reproduce this image from the St. Louis Metro Market Image Gallery.

operational costs (Proctor 2017). The Massachusetts Avenue Project uses volunteers which enables them to spend more money on their mission (Rovillo 2017). Virtua's mobile market uses health-based grant funding to incorporate diet-related disease assessments for its customers (Santo 2017).

Mobile markets stressed that their markets are a collaborative effort. Market employees typically include a market manager or supervisor who oversees the operation, a vehicle driver who at times also sells produce, and in some cases, specialized health professionals such as Virtua's on-board hired dietician who gives customers nutritional advice (Santo 2017).

> Virtua's Mobile Farmers Market program is an example of how various partnerships, themed grants and collaborations are instrumental in achieving a market's mission and objectives. Funding made available through a partnership with City Green and Wholesome Wave enabled Virtua's mobile farmers market to establish relationships with the communities' most vulnerable individuals and families by providing critical discounts to those paying with SNAP benefits, while its partnership with Whole Foods enables them to offer discounted produce year-round. Working with Cooper's Ferry, which supports revitalization and redevelopment in Camden, has integrated the market into a local community's vision. While Virtua's mobile market is a non-profit community benefit project of the Virtua health system, it has also received budgetary support from the Virtua Foundation that reinforces many of the mobile farmers markets' community benefit-aimed activities such as including food donations and special events. This funding has also been instrumental in increasing the market's buying power and access to fresh fruits and vegetables for the residents they serve (Santo 2017).

Community Involvement

Community engagement is critical to effective mobile market operations. Building community support and understanding community needs is vital for a market's ability to address food injustice. The type and degree of community engagement differed across the markets we spoke with; however, in almost all cases, community residents took it upon themselves to informally do community outreach to share market hours, benefits, and locations. Residents also play a key role in providing feedback through formal market-organized focus groups and surveys.

Given that community members often provide invaluable insights, some of the markets in our study engaged residents on advisory boards and as paid staff members. Food on the Move has a Community Advisory Board that meets biannually and provides feedback and advice regarding market policy decisions. Beyond its informal volunteers, regular, full-time staff members are from the community it aims to serve (Cohen 2017). Deanna Santo from Virtua's mobile farmers market commented on the benefit of having a community member on board as staff, since the individual is both "well-connected" and "trusted" locally (Santo 2017), and Arcadia reached Chinese-speaking residents by hiring two community members as interpreters (Hess 2017). Civic Works Real Food Farm organized a Migrant Board comprised of community members who give input on market programs. Community members can also become employees of the market through AmeriCorps, a federal workforce development program (Proctor 2017).

Economic Development Approaches

Some markets incorporate an economic development approach to engage and positively impact the communities they serve. Tackling the issue of food insecurity as part of a larger system of social inequities is central to this approach. Community economic development

programs seek to address the root causes of food deserts and food insecurity, including uneven wealth distribution. The approach acknowledges that while farmers markets often support 'local agriculture', this support is frequently outside of the targeted urban communities. Sourcing produce within these communities means money stays there, and may provide an economic benefit for residents. Fresh Moves, a mobile market located in Chicago, was founded by a member of the community and local residents are viewed not only as customers, but as a source of production. They are trained to grow food on small urban farms located throughout the city and to then sell it (Fresh Moves Mobile Market 2017). Civic Works Real Food Farm and The Massachusetts Avenue Project (MAP) also utilize this approach. MAP's website reads, "The mission of the Massachusetts Avenue Project is to nurture the growth of a diverse and equitable local food system and promote local economic opportunities, access to affordable, nutritious food and social change education" (The Massachusetts Avenue Project n.d.). Civic Works Real Food Farm's website states that they are addressing the 'interconnected goals' of "improving neighborhood access to healthy food", "providing hand-on educational opportunities for local youth", "improving the environment", and "boosting Baltimore's local economy" (Civic Works Real Food Farm n.d.). The executive director of the St. Louis Metro Market expressed interest in this approach when he said that they plan to "incorporate community gardeners and growers more" in the future (Signorelli 2017). The impact of developing such a program could be farther-reaching and longer-term than operating a mobile market that solely addresses food access.

> The Massachusetts Avenue Project aims to build a community where fresh and culturally appropriate foods are available to local residents. They convert unused urban spaces into 'green spaces' that provide food and economic gain to those from disadvantaged communities, and they host a youth development program called 'The Growing Green Program', where young people are taught about urban farming including vermiculture and aquaponics, sustainable food production, and social enterprise. Their Growing Green Urban farm includes over an acre of reclaimed vacant lots where youth work to "grow, market, and distribute organic produce" (The Massachusetts Avenue Project n.d.).

> "Real Food Farm promotes urban agriculture as an economic engine in Baltimore. We train and employ youth and adults in agricultural and horticultural jobs while also demonstrating a replicable and sustainable model that shows the potential for urban agriculture to boost Baltimore's local economy" (Civic Works Real Food Farm n.d.). The Real Food Farm began in 2009 after a volunteer organization called the Urban Agriculture Task Force saw a need for an operational farm in Baltimore. They transformed six acres in Clifton Park into a farm and conducted their first produce harvest in December 2010. The Mobile Market was born in 2011 from the need to get the food from the park to Baltimore residents. They usually set up market stops along predefined routes, or make home deliveries to those who cannot make it out to the stops. Their goal is to increase access to healthy food and familiarity with healthy produce and its origins, so that people incorporate more fruit and vegetables in their diet (Proctor 2016, 2)

Market Operations

Outreach

Mobile market staff emphasized the importance of making certain that community members are aware of the mobile market schedules and updates. Most of the mobile markets that we interviewed use social media, such as, Facebook, Instagram, Twitter, online websites, and email newsletters regularly to get the word out about their mobile market's schedule. Aside from social media outreach, mobile market staff cited word-of-mouth outreach as highly effective. Arcadia advertises on the metro system (Hess 2017), and the St. Louis Metro Market

and the Massachusetts Avenue Project do door-to-door flyering (Rovillo 2017; Signorelli 2017). Food on the Move offers text alerts about market stops (Cohen 2017). Markets also partner with larger institutions that assist them in conducting community outreach and disseminating information about market locations and schedules.

> The Mobile Good Food Market uses social media and word of mouth as their primary modes of outreach. The market does not have its own Instagram or Facebook accounts; instead, it uses its host, Food Share's media platforms, and their communications team assists the mobile food market with promotions. Additionally, the market's community partners engage local residents and promote the service on behalf of the Mobile Good Food Market. For example, tenant representatives speak with building residents about upcoming market stops at their complex.

Schedule

Each mobile market crafts a schedule that works well in its community and all markets emphasized the importance of consistency with their schedules. Consumers rely on mobile markets being at a location at a particular time each week which enables residents to plan their schedule around it. Markets consider multiple factors as they set their schedules such as whether to run all year or on a seasonal basis, which locations will garner the most foot traffic, what days/times are convenient for community members, the hours that partner sites are open, and the availability of produce. They are also flexible and modify schedules when they find that stops do not work. Civic Works Real Food Farm ran their mobile market year-round for the first two years. However, once it realized that foot traffic was low in the winter months in Baltimore, they shifted the schedule to run from May to December instead (Proctor 2017). Food on the Move and Virtua's mobile markets both operate on a year-round basis to ensure that residents have consistent access to healthy food, which means that the markets must also source produce that is available year-round (Cohen 2017; Santo 2017).

A reliable schedule is absolutely critical in helping to build a consumer base that is aware of access to fresh produce each week. In terms of hours/days of operation, mobile markets vary depending on the consumer needs. For example, Civic Works Real Food Farm made Wednesday a market day once it realized that the WIC clinic in Baltimore handed out vouchers that day (Proctor 2017). Mobile Good Food market's sites include schools and community housing units of the city's largest subsidized housing authority, Toronto Housing. (Ramkhelawan 2017).

Benefits

Almost all of the markets in our study accept governmental benefits (such as SNAP and the Senior Farmers Market Nutrition Program) as well as non-governmental benefits. Acceptance of WIC checks varies, as interviewees mentioned that vendors need to be actual farmers to accept them (and acquire the appropriate certification). For non-governmental benefits, some markets offer market-specific vouchers. Many markets employ a "matching bucks" program, where they increase a customer's purchasing power (up to a certain dollar amount). Each market employs its own version of this program. For example, Food on the Move employs a "Rhody Bucks" program, which allows SNAP recipients to receive 2-for-1 SNAP benefits when shopping at the market (Cohen 2017). Accepting and even doubling benefits helps increase food access among lower income populations within communities. St. Other markets accept vouchers that are available through produce "Rx" programs. Louis Metro Market

accepts “prescriptions” issued by doctors for specific produce (Signorelli 2017). Arcadia accepts “prescriptions” through the Produce Plus Program (Hess 2017), and Virtua’s mobile market is in the process of developing and implementing an Rx program (Santo 2017).

Table 2. Types of Benefits Mobile Markets Accept

Mobile Market	SNAP Benefits	WIC	Matching Programs	Farmers Market Senior Coupons	Rx Programs
Mobile Good Food Market	No	No	No	No	No
St. Louis Metro Market	Yes	No	Yes, Double Up Food Bucks	No	Yes
Virtua’s Mobile Farmers Market	Yes	No	Yes, 1 to 1 Matching	No	In process
Food on the Move	Yes	No	Yes, 2-for-1 Rhody Bucks	No	No
Massachusetts Avenue Project	Yes	Yes	Yes, Double Up Food Bucks	Yes	No
Civic Works Real Food Farm	Yes	Yes	Yes, Double Dollars program	Yes	No
Arcadia	Yes	Yes	Yes, Bonus Bucks program	Yes	Yes

Arcadia participates in the the D.C. Department of Health’s Produce Plus Program. Half of Arcadia’s sales are attributed to the use of a $5.00 check that is provided to Produce Plus program participants twice per week. The checks are issued per household and are given to D.C. residents who participate in WIC, Commodity Supplemental Foods, Temporary Assistance for Needy Families, (TANF), SNAP, Supplemental Security Income (SSI) and Medicaid programs. Furthermore, in D.C. Veggie Rx is paid for by the Produce Plus Program, which Arcadia also accepts. The Veggie Rx program was established at Arcadia’s Community of Hope location, a non-profit organization, where customers who are prescribed vegetables or fresh produce are directed to Arcadia’s mobile market to shop (Hess 2017).

Programming

Each mobile market offers supplemental programming to engage and aid their target populations. Many offer educational programs on topics such as nutrition, food systems, and how to utilize SNAP benefits efficiently. For example, the Massachusetts Avenue Project partners with Eat SMART New York to provide nutrition education to SNAP-eligible market patrons. Educators set up at the market and provide recipes, run food sampling activities, and give out fact sheets about sodium and other topics (Rovillo 2017). Many mobile markets also provide recipes and some offer taste-testing and live cooking demos tailored to the produce offered that day.

Some markets teach the public about healthy food and local food systems and a few invite customers including school children to visit the farms where their food is sourced. Mobile Good Food market’s parent organization, FoodShare, operates a community garden and it

offers nutrition programming in schools (Ramkhelawan 2017). The Massachusetts Avenue Project operates a youth enterprise program called Growing Green Works, where participating youth can develop and market locally sourced organic products (The Massachusetts Avenue Project n.d.). Similarly, Civic Works Real Food Farm works closely with the Baltimore school system to host students at the Real Food Farm where they learn more about how a farm operates and have the opportunity to get involved in all aspects of agriculture from growing to selling produce (Proctor 2017).

Many markets improve food access to improve public health and they offer complementary health services. For example, Food on the Move partners with health organizations to provide flu clinics, blood pressure screenings, glucose screenings, and other services (Cohen 2017). Virtua's Mobile Farmers Market has a dietician present on certain market days to help consumers with produce choices (Santo 2017).

> The Massachusetts Avenue Program (MAP) has a *Growing Green* Program that focuses on youth development and urban agriculture in Buffalo, New York. They work with city youth and train them in different agricultural areas such as urban farming, aquaponics and sustainable food production. The youth work in four areas: Farm Education, Outreach and Policy, Youth Enterprise, and Community Education. For farm education, the youth are heavily involved in observing and working in different components of a farm's operation such as composting and seedling care and how a farm works in a modern economy. For outreach and policy, MAP collaborates with youth to create marketing/educational materials for the organization. In terms of youth enterprise, students are trained in business planning and marketing as they work on developing organic products alongside the vendors. Finally, for community education, MAP educates students on local agriculture and social enterprise before allowing them to educate local residents and policymakers about these issues (The Massachusetts Project n.d.).

Market Logistics

Vehicle

Mobile farm markets use a variety of vehicles such as wheelchair accessible buses, transit buses, box trailers, vans, and delivery trucks to bring produce to consumers. Some markets purchase their vehicles while others receive donated ones. Either way, most organizations retrofit the vehicles to turn them into mobile markets, which can cost thousands of dollars. The St. Louis Metro Market spent around $60,000 to transform its donated transit bus into a vibrant mobile market (Signorelli 2017). Some markets use one or two vehicles for different purposes. Mobile markets in urban areas have found that smaller vehicles like vans are easier to navigate through city streets and parking spaces. The Civic Works Real Food Farm market operates a repurposed newspaper delivery truck and a Chevy Astro Van to navigate through Baltimore's narrow streets. Their two vehicles also enabled them to increase storage capacity. Though most of the vehicles in our study run on gas or diesel, the South Bronx Mobile Market used vegetable oil and solar panels to reduce emissions and costs (BLK Projek 2010).

Displaying Food

We asked participants to provide a detailed description of how their vehicles are set up, and we found that mobile markets consider customer characteristics such as age, physical abilities, and preferences, as well as vehicle type when they decide how and where to display produce. Some markets provide food on-board their vehicles and allow consumers to enter the vehicle to make selections. The Mobile Good Food Market made its vehicle more accessible by

retrofitting a Toronto Transit Commission (TTC) wheel-trans bus that is wheelchair accessible which allows customers to shop aboard as well as outside the vehicle. Other markets display produce off the side of the vehicle and people make selections from the sidewalk. For example, Virtua's mobile market is a custom-designed 23-foot bus that is equipped with an awning to protect customers from sun and rain, as well as large shelving spaces to allow customers to view their bins filled with Whole Foods produce (Santo 2017). In contrast, Food on the Move has an indoor walk-in trailer that enables people to shop for a wide range of produce in a heated facility, independent of the weather (Cohen 2017).

The St. Louis Metro Market[3] is a walk-on donated transit bus with food displayed in bins and on shelves.

Food on the Move[4] has an indoor, walk-in trailer that is optimal for all seasons and all ages.

[3] Lucas Signorelli granted permission to reproduce these images from the St. Louis Metro Market Image Gallery.

[4] Eliza Cohen granted permission to reproduce these images above from the Food on the Move's photo archives.

Virtua's mobile farmers market[5] is a 23-foot custom designed bus that has produce bins where customers can shop under an awning, rain or shine.

Civic Works Real Food Farm has two different mobile markets, a Chevy Astro Van and a retrofitted newspaper delivery truck. Both allow customers to walk up to purchase goods. The delivery truck is usually used indoor and the van outside.[6]

The Massachusetts Avenue Project is a refrigerated box truck with a varied produce setup.[7]

[5] Deanna Santo granted permission to reproduce these images above, compliments of The Virtua Foundation.

[6] Charlotte Proctor granted permission to reproduce these images above from the Civic Works Real Food Farm photo archives.

[7] Danielle Rovillo granted permission to reproduce these images above from the Massachusetts Avenue Project's website and Flickr gallery.

Arcadia's mobile market displays produce on the outside of the vehicle in wooden crates.[8]

The Mobile Good Food Market is stocked with produce on the outside and inside of its retrofitted wheelchair accessible transit bus.[9]

Food

Mobile market staff make a number of food-related decisions; they decide what type of food to sell, where to source it, how and where to store it, whether to offer food samples and how and where to prepare those, and how to dispose of leftover produce. Though most markets prioritize selling foods that consumers want to purchase, a variety of other factors shape what markets actually sell. Affordability, climate, and seasonality all shape produce selection.

Community Preferences

Most markets try to sell foods that are of interest to the people they serve, and they use a variety of approaches to learn about the kinds of food people want. Some organizations build relationships with community residents, partner with other organizations, and/or work with residents to learn more about the kinds of food they would like to buy. Arcadia's mobile market learns about what consumers prefer from their partnerships with community institutions such as clinics, churches, and recreation centers. They gain this information from the staff at these community partnerships at each stop (Hess 2017). The St. Louis Mobile Market holds listening

[8] Pamela Hess granted permission to reproduce these images above from Arcadia's Flickr gallery.

[9] Tara Ramkhelawan granted permission to reproduce two of these images above from a PopUpCity article.

sessions and focus groups with customers and residents, which have allowed community members to make decisions about what foods are sold at their market and its locations (Signorelli 2017). Mobile Good Food Market's driver works closely with customers and market operators to gauge food needs week to week. It also relies on their close community communication through key informants. People that include tenant representatives and apartment supervisors work closely with the mobile market to identify food gaps and cultural preferences and ideal areas for market locations (Ramkhelawan 2017). Most of the markets we talked with also survey community members when they visit stop locations.

Even though most mobile markets seek to source food locally through the approaches above, specific food requests by community members have required these markets to build relationships with other food distributors. Civic Works Real Food Farm learned that their customers wanted more oranges and bananas (Proctor 2017). Virtua's mobile market occasionally sources papaya and plantains because they serve a largely Hispanic and Latinx population (Santo 2017). Food on the Move sources produce from four different wholesalers to carry foods like dragon fruit, pomegranate, as well as culturally relevant foods like yucca, plantains, llame, and yautia to accommodate different Latinx and Cape Verdean populations (Salit 2015).

> The mobile market created by Civic Works began in 2011 to help get the produce from the Real Food Farm into the homes of the people of Baltimore. To expand the food choices available, the mobile market later began sourcing from over fifteen different farms a season. They work with three speciality farms - a pig farm (low cost products), a chicken farm (weekly eggs), and an orchard (apples, peaches, blackberries, etc.). Their goal is to only partner with small farms and to promote local and sustainable agriculture while diversifying their produce as much as possible (Proctor 2017).

Affordability

Most of the markets we interviewed seek to improve food affordability. They use a variety of approaches to lower the cost of food, including sourcing donated food and food from community gardens. Some markets are linked into the emergency food system and food bank food flows while others partner directly with community growers and/or gleaning operations. The St. Louis Metro Market partners with Operation Food Search, a local non-profit food bank. The St. Louis Metro Market also works with community gardens like Fresh Starts Community Garden and Tilly Corners Community Garden in order to gather local and inexpensive produce for their mobile market (Signorelli 2017). Virtua's mobile farmers market receives donations of produce such as corn and apples from the gleaning organization Farmers Against Hunger, and it has an established partnership with Whole Foods, which enables them access to discounted produce year-round (Santo 2017).

Climate, Seasonality, and other Production Related Priorities

The type of produce that is sold at each mobile market is dependent on the climate of the mobile market's location, the seasonality of the produce, and how the organization the produce is sourced from organizes their produce. For example, because of the weather limitations in Toronto, the produce that the Mobile Good Food Market offers is often sourced from different locations (Ramkhelawan 2017). Some organizations build partnerships with local and regional farmers to access fresh produce or to strengthen local food producers. Some markets prioritize "sustainability" objectives which might include reducing food miles or supporting regional farms. The majority of the mobile markets interviewed attempt to source

their produce from farms located near their target communities. For example, Civic Works Real Food Farm sources their produce from over fifteen different farms a season, with all but five of them located in Baltimore (Proctor 2017). These farms include large farms with many acres and community gardens in the city (Signorelli 2017). To expand their produce selection, some of these mobile markets have participated in alliances or partnerships within the area. Civic Work Real Food Farm participates in the Farm Alliance of Baltimore City, and has allied with three specialty farms: a pig farm (low cost products), a chicken farm (weekly eggs), and an orchard (apples, peaches, blackberries, etc.) (Proctor 2017).

Mixed Approaches in Practice

Most markets in practice use a variety of approaches as they try to achieve more than one of these objectives. For example, to meet community needs, many markets turn to food distributors to access food that is not grown regionally. These markets might also partner with and or train community growers and or local farmers. The NBCFM, for example, currently uses this mixed approach. Mobile markets use partnerships to source produce and to use inexpensive spaces that are available within the community for storage. Arcadia sources some of their produce from their own farms; however, the rest of the produce comes from agricultural partners that are local sustainable farms within a 125 mile radius of the Washington D.C area (Hess 2017). Similarly, Civic Works grows its own produce through Real Food Farm, a six acre farm located within Clifton Park in Baltimore, Maryland. In addition, Civic Works sources food from over fifteen different farms within a thirty mile radius of the Real Food Farm, many of which participate in the Farm Alliance of Baltimore City (Proctor 2017).

Handling and Storage

Mobile markets use different methods to handle and store food in preparation for their market stops. For example, the St. Louis Metro Market works with Operation Food Search, a non-profit food bank, to rent out their office and freezer space at a small cost. The food bank also allows the St. Louis Metro Market's vehicles to park on their property (Signorelli 2017). The St. Louis Metro Market and the Civic Works Real Food Farm currently have freezers and refrigerators within their vehicles as a convenient means to store food. Virtua did not have access to refrigeration on board, and thus mentioned the need to keep produce stored in coolers until they loaded their mobile market. Once on the road, tactics for keeping their produce fresh include spritzing greens and moving produce from the bottom of the bin to the top to prevent wilting and bruising from sustained compression (Santo 2017). Some markets like Food on the Move and Arcadia use cold storage space at a partner distributor site and space at a local charter school, respectively (Cohen 2017; Hess 2017).

Leftovers

If there is produce leftover at the end of a business day, most mobile markets donate it. The markets in our study gave their leftover produce to local organizations such as food banks, nonprofit organizations, halfway houses, soup kitchens, community centers, and afterschool programs. For instance, Virtua's mobile market donates leftovers to children from local schools, and a nonprofit in Camden, NJ called Respond Inc. uses some of Virtua's donated produce to teach culinary classes for on the job training (Santo 2017). Arcadia's mobile market donates to local organizations only if it has a large amount of produce leftover. If there is only a small

quantity of leftover produce, they compost the food on Arcadia's farm (Hess 2017). The Massachusetts Avenue Project only composts their leftover produce if it is inedible; otherwise it makes a point to donate it (Rovillo 2017). Ultimately, where and how leftover produce is distributed is up to the discretion of the mobile market staff.

Reflections

Addressing food access in the communities a mobile farmers market serves is a challenging task that includes a learning curve. Each of the mobile market representatives we spoke with shared detailed reflections on starting and running a mobile market. On the topic of challenges, staff mentioned a range of issues that they initially found to be difficult. For example, Food on the Move staff discussed the difficulties that they experienced with developing and then maintaining a strong outreach strategy (Cohen 2017). Virtua's mobile farmers market, Massachusetts Avenue Project and St. Louis Metro Market staff mentioned logistical challenges associated with determining how much food to purchase, how to set prices, and what supplies to bring to each stop (Rovillo 2017; Santo 2017; Signorelli 2017). Arcadia and the Mobile Good Food Market mentioned challenges related to managing labor expenses and keeping produce affordable (Hess 2017; Ramkhelawan 2017).

In terms of general takeaways and advice, mobile market staff from the Civic Works Real Food Farm highlighted the importance of finding reliable community partners, as they will be proponents for the market in the communities that they serve. Staff members from Food on the Move and Virtua discussed the importance of seeking out and then learning from experts in the industry, such as leaders in the marketing, grocery retail, trucking, and construction industries (Cohen 2017; Santo 2017). Finally, staff consistently remarked on the need to track data analytics and set annual goals that can be evaluated, in order to ensure that their work remains closely aligned with their objectives.

> The biggest takeaway from the "Reflections" portion of the interview with the Civic Works Real Food Farm was their discussion about the difficulties associated with obtaining strong community connections. The interviewee emphasized the need for reliable community partners since mobile market staff cannot attend all community meetings due to busy schedules. Community partners will also be the biggest proponents for getting people in the community to attend the market stops. And though their market has not eliminated all of the food deserts in Baltimore, they have made impressive strides towards improving the community. Some of the smaller markers of success include: measuring the quantity/quality of produce they purchase, expansion of benefits accepted, and improvement of customer attendance.

In addition to these important reflections, the findings from our interviews reveal concrete recommendations that we would like to present to the NBCFM as they consider the addition of a mobile farmers market.

Recommendations

Persons interested in either creating a new mobile market or enhancing an existing one may consider the following recommendations:

Think about what ‘access’ means.

The goal of any mobile market is to increase access of fresh food and produce to a specific population. However, the definition of access varied quite heavily from mobile market to mobile market based on the interviews we conducted. Thus, it is critical to have a clear idea of how your organization defines access in the context of your community in order to make meaningful strides towards achieving that goal. You want to clearly define your target demographic, and whether more access to fresh produce is based on affordability or some other parameter (availability, affordability etc.). Conceptualizing these terms well is important for running a successful mobile market.

Consider a pilot program first.

Starting a mobile market is an expensive undertaking, and the participants in our study remarked that running a successful market which yields the desired impacts is often a larger project than initially anticipated. A pilot program that runs for a set period of time can test the feasibility of creating a mobile market that will address its core objectives.

Be flexible.

One of the common themes we found in our interviews was the idea of adaptability. From changing market locations and schedules to the overall structure of the market, each organization has altered its processes to cater to the local community. It’s important to be cognizant of how the community responds to the different components of your market. If a market location is not receiving enough foot traffic, or a certain time tends to work better for your community members, respond immediately. Being too stagnant in your approach will limit the number of people you will be able serve with your mobile market.

Reach out to community partners.

Persons interested in creating a mobile market should develop relationships with reliable community partners who are already embedded in and working with the communities they desire to impact. Such partners can be critical allies in identifying target populations and learning about food, scheduling, and other preferences, assisting with any needed resources, and working as a team to holistically address the disparities that local residents may face.

Consider using an eco-friendly vehicle.

Most mobile market vehicles run on gas or diesel, but using alternative fuel sources can reduce economic costs, greenhouse gas emissions, and particulates which is especially important given that mobile markets are often distributing food in residential areas. Vegetable oil, solar panels, biodiesel, and electricity are other options that can or have been used for fuel. We recommend that the local environment, public health, and sustainability be a part of the considerations when choosing a vehicle for a mobile market.

Get creative with food waste.

Study participants revealed that produce going to waste is an important concern, especially during the growing season when temperatures soar. Propose a plan for handling leftover produce early in the planning process, and be creative!

Surplus edible food can be donated to local organizations such as food banks or those that may have culinary training classes. Inquire into interested partners that may have freezing capacities to store produce for future use. Just make sure to anticipate the expiration dates when figuring out logistics.

Composting is a great option for inedible food and can provide a unique learning opportunity. Setting up a site where local youth can learn more about sustainable waste management practices like vermicomposting can shape tomorrow's environmental stewards.

Hire members of your target population.

Many mobile markets reported that community members were vital to the successful operation of their markets, yet they were often incorporated as unpaid volunteers. In some cases, this can contribute to rather than challenge the very systems of inequality a market seeks to address.

In many of the communities the markets served, English was not the primary language spoken, yet interviewees reported that staff are not always bi- or multilingual. While it may not be possible for staff members to speak all of the languages present in a community, the benefits of hiring bilingual staff members are many.

Cultural competency is another concern. Often farmers market staff must go out of their way to learn about the habits and needs of their customers; however, directly hiring community members may help remedy this issue.

Adopt an Economic Development Approach.

Finally, we wholeheartedly recommend the economic development approach that some mobile markets in our study have adopted. Their idea to convert unused urban space into farms can help to address uneven access to food *and* the inequities that underlie this issue: uneven wealth distribution and systematic disenfranchisement.

While it is beneficial to support local agriculture, the farms which mobile markets typically source their produce from are often not owned or operated by target populations, many of whom suffer from interrelated disparities such as intergenerational poverty, social isolation, lack of social capital, and economic and racial disadvantage. Providing community members with the training and resources to grow their own economies can help to address these disparities--including food access--even if mobile markets dissolve or are defunded.

While urban farming cannot alone eliminate these underlying problems, there are many creative ways that mobile farmers markets can organize themselves to engage residents in market decision making processes, as paid staff, and through community economic development

efforts. Though some cities lack space to grow food on a scale that would produce economic returns, it may be possible to expand producer networks by supporting farmers through small-scale farming in peri-urban areas. Some communities are also supporting small food business development and entrepreneurialism. Mobile markets can provide direct marketing opportunities for these food businesses as well.

Acknowledgements

It is with immense gratitude that we would like to acknowledge the Voorhees family for their generous donation that made our community-based research project possible. It is due to their generosity that we were able to produce this report and learn about initiatives across North America working to achieve better outcomes for those impacted by a lack of access to fresh, healthy, and affordable food. We would also like to acknowledge the representatives from the mobile markets in our study who patiently and graciously set aside time to answer our extensive questions about the foundation and operation of their markets.

- Eliza Cohen, Food Access Coordinator at the Rhode Island Public Health Institute
- Pamela Hess, Executive Director of Arcadia Center for Sustainable Food and Agriculture
- Charlotte Proctor, Community Market & Outreach Coordinator for Civic Works Real Food Farm
- Tara Ramkhelawan, Senior Coordinator at the Mobile Good Food Market
- Danielle Rovillo, Markets Director at the Massachusetts Avenue Project
- Deanna Santo, Supervisor of Virtua's Mobile Farmers Market
- Lucas Signorelli, Executive Director of St. Louis Metro Market

We would also like to thank the following individuals for their expertise and guidance in creating this report:

- Lauren Errickson, New Brunswick Community Farmers Market Program Coordinator, Rutgers Cooperative Extension
- Cara Cuite, Assistant Extension Specialist from the Rutgers School of Environmental and Biological Sciences - Department of Human Ecology

Last but not least, we would like to acknowledge the many people who contribute to the markets we included in our study: both the formal and informal contributors, including volunteers, staff, students, dieticians, farmers, and community members, all of whom set out daily to fight food injustice. We appreciate living in a world where your work is taking place and making a difference.

Bibliography

Albala, Ken, ed. "Mobile Markets." in *The SAGE Encyclopedia of Food Issues*, ed., Los Angeles: SAGE Reference, 2015, 976.

American Community Survey 5-Year Estimates. “Selected Economic Characteristics” 2012-2016. https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF

Best, Amy, and Benjamin Bartley. “Mobile Market Applying the Food Truck Model to Food Access.” Arcadia Center for Sustainable Food and Agriculture. 2013. http://arcadiafood.org/sites/default/files/files/arcadia%20%20mobile%20market%20report%20Digital.pdf.

Blk Projek. “Our Story.” 2010. http://www.theblkprojek.org/our-story/

Burton, Dan, Breanna Hudson, and Nick Shatan. "New Brunswick Overview.” in Cara Cuite, Kathe Newman, and Erin Royals. Ed. *New Brunswick Community Food Assessment*, Ralph W. Voorhees Center for Civic Engagement, Rutgers University, September 2017, 7-11.

Civic Works Real Food Farm. n.d. "About Us.". n.d. http://realfoodfarm.civicworks.com/about-us/.

Cohen, Eliza. (Food Access Coordinator, Rhode Island Public Health Institute), in telephone interview with Sarah Lin. October 30, 2017.

Cuite, Cara, Kathe Newman, and Erin Royals, eds. "Working Together for Food Secure New Brunswick.” in *New Brunswick Community Food Assessment*, Ralph W. Voorhees Center for Civic Engagement, Rutgers University., September 2017, 1-5.

Dowd, Kristen. "Virtua Mobile Farmers Market rolls into Voorhees." *The Voorhees Sun*. July 5, 2017. https://voorheessun.com/virtua-mobile-farmers-market-rolls-into-voorhees-bf377987192a.

"Fresh Moves Mobile Market." Fresh Moves Mobile Market. March 2017. https://freshmoveschicago.wordpress.com/.

Hess, Pamela. (Executive Director, Arcadia Center for Sustainable Food and Agriculture), in telephone interview with Ananyasri Thiriveedhi. November 3, 2017.

Proctor, Charlotte. (Community Market & Outreach Coordinator, Civic Works Real Food Farm), in telephone interview with Naweed Karimi. November 3, 2017.

Proctor, Charlotte. "A Guide to Mobile Farmer’s Markets - Fall 2016." The Real Food Farm. 2016b, 2. http://realfoodfarm.civicworks.com/wp-content/uploads/2017/01/How-to-MFM.pdf.

Ramkhelawan, Tara. (Senior Coordinator, Mobile Good Food Market), in telephone interview with Camille Charles. November 2, 2017.

Rovillo, Danielle. (Markets Director, Massachusetts Avenue Project), in telephone Interview with Sarah Lin. November 3, 2017.

Salit, Richard. "*Central Falls latest stop for Food on the Move bringing healthy items to low income sites*." *Providence Journal*. 2015. http://www.providencejournal.com/article/20151220/NEWS/151229911

Santo, Deanna. (Supervisor, Virtua Mobile Farmers Market), in telephone interview with Anjanette Vaidya. November 6, 2017.

Signorelli, Lucas (Executive Director, St. Louis Metro Market), in telephone interview with Camille Charles. November 1, 2017.

The Massachusetts Avenue Project. "About." n.d. http://mass-ave.org/about/.

The Massachusetts Avenue Project. "Youth Entreprise." n.d. http://mass-ave.org/programs/youth-enterprise/.

University of Wisconsin. "Mobile Markets." What Works for Health. October 2015. http://whatworksforhealth.wisc.edu/program.php?t1=21&t2=12&t3=114&id=527.

Widener, Michael J., Sara S. Metcalf, and Yaneer Bar-Yam. "Agent-based modeling of policies to improve urban food access for low-income populations." *Applied Geography* 40 (2013): 1-10.

Zepeda, Lydia and Anna Reznickova. *Measuring Effects of Mobile Markets on Healthy Food Choices*, Madison: University of Wisconsin, November 2013.

Endnotes

1: United States Department of Agriculture Economic Research Service (USDA ERS). "Food Access Research Atlas." Food Access Research Atlas. September 18, 2017. https://www.ers.usda.gov/data-products/food-access-research-atlas.aspx.

2: "Image Gallery." St. Louis Metro Market. https://www.stlmetromarket.com/about/image-gallery.

3: "Image Gallery." St. Louis Metro Market. https://www.stlmetromarket.com/about/image-gallery.

4: Images used with permission of Food on the Move

5: Images used with permission of Virtua Foundation.

6: Images used with permission of Civic Works Real Food Farms

7: The Massachusetts Avenue Project. "Projects." n.d. http://mass-ave.org/programs/mobile-market/

"Photostream." Massachusetts Avenue Project. Flickr. 2016. https://www.flickr.com/photos/massaveproject/sets/72157671224353845

8: "Photostream." Arcadia. Flickr. October 31, 2013. https://www.flickr.com/photos/arcadiafood/10597608893/in/photostream/.

9: Deckert, Teresa, Anna Triboli, Joop De Boer, Lea Hümbs, and Vivian Doumpa. "Farmer's Market On Wheels Delivers Veggies To Toronto's Food Deserts." Pop-Up City. January 14, 2015. http://popupcity.net/farmers-market-on-wheels-delivers-veggies-to-torontos-food-deserts/.