

Food Security, Social Entrepreneurship, and Farmers' Markets in Worcester

A Major Qualifying Project Report

Submitted to the Faculty

of the

WORCESTER POLYTECHNIC INSTITUTE



in partial fulfillment of the requirements for the

Degree of Bachelor of Science

by:

Arthur J. Meldrim

William P. Callaway

Christopher R. Garceau

Stephen J. Conlin

Date: 3/5/12

Professor Michael B. Elmes, Advisor

This report represents the work of four WPI undergraduate students submitted to the faculty as evidence of completion of a degree requirement. WPI routinely publishes these reports on its web site without editorial or peer review.

Abstract

The United States Census indicates that Worcester has high levels of food insecurity. The Worcester Advisory Food Policy Council states that many residents are not aware of the potential benefits of farmers' markets. We aimed to improve how farmers' markets within Worcester could address food security and raise awareness. Through surveys and interviews, we gathered an understanding of the situation and recommended organizing Worcester markets in a common direction by implementing socially effective, entrepreneurial methods and obtaining additional third-party funds.

Acknowledgements

There are several individuals we would like to thank for having a positive impact on this project and for helping steer us toward an optimal outcome. Firstly we would like to thank our project advisor Dr. Michael Elmes. He harnessed our desire to deliver useful suggestions, often refocusing our intense search for data. We thrived off constructive criticism and utilized his knowledge of the business principles necessary to thoroughly investigate this report's scope. Professor Robert Hersh also deserves our appreciation. From the initial launch of this project, he offered additional feedback and support that supplied us with an increased knowledge on the background of the subjects discussed throughout the report.

We would also like to thank Liz Sheehan-Castro, Project Manager of the Worcester Food and Active Living Policy Council's Hungry Free and Healthy Program, for providing insight into the current food security dilemma visible in Worcester as well as current actions being taken to battle it.

Special Thanks to Mr. Andy O 'Keefe of the Worcester Farmers' Market Group and Anthony Gardener of the Regional Environmental Council for explaining the business and social aspects of the two sectors of Worcester area farmers' markets.

Finally, we would like to show gratitude to the anonymous shoppers at farmers' markets, Worcester grocery stores, as well as the interviewees at our randomly selected Worcester interview locations, who provided us with in-depth interview data that would later be reported as our most influential findings. Those findings go on to offer recommendations to address the prominent issues.

Table of Contents

Abstract.....	ii
Acknowledgements.....	iii
Table of Contents.....	iv
List of Figures.....	vi
List of Tables.....	vii
Executive Summary.....	viii
Project Goal and Objectives:.....	viii
Methodology.....	viii
Findings.....	ix
Recommendations.....	x
2.1 Farmers’ Markets.....	15
2.1.1 Worcester County Markets.....	17
2.1.2 Utilization of EBT Systems at Worcester Farmers’ Markets.....	21
2.1.3 Current Problems Facing Worcester Area Farmers’ Markets.....	22
2.2 What is Food Security?.....	23
2.2.1 Food Security Levels.....	23
2.2.2 Food Security & Farmers’ Markets.....	24
2.2.3 Organizations Addressing Food Security.....	26
2.3 What is Social Entrepreneurship?.....	32
2.3.1 Social Entrepreneurship vs. Business Entrepreneurship.....	33
2.3.2 Social Entrepreneurship on a National Level: Stonyfield Farms.....	34
2.3.3 Relationship to Farmers’ Markets and Food Security.....	36
3 Procedures.....	40
3.1 Research into the Current State Worcester County Farmers’ Markets.....	40
3.2 Determine the Most Prevalent Concerns Regarding Food Security in Worcester, Massachusetts and Potential Methods to Address Them.....	42
3.3 Compare and Contrast the Process in which Farmers’ Markets Main Competitors Market Similar Products.....	42
3.4 Develop Recommendations Based on Interview Feedback.....	44
3.5 Summary.....	45

4 Findings	47
4.1 Local Markets’ Flow of Resources	47
4.1.1 Worcester Farmers’ Market Group	47
4.1.2 REC Farmers’ Markets	49
4.1.3 Summary	50
4.2 Farmers’ Markets vs. Grocery Stores	51
4.3 Worcester Population Tendencies towards Farmers’ Markets & Local Farmers	59
4.4 Summary: SWOT Analysis of Worcester Area Markets	63
5 Recommendations.....	67
5.1 Key Issues in Worcester Farmers’ Market.....	67
5.1.1 Market Organization	69
5.1.1.1 Feasibility & Implementation	76
5.1.2 Marketing.....	78
5.1.2.1 Feasibility & Implementation	81
5.1.3 Agritainment	81
5.1.3.1 Feasibility & Implementation	82
5.1.4 Education	83
5.1.4.1 Feasibility & Implementation	83
5.1.5 Sponsorships	84
5.1.5.1 Feasibility & Implementation	85
5.2 Additional Implementations.....	85
5.2.1 Support Services for Worcester Farmers’ Markets.....	85
5.2.2 Mobile Market	86
5.2.2.1 Feasibility & Implementation	87
5.2.3 Greenhouses & Storage.....	88
5.2.3.1 Feasibility & Implementation	89
5.3 Summary	91
References.....	92
Appendix A: Interviews with Andy O’Keefe	96
Appendix B: Interviews with the REC	99
Appendix C: Interview with Liz Sheehan Castro	102
Appendix D: Random Sample Interviews	107
Appendix E: Interviews with Customers	111
Appendix F: GIS Map of Worcester.....	120

List of Figures

Figure 1: List of Compared Food Products.....	43
Figure 2: Worcester Farmer's Market Group Flow Chart	47
Figure 3: REC Market Flow Chart.....	49
Figure 4: Shopper Knowledge of Price Differences	55
Figure 5: Quality of Goods	55
Figure 6: Dietary Needs Being Met	56
Figure 7: Purchasing Preference	57
Figure 8: Typical Methods of Payment.....	58
Figure 9: Transportation to Farmers' Markets	58
Figure 10: Average Monthly Food Expenses	60
Figure 11: Preparing Healthy Food Options	60
Figure 12: Importance of Buying Local.....	61
Figure 13: Importance of Food Security	62
Figure 14: Food Security in Worcester	62
Figure 15: Example of Market Organization under a Committee of Volunteers.....	71

List of Tables

Table 1: Prices at Worcester Area Farmers' Markets.....	52
Table 2: Prices at Grocery Stores.....	52
Table 3: Prices of Goods at Living Earth.....	53
Table 4: Composite Price Comparison	54
Table 5: SWOT Analysis of the Worcester Farmers' Market System.....	64

Executive Summary

Project Goal and Objectives:

Food insecurity within Worcester is a rising concern to residents of the city. In recognition of this problem, we set out to research how the existing farmers' market infrastructure meets the nutritional needs of those living within Worcester. Based on the available literature regarding the current and historical usage of farmer's markets, it became clear that while the farmers market are increasingly familiar sources of nutrition, there may exist opportunities which can be used to increase the way these markets can reduce food insecurity.

The main focus of this project is to investigate the capacity of farmers' markets to meet the needs of the residents in Worcester, and to see where possible shortcomings of the system can be eased using social entrepreneurship and innovation. We established objectives that would allow us to concentrate our research and effectively guide our methodology as we assessed the food security climate in Worcester.

Methodology

In order to focus our effort on the problem, we established two sets of objectives. The first regarded existing markets. Through interviews with stakeholders, we expected to learn about each farmers' market. More specifically, we wanted to determine the main purpose/motivation, define the customer base, and learn some factors that affect the flow of income, for each market. We also hoped to determine the advantages or disadvantages of shopping and selling at farmer's markets.

The second set of objectives was aimed at developing our understanding of the food security issues in Worcester. In order to better understand these issues, we hoped to determine the biggest problems concerning food security, and become familiar with the successes and

failures of historical attempts at addressing food insecurity in Worcester. In researching trending methods that are being employed on a national level, we hoped to see something that may have something to contribute to food security in Worcester. We also researched different aspects of social entrepreneurship that might allow us to target food security using innovative implementations at farmers' markets.

Findings

Since the beginning of the project, we were able to get a better picture of how things work with respect to farmers' markets and food security in the city of Worcester. We found that there are two main groups that control the farmers' markets in Worcester. The first is the Worcester Farmers' Market Group, run as a hobby by Mr. Andy O'Keefe, a retired. The second is the Regional Environmental Council, who runs their farmers' market as a response to the social need that food insecurity creates. These groups are very different in terms how they run their markets, how they are motivated, and the funding that each rely on. Both are allowed to operate on city property at the cost of the required permits. The REC relies heavily on funding from other sources that range from the legislature, to public grants. Mr. O'Keefe's markets are fairly self-reliant because they are run specifically as businesses.

We discovered some interesting trends in our interactions with food customers. We found that many people believe that farmers' markets are more expensive and less convenient than grocery stores. Our findings dig deeper into the minds of the customers in order to figure out where they shop, why they shop where they do, and if there are any misconceptions regarding farmers' markets that we can help them understand.

Recommendations

Re-structuring of the Current System

- *We recommend that all the markets within Worcester County form solid and distinct levels of organization and communication under a managerial committee of volunteers.*

We found that there are currently two main entities that control the farmers' markets in Worcester. With more organization and common direction, the farmers' markets could become an influential factor in increasing food security throughout Worcester.

- *We recommend that this central organization utilizes current business models and philosophy.* By incorporating new inventory techniques, farmers will be able to minimize the amount of waste that they incur at each market, therefor reducing their own losses, which is important to the sustained survival of a small organization such as the markets.

Increasing Market Penetration

- *We recommend that the new merged entity conduct a cost-effective, social marketing campaign.* This marketing campaign would use socially viral, guerilla marketing strategies to reach as much of the public, and specifically our target market, as possible.

One of the largest problems in the area is that people do not know about the farmers' markets. We suggest a targeted campaign, looking to capture the demographics of middle-aged women, and specifically young adults.

- *We recommend that a coalition of volunteers manage the marketing campaign.* While the markets do conduct their own advertising, it seems to fall short. We found that there were people coming to the markets that had never heard about them before. A professional

marketer would be able to penetrate the targeted audience, and create the pull that is needed to start the attraction to farmers' markets.

- *We recommend that the farmers' markets incorporate the concept of "agritainment" in order to attract more customers and raise the awareness of food security issues.* By creating a fusion of agriculture and entertainment, farmers' markets will be able to attract families and crowds that are outside the realm of those who usually visit farmers' markets. They could also create additional revenue by adding entertainment value to social markets.
- *We recommend that the coalition of volunteers have a focus on raising awareness through an educational approach.* One of the underlying problems that persisted throughout the entire city was a lack of knowledge regarding food security matters. Classes consisting of demonstrations and information regarding the importance of farmers' markets could be crucial in educating the city on the concerns surrounding food security.
- *We recommend that the committee of volunteers look into sponsors for other sources of funding.* Companies that have similar interests to that of the farmers' market system are potential sources of funding for the markets. Hospitals, life insurance companies, the YMCA, and YWCA are all businesses that share goals and interest similar to the markets, and can be approached for funding.
- *We recommend incorporating a bus system, where busses are re-fitted in order to act as travelling farmers' markets.* The REC currently employs a similar setup, but it seems to be a program with limited reach. If at least one full-size bus could be outfitted as a market, there is a large portion of the city that could have access to the food from the farmers' market.

- *We recommend that the farmers' market organization should purchase or rent small abandoned housing to be cost-effectively retrofitted as greenhouses, which would ensure year-round operations. We found that many farmers were interested in providing produce all year round, but don't have anywhere to grow it. Creating a greenhouse would allow for a year-round revenue stream.*

1 Problem Statement

Residents of Worcester County have two main options when it comes to purchasing food, either grocery stores or farmers' markets. Food insecurity is high in Worcester and residents are not fully aware of the potential benefits that farmers' markets can offer in response (Worcester Advisory Food Policy Council) . The core problem we aim to address is that there is a lack of innovative approaches to utilize farmers' markets to meet the food security needs of Worcester. With a limited market share and little utilization of available resources in the greater Worcester area, there is plenty of room for improvement.

A farmers' market is an organized venue where local farmers sell their goods, usually being fresh produce. Due to the overreaching power that large food corporations are gaining through loopholes in food laws that allow them to make a bigger profit, the consumer is losing both buying power and a say in how their food is made or handled. As consumers rely more and more on grocery stores, which typically purchase food products from large corporate distributors, the gap between the consumer and their food sources is widening. This is especially true in low income, urban communities. Whether the problem is either cost or transportation related, farmers' markets can play an important role in providing urban communities' with nutritious local produce and bring residents closer to the source of their food.

One problem that we believe exacerbates the situation of poorly utilizing farmers' markets in addition to seasonal operations and limited products and locations is the convenience of grocery stores. There are more grocery stores than farmers' markets in Worcester, which makes it easier for a consumer to choose a grocery store over a farmers' market. Another convenience is the ability to purchase items other than just produce at grocery stores, which clearly gives grocery stores an advantage over farmers' markets.

The goal of this project is to develop recommendations that employ social entrepreneurial strategies for local farmers' market participants and health advocates. These recommendations will in turn, help fight food insecurity throughout the city of Worcester. By conducting on-site research at the markets, collecting consumer interviews at multiple types of food depots, and analyzing successful examples of urban farmers' markets, we will be able to offer socially innovative recommendations that accurately reflect the opinion of farmers and Worcester consumers of both the markets and larger grocers with the goal of providing Worcester citizens with a balanced, healthy, and educated lifestyle.

2 Background

In this chapter we provide a detailed description of the different aspects of the farmers' markets in Worcester County, the current food insecurity issues within Worcester County, as well as the potential role social entrepreneurship can play in linking the two. The first section presents a general explanation of farmers' markets and specific data regarding the Worcester County markets, including services offered, products sold, and typical demographics found. We then illustrate the issue of food security by outlining the levels of food insecurity and discussing organizations dedicated to addressing the rising levels of food insecurity on a local and national scale. Finally we describe the principle of social entrepreneurship, its potential relationship to farmers' markets, how it compares to for-profit businesses, and the current social entrepreneurial boom.

2.1 Farmers' Markets

As one of the oldest forms of agricultural prosperity, American farmers' markets date back to 1730 (AMO Software, 2011). Due to their ability to provide fresh, nutritious, produce, they have dramatically risen in popularity. For farmers, farmers' markets have become a place to sell their produce to a myriad of customers. For customers, farmers' markets have become a place to socialize, trade recipes, and stock up on a week's worth of fresh food. "From the traditional 'mercados' in the Peruvian Andes to the unique street markets in Asia," farmers' markets have become social and economic staples in communities across the world (Local Harvest, Inc., 2011).

The number of farmers' markets in the United States tripled over the past 15 years to more than 5000 in 2009 (Young, Karpyn, Uy, Wich, & Glyn, 2011). Most farmers' markets offer similar selections of produce. Some of the most common vegetables listed are arugula,

green beans, cauliflower, beets, bok choy, broccoli, carrots, chard, tomatoes, peppers, and kale. Available fruits include apples, raspberries, strawberries, and watermelon (Mass Farmers Markets, 2011). The available options at each market help dictate the nutritional value of that farmers' market. Not only are these stands selling fresh and cheap produce, they are also selling food rich in folates, potassium, vitamin A, and vitamin C. Individually, these nutrients provide multiple benefits to the human body. Folates are a natural supplement that increases a woman's chance to give birth to a healthy child and reduce the chances that a child is born with a neurological defect. Potassium is extremely important in regulating blood pressure. Without an appropriate amount of potassium, the blood vessels of the body become blocked and constricted. Once this occurs, the heart and kidneys have to work harder to pump blood throughout the system. A diet with high consumption levels of tomatoes, potatoes, and cooked greens, helps to keep the circulatory system in good working order and can reduce the effects of clogging. Vitamin A can be found in various fruits and vegetables such as pumpkin, carrots, spinach, kale, collard greens, and red peppers. Vitamin A helps keep the immune running smoothly. Vitamin A also helps protect the skin and eyes. Vitamin C contributes to the healing cuts and wounds. The health of the teeth and gums also relies on Vitamin C. Many of the fruits and vegetables available at farmers' markets are good sources of Vitamin C. (CDC, 2011)

Farmers' markets also provide meat, dairy, and eggs. These are important sources of protein and calcium. Meat is one of the most difficult products to bring to a farmers' market because it is highly regulated, and requires refrigerated storage while at the market. Meat is also the most expensive commodity offered at farmers' markets. With the addition of meat

and poultry to the list of offerings, it is clear that all the elements of a well-rounded diet are available at farmers' markets (Mass Farmers Markets, 2011).

While farmers' markets have become a valuable nutritious resource, they have also come to serve in a social capacity as well. Farmers markets have become centers where people come to socialize as well as purchase their produce. At the farmers markets, people spend about half of what they would at grocery stores. Their interactions with the farmers as well as their fellow customers lead to the trading of receipts and stories as well as currency (Boynton, 2007). Farmers' markets also provide a friendly, communal atmosphere that educates shoppers on the benefits of healthy eating with such programs as the USDA's Sustainable Agricultural Research and Education Program. Goals of this program include educating and training farmers/vendors at the market on the principles and benefits of direct marketing, emphasizing quality over quantity of goods, and advocating vendors to focus on consumer preference. This allows the markets to adjust available goods to a supply that reflects consumer interests in an attempt to eventually increase business (Keil, 2010) (Hinrichs, Gillespie, & Feenstra, 2004).

2.1.1 Worcester County Markets

A study conducted in 2010 on the accessibility of healthy food in Worcester showed that approximately 38% of Worcester residents had access to healthy food. The study showed that out of 103 zip codes in Worcester, only 39 had access to healthy food outlets, which are defined as places where one can stock up on all the foods that comprise a healthy diet (County Health Rankings, 2011). According to a 2011 study completed by Mass Farmers' markets regarding markets throughout the state, there are currently only five farmers' markets spread across the greater Worcester area. Most operate on varying

schedules, spanning all days of the week (Mass Farmers Markets, 2011). The different schedules among the farmers' markets allow customers to choose the most convenient option according to their location or daily routine.

Several farmers' markets in Worcester County offer services that simplify the process of buying fresh goods locally. Two such services are Community Supported Agriculture (CSA) groups, and delivery services. Involvement in CSA allows shareholders to purchase a share of the yield from a local farm by paying an annual fee. While many farming regions around the country have full-scale, organized, CSAs, many of the CSAs in Worcester are privately organized by local farms (Boynton, 2007). Green Hill and Caledonia Farms are examples of local growers who employ this method. Fees for goods from both farms are paid in a two-step process. First, a deposit is made to secure a share of the yield. The second payment is due before the growing season begins. The farms use these payments to maintain their crops, equipment, and growth, in the hope that they will produce a large yield to be distributed.

A CSA business model is unique in that it produces a risk that is shared by both the farmers and the stakeholders, who pick up their share at a designated point each week (Boynton, 2007). Since the fee is paid up front, there is no guaranteed success in drawing a yield. Buying into the system connects the farmer and the shareholder financially, which is one of the closest ties two groups can share. Worcester CSAs are not only concerned with turning a profit, but also in recognizing the need for food security reform (Guthman, Morris, & Allen, 2006). For example, Caledonia Farms in Barre, MA, claimed that they could earn \$700-800 for one share in their CSA. However, they keep their

shares priced from \$200-300 in an attempt to assist their low-income customer base, whom the owner claims are his “most rabid customers.” (Boynton, 2007).

Farmacy Gardens, a CSA run by Chanya Sae-Eaw and John White out of Belchertown, MA, allows its shareholders to pick up weekly packages at a third party site located at the UMASS Memorial farmers’ market. Starting in 2011, shareholders were also given the option to pick up their goods directly from the farm. Farmacy Gardens CSA runs for 20 weeks each year, offering a weekly share consisting of 8-15lbs of produce; an annual cost of \$600 for shareholders (Farmacy Gardens, 2011).

“Shop4Me” was a convenience mechanism set in place for Worcester area farmer’s markets customers. The program, run by head organizer of the Worcester Farmers’ Markets Group Mr. Andy O’ Keefe, began in 2001 but could not sustain long-term success and ceased after only a few years. “Shop4Me” placed customers in contact with a surrogate “shopper”. Interested individuals would dial a toll free phone number. The “shopper” would answer the phone, record the delivery information, and read the customer a list of available produce and prices. Then they would assemble the customers’ order, and deliver it to the customer later that day. The process was funded by adding a delivery fee to each bill. The program aimed to assist those who could not attend the market during its designated schedule. Equally as important, it allowed people who have no means of travel to enjoy the fresh, local and nutritious food options offered by farmers’ markets (Houle B. , 2005).

There are two distinct types of farmers’ markets in Worcester: those whose goal is to profit and those who get involved to fulfill their commitment to be socially responsible. Some farmers participate in the markets strictly as a means of livelihood.

The relationship between the farmers and their customers is simply a transactional symbiosis. Other farmers focus beyond the livelihood aspect, and participate out of a sense of social responsibility. For example, they may choose to accept welfare program payment methods or seek to educate their customers about the importance of nutrition in their diets and the problem of food security in general. The focus of each market will affect location, prices, and target consumers.

All of the farmers markets operating in Worcester are organized by one of two different programs: Mr. O'Keefe's Worcester Farmers' Markets Group, or the Regional Environmental Council (REC). The markets Mr. O'Keefe currently organizes are located in the Beaver Brook Park parking lot, the UMass Memorial Hospital lot, and the Salem Covenant Church lot on East Mountain Street. The REC sets up on Main South in the Worcester YMCA Central Branch in the parking lot of the Great Brook Valley Health Center (Mass Farmers Markets, 2011).

The vendors that operate at Mr. O'Keefe's markets tend to focus on turning a profit before fulfilling a duty of social responsibility to provide healthier food options. Many of these vendors attend these markets and others in order to make a living. The market is merely a way for the farmers' to interact with customers, and to provide an outlet for their produce. However, the markets do offer services such as WIC payment options that can provide young, less fortunate mothers who desire healthy diets for them and their children with a means to purchase healthy, local products; an option that aims directly at food insecurity.

The REC's main focus is offering healthy, local food options for those who tend to lack nutrition in their diets, who lack access to healthy options, or who cannot afford to

buy such products. In other words, REC is an organization that is dedicated to creating a sustainable effort to combat food insecurity within Worcester by supporting farmers markets and the use of certain welfare payment options, offering programs devoted to educating, enabling, and aiding the local population such as Youth Growing and Raising Organics in Worcester (YouthGROW), and the Urban Garden Resources of Worcester, or UGrow (Regional Environmental Council, 2011).

2.1.2 Utilization of EBT Systems at Worcester Farmers' Markets

Worcester is a culturally diverse city offering several strong customer bases for farmers' markets. The farmers' markets of Worcester currently cater to people from all social classes. Many of the markets allow the use of government subsidized programs like SNAP (Supplemental Nutrition Assistance Program), and WIC (Women Infant Children) to attract low-income area residents. Currently, several markets have implemented Electronic Benefit Transfer (E B T) systems in place (Telegram & Gazette, 2010). Within a 15 mile radius of Worcester, there are 12 farmers markets that accept WIC, and four that utilize the EBT system. Farmers' markets in the Worcester area can increase customer traffic through the market by encouraging these types of payment methods. Over 80% of the population in the Worcester Main South area uses some kind of welfare program to buy food (Dayal, 2011). As of October, 2010, the EBT system provided \$392 million to over 70,000 families in Worcester (Telegram & Gazette, 2010)

The problem is that the system tends to be somewhat insecure. For instance, a recipient of the welfare system might swipe their EBT card at a corner store, and then turn the welfare cash into items that beneficiaries are supposedly prohibited from obtaining using their benefits (Telegram & Gazette, 2010). Lottery tickets, tobacco

products, and alcohol are purchased with benefits-turned-cash. This fault in the system is the largest source of instability.

Food stamp usage at Worcester farmers' markets has declined over the last ten years, mainly because of the switch to the EBT system. The main problems associated with using the EBT system at farmers' markets are the system's requirements for telephone lines and electricity. Farmers have tried to circumvent this by creating Point of Sale stations where those using food stamps and other nutrition program vouchers can convert the credit on their EBT card into farmer's scripts and tokens that can be used throughout the market (Morris, 2006). The REC operates an EBT station at both of their Worcester area markets in an attempt to encourage people to purchase the nutritious food that the markets provide.

2.1.3 Current Problems Facing Worcester Area Farmers' Markets

In addition to the necessary requirements needed to use EBT systems, several obstacles stand in the way of farmer's markets increasing the amount of not only low-income customers at the markets, but all levels of social classes as well. Worcester is a fairly dense, large, city. The location of markets has a huge impact on the amount of business each market receives. This includes accessibility, meaning the ability of one's self to mobilize and travel to the markets. Many Worcester area farmers' markets do not have much available parking. Often the market is located in a parking lot, taking away most convenient public parking options. For example, with the market located in one-half of the parking lot, that only leaves the remaining half available for customer parking. Without parking, individuals travelling to a market by car may be discouraged from

doing so. This contributes to the reason many consumers opt to shop for all their food at grocery stores (O'Keefe, 2011).

2.2 What is Food Security?

Food security refers to the availability, quality, and accessibility of food. A household is considered food-secure when its occupants do not live in hunger or fear of starvation. This means that all family members at all times have access to enough food for an active, healthy life; At a minimum (1) the ready availability of nutritionally adequate and safe foods, and (2) an assured ability to acquire healthy foods in socially acceptable ways. The scale ranges from food secure situations to full-scale famine.

2.2.1 Food Security Levels

On global scale, the current number of undernourished people is close to one billion (FAO.org, 2008). On a national level, 85% of American households were food secure throughout the year 2008. Massachusetts is doing well with food security and prevailing hunger levels throughout the state. Massachusetts is only 6.7% food insecure, compared to 15% nationwide. Concerning hunger (a state near the extreme end of the spectrum of food security), only 2% of Massachusetts is hungry, compared to 3.1% nationwide. Massachusetts falls below the national level with the usage of food stamps; Within the state, food stamp participation is at 43% (as of 1999) while the nationwide participation is 57% (Commonwealth of Massachusetts).

These statistics do not apply to Worcester. In fact, “In Worcester, there is a pronounced health crisis with the prevalence of hunger being 6 times the Massachusetts average” (Worcester Advisory Food Policy Council). Additionally, “one child in three

lives in a family unable to meet its basic need for food” and 24% of residents within Worcester are obese” (Worcester Advisory Food Policy Council).

2.2.2 Food Security & Farmers’ Markets

Farmers’ markets have the potential to address several food security issues. By increasing access to healthy foods in communities that are underserved by retail grocers, as well as those communities that are, farmers’ markets can negate the primary underlying issue of food security (people not having access to healthy foods).

Additionally, farmers’ markets help to educate underserved communities. By informing people about food security issues, farmers’ markets are directly spreading awareness and knowledge about those issues, which is one of the first steps required in bringing the problem to center stage. The farmers markets distribute various handouts as well as subsidize the cost of using welfare benefit programs to purchase of nutritional food. In particular, the REC markets have organized an infrastructure that encourages using welfare benefits to purchase healthy food over food that doesn’t contribute to a healthy diet by offering products at half their cost if purchased using EBTs and other welfare payment options.

Many studies have been conducted concerning the correlation between farmers’ markets, food security, and different social groups. One such study was taken to evaluate the differences between women participating in Women, Infants, & Children and Farmers’ Markets Nutrition Program (FMNP). The goal of the study was to determine the relationship between households’ food security status, diet quality, and health levels in the greater Worcester area. Of 228 participants completing the food security portion of the survey, 61 (26.8%) were living in food secure households, while 47 (20.6%), 75

(32.9%), and 45 (19.7%) were living in households at risk for (marginal) food insecurity, with low food security, and with very low food security, respectively (Kropf, Holben, Holcomb, & Anderson, 2007). For the entire sample, food insecurity was associated with poorer diet quality. It is important to note that the FMNP participants reported higher education levels, higher vegetable intake, and better diet quality. These studies help illuminate the importance of food security awareness and education.

Food insecurity levels are highest in low-income urban neighborhoods (Vallianatos, Shaffer, & Gottlieb, 2002). Lack of access to fresh produce is a challenge for many low-income urban neighborhoods in which fast-food outlets and convenience stores dominate the food industry. Poverty and lack of transportation limit access to more nutritious food resources. Neighborhood-based farmers' markets can provide substantial benefits to improve the economic and physical well-being of residents. By providing healthy, affordable, and accessible food, farmers' markets are filling an important role in addressing the food security issues of low-income areas. Additionally, by bringing consumers to central market places in neighborhoods, farmers' markets encourage social interaction and support greater social relations within the community. They can also provide an important venue for preventive health services.

Maximizing the potential of farmers' markets as a resource for healthy living requires planning and coordination between the public and private entities in order to increase market opportunities for farmers, remove the barriers of access among low income households, and increase customer base by providing incentives and boosting awareness (Jones & Bhatia, 2011). The most recent boom in farmers' markets has come to underhandedly serve areas of higher income. While this is great for the people that live

in these areas, it still leaves the food security situation in low-income areas in dire need of attention. Given the evidence, it will take a majorly coordinated effort to ensure that federal programs such as the EBT system will need to be structured in accordance with the needs of farmers in order to be effective in combatting food insecurity (Jones & Bhatia, 2011).

2.2.3 Organizations Addressing Food Security

There are several organizations that focus on improving the state's food security statistics further and increase food stamp/EBT/SNAP usage. The categories range from health care providers, colleges, school systems, city departments, government, non-profit, corporations, to local community started groups. The Community Food Security Coalition is a prominent nationwide organization. Other organizations are Feeding America, Meals on Wheels, United Nations' World Free Programmer, Congressional Hunger Center, and Children's Health Fund as well as many others.

Within Worcester County, there are several organizations such as: The Worcester Advisory Food Policy Council, Community Food Security Coalition, Worcester Public Schools, City departments, Community Supported Agriculture, Shop4Me, Clark University, the Health Foundation, and prominent community members. All of these organizations have an interest in increasing the availability of nutritious and locally grown foods, as well an awareness of food security issues.

2.2.3.1 Community Food Security Commission

Community Food Security Coalition's a North American organization whose mission is to "catalyze food systems that are healthy, sustainable, just, and democratic by building community voice and capacity for change" (Community

Food Security Coalition, 2011). They are a group of people and organizations that work together on a local and international level to build community food security. The CFSC's 300 organizations range from social and economic justice, to anti-hunger, environmental, community development, sustainable agriculture, community gardening, and other fields. Among those members are the Worcester Food and Active Living Policy Council. With strength in numbers that stretch the continent, the Coalition attempts to directly address the issues of food security by building sustainable local and regional food systems that ensure access to affordable, nutritious, and culturally appropriate food to all people at all times.

2.2.3.2 Worcester Public Schools

Worcester Public Schools address food security issues by facilitating public school gardens in which the community can learn more about farming and growing produce, as well as eating the nutritiously grown food. Volunteers, who are organized by the Regional Environmental Council, run the gardens. City departments assist schools by making sure they have the required materials and space to grow and maintain food (Riley, 2009). They also help as a networking vector linking schools with organizations such as the Worcester Advisory Food Policy Council.

2.2.3.3 Community Supported Agriculture (CSA)

Community Supported Agriculture is a "share" system in which farmers offer a certain number of "shares" to the public. These shares usually consist of, but not limited to, a box of vegetables. In return for the purchase of a share, consumers receive the box of seasonal produce each week throughout the farming

season. This directly addresses issues of food security by allowing consumers to purchase farm fresh food directly from the farmers, making healthy, local products more accessible. It is a system of enabling communities to actively eat healthy, support local farmers, and add to their communal economy. There are a few CSA's that operate in Worcester. One of which is Farmacy Gardens, which was discussed earlier. Green Hill Farm in Shrewsbury ran another CSA, which has been operating since 1997. Green Hill Farms runs their CSA from June through October, and typically can provide enough for 30 shares at \$475 a share (Greentowns.com, 2011). As of 2007, Massachusetts had 60CSAs, just behind New York and California, who had 107 and 81 respectively (Boynton, 2007).

2.2.3.4 Clark University

Worcester city college, Clark University, helps to address food security issues by partnering with the Regional Environmental Council to run markets like the Main South Farmers' Market. The Main South Farmers' Market was organized as part of an internship that Clark had arranged with the Regional Environmental Council. Clark University Dining services purchase the remaining high-quality produce at the end of each market, which assured that farmers would make their sales quota at each market (Clark University, 2012). This arrangement was also a great way to encourage farmers to come to the Main South market, which is situated in one of the most food insecure places in Worcester.

Clark also supports the Arboretum Garden, which is located in the campus' Hadwen Arboretum. Some of the produce that the Arboretum yields is "eggplant, green beans, carrots, summer squash, winter squash, sweet peppers, hot

peppers, cucumbers, beets, greens, potatoes, sunflowers, broccoli, cabbage, blackberries, onions, and radishes.” (Clark University, 2012). The Arboretum is gardened by Clark students and faculty, as well as residents of Worcester living nearby, and is maintained and supported by the Regional Environmental Council’s UGROW program.

2.2.3.5 The Healthy Corner Stores Initiative

The Healthy Corner Stores Initiative is dedicated to transform traditional corner stores into a place where the local community can purchase healthy food (The Food Trust, 2004). The Healthy Corner Stores Network is not necessarily an organization that was formed from the initiative but rather a network that brings together community members to share stories, practices and lessons learned. It also “supports efforts to increase the availability and sales of healthy, fresh, affordable foods through small-scale stores in underserved communities” (Healthy Corner Stores Network).

The Community Food Security Coalition, The Food Trust, Public Health Law & Policy, and Urbane Development all partner up to utilize the Healthy Corner Stores Network to their advantage and share information to better achieve their missions (Healthy Corner Stores Network). The Food Trust focuses on the availability of fresh food and increasing relations between urban and agricultural communities. Urbane Development situates their efforts toward communities and reinforcing the communities’ asset base. Public Health Law & Policy work on supporting healthier communities. The Community Food Security Coalition tries to build strong food systems through training, networking, training and policy

advocacy. All of the organizations have different focuses, but partnered up are more effective at delivering better results, which is why the organizations' members utilize The Healthy Corner Stores Network (Healthy Corner Stores Network).

This partnership among organizations is not uncommon and can be extremely beneficial. Unfortunately though, there is also a level of fragmentation associated with having a number of organizations focus on the same topic. Sometimes these organizations communicate ineffectively, which makes progress extremely inefficient. This fragmentation of concentration makes it tough “for foundations to make the most effective grants and for nonprofits working on the issue to secure funding that would have the greatest impact” (Cohen, 2010). Utilizing partners effectively could be a crucial part in a social entrepreneur's success.

2.2.3.6 The Health Foundation & the Worcester Food Policy Council

The Health Foundation is an especially important organization on the Worcester food security scene. They act as a financier of organizations like the Worcester Food Policy Council (WFPC), enabling organizations like the WFPC to combat food security issues using their own innovative means. The Worcester Food Policy Council is the front-runner in addressing the food security needs of Worcester

The Worcester Food Policy Council is the front-runner in addressing the food security needs of Worcester, initializing started programs such as Hunger-Free & Healthy, which provides “GED classes, weekly deliveries of fresh fruits

and vegetables, cooking classes, a farmer's market in the community, and a SNAP/Food Stamp outreach training in hospitals and health centers" (Liz Castro, 2006). They have also started fundraisers such as Project Bread – The Walk for Hunger and other local fundraisers. The Health Foundation of Central Massachusetts provides these organizations with considerable funding as well, making most of these initiatives possible (Liz Castro, 2006). Policy has helped address food security issues and a lot more work with policy will be needed to solve the problem.

The Worcester Advisory Food Policy Council acts as an umbrella to food security issues and organizations within Worcester County. Mayor, Lt. Governor Tim Murray formed this organization in 2006 specifically in order to address these issues. The organization's first project was planned in 2007 and was piloted in a low-income census tract in 2008. The pilot project included GED classes, weekly deliveries of fresh fruits and vegetables, cooking classes, a farmer's market in the community, and a SNAP/Food Stamp outreach training for hospitals and health centers. The program expanded successfully in 2009, primarily due to the cooking classes, Main South Farmer's Market, and the SNAP/Food Stamp program. Around this time, school food became a high priority. This involved implementing a universal breakfast in the classroom after first bell in schools with over 80% Free and Reduced lunch. Additionally, an educational garden was built in collaboration with Worcester Public Schools and is being utilized by the Adult Learning Center. A healthy corner store project is in the planning phase; the goal is to increase the access to affordable produce in various communities through the

utilization of corner stores. Additional ideas in the works include a policy to support nutritious school meals, the ability of farmers to bid on school food contracts, and the formation of a Massachusetts Policy Council. Our contact is with their project manager, Elizabeth Liz Sheehan Castro.

2.3 What is Social Entrepreneurship?

“Social entrepreneurship is exercised where some person or group: (1) aim(s) at creating social value, either exclusively or at least in some prominent way; (2) show(s) a capacity to recognize and take advantage of opportunities to create that value (“envision”); (3) employ(s) innovation, ranging from outright invention to adapting someone else’s novelty, in creating and/or distributing social value; (4) is/are willing to accept an above-average degree of risk in creating and disseminating social value; and (5) is/are unusually resourceful in being relatively undaunted by scarce assets in pursuing their social venture” (Peredo & McLean, 2006).

To summarize, social entrepreneurship is when a person or group implements an invention, technique, or system to the effect of creating or distributing social value. These implementations do not usually reap direct profits (as do business entrepreneurial ventures), but rather provide a service or function that socially benefits the community involved.

2.3.1 Social Entrepreneurship vs. Business Entrepreneurship

There are several similarities between social entrepreneurship and business entrepreneurship. Such similarities lie within leadership, networking, location of business, financial backing, and business plans. For any entrepreneurship venture, whether social or business, leadership is of the utmost importance. Entrepreneurship ventures require new combinations and changes that cannot be achieved without leadership. These new combinations and changes are hard to follow and will founder without the direction of leadership (Frank, 2011). Both social entrepreneurs and business entrepreneurs utilize networking to start their ventures. Both types of entrepreneurs use networks to gain information, capital, skills, and labor. These networks consist of family members as well as external contacts they gain (Greve & Salaff, 2003). Every entrepreneurship venture requires some sort of financial backing, whether it is personal backing or from outside sources. Having an organized plan increases the success rate of ventures and one form of this is having a business plan. It is extremely unwise to simply launch any venture without a solid plan (Carter & Shaw, 2007; Frank, 2011). This plan can be used to gain financial backing. Business accessibility and visibility are extremely important. Having access to suppliers, customers, trade routes, etc. is also important in determining location.

There are also many differences that social entrepreneurs have compared to business entrepreneurs. Social entrepreneurship is distinguished by its focus on unmet social needs. While business entrepreneurship focuses on needs also, there are many ventures based on creating these needs or wants to make a profit, which is their driving force. Social entrepreneurship ventures do not usually reap profits to a large degree but rather

work to provide a service or function that socially benefits the community involved. It is because of this that “most social enterprises depended on the involvement of other individuals, organizations, committees and volunteers” (Carter & Shaw, 2007). Business ventures can hire employees using the funds granted to them from their supporters. Thus social entrepreneurship is more of a collective effort versus an individual one that is found in business ventures. Also, studies show that social entrepreneurs approach networking a little differently than do business entrepreneurs. Social entrepreneurs experience a lower degree of personal financial risk than do business entrepreneurs. Instead social entrepreneurs utilize their network and personal contacts, exercising a “risk of non-financial kind” (Carter & Shaw, 2007).

It is important to distinguish the differences between the two types of entrepreneurial activity so that when starting a venture, the entrepreneur understands the shortcomings of each. This can be used to make the venture more successful.

2.3.2 Social Entrepreneurship on a National Level: Stonyfield Farms

As mentioned earlier, we attended a lecture at the College of the Holy Cross given by Gary Hirschberg, the founder and CE-Yo of Stonyfield Farms. Throughout the lecture, Gary touched on many topics, ranging from broad trends to bits and pieces of specific studies. That being said, we were able to extract information regarding the national awareness of food security.

Gary repeatedly touched on the issues that surround food security rather than directly affect it. Some of the factors that he touched on are environmental issues that could (and potentially will) raise food insecurity around the world. According to Gary, water usage has increased six-fold since 1900, and is doubling every 21 years. Water

scarcity has increased to the point where the Colorado River no longer reaches the Pacific Ocean. Moving inland, there has been a degradation of the soil that has eroded away an area that is larger than both China and India combined. Reaching into a historical stream of thought, Gary made the observation that the rise and decline of history is based on the treatment of their top soil. These environmental problems and factors are making it more and more difficult to combat food security on a global level. As the environment changes, we are seeing that less and less land is available for crops.

Some of the crops that are harvested are also a problem as opposed to the solution. For example, the run-off that carries the eroded soil is also filled with fertilizers and pesticides, some of which have been found to be harmful to the human body. Gary shared that there are hundreds of toxins and known carcinogens that can be found in our food, citing that there can be as many as 148 toxins found in human tissue. While there are many factors that negatively contribute to the national level of health, the problem is exacerbated by the chemicals found in our food. We found that the very food that should be helping to combat food security with nutritious choices is actually a catalyst for many of the health problems that drive up our health care costs. Gary was adamant in advocating farmers markets and in particular, organic food, as the answer to our health problems as well as an aid to increasing food security.

As the CE-Yo of Stonyfield Farms, Gary was also able to provide us with a look at some of the innovative methods that Stonyfield Farms has used in the fight against food insecurity. The first and foremost of which is the paying of farmers to not use pesticides. Pesticide residue has been found in human urine that is approximately four times the “acceptable” amount. Stonyfield supports approximately 180,000 acres of

farmland, and was able to eliminate a staggering usage of these chemicals on crops. Through these efforts, Stonyfield eliminated the use of 9 billion pounds of nitrogen based fertilizer and 180,000 pounds of pesticides. They were also able to increase the Omega 3 content in milk by 29%, and reduce emissions coming from their fields by 12% using an anaerobic facility which produces bio-gas that runs the factory. Looking at the health factor of their ingredients, Stonyfield is also in the process of switching to Stevia, a naturally grown sugar substitute, which creates yogurts that are less than 100 calories. Innovations like a waste-water treatment plant, compostable packaging made of “switch grass”, and new methods of feeding their cows are all ways that Stonyfield contributes to the fight against food insecurity.

We found that there were a number of interesting wrap-ups at the end of the lecture that were related to food security and organics. Gary mentioned that it is the demand of the customer that drives the initiative to take care of the problems listed above. Transparency of how food is grown and handled leads to loyalty, which then leads to the word-of-mouth support needed to drive the food security initiative. According to Gary, one of the largest problems with the organic food industry is that it isn't a level playing field. Organic growers are not subsidized to the point where they can compete with big retail stores and growers

2.3.3 Relationship to Farmers' Markets and Food Security

For social entrepreneurship to help address food security utilizing farmers markets, there are many factors that play into each other. It is up to social entrepreneurs to take the initial risks and find the niches within communities concerning food security.

By identifying the niches, the social entrepreneurs can then incorporate their

entrepreneurial skills, their knowledge of the community, and local farmers into a start-up venture that focuses on utilizing local farmers and farmers markets to provide a service to the community, while addressing food security issues, and making profits on the side.

While some of these markets are traditionally subsidized by grants or through the government, a social entrepreneur should be able to utilize the limited resources available to allow the market to operate successfully and address the needs of the surrounding community. Markets located in low income areas are going to have additional factors to keep in mind. “To be successful, they [farmers’ markets] must address the needs of communities confronting severe price constraints, food access and transportation barriers, and health disparities” (Young, Karpyn, Uy, Wich, & Glyn, 2011). Understanding how typical farmers markets run and the programs available such as EBT, SNAP and WIC are important to be able to provide low income customers access to the produce that the market is selling. Having an understanding about market flexibility and how the underground economy surrounding farmers markets is the key to success.

Another aspect of Social Entrepreneurship that needs to be looked at in regards to farmers’ markets is the use of direct marketing versus intermediated marketing. Direct marketing is when the producer is in direct contact with the consumer while intermediated marketing is when the producer uses a middle man to sell their produce to the consumer. In a report published by the USDA it shows that a majority of small to medium sized farms utilize farmers’ markets and CSAs for direct marketing sales while a majority of large farms utilize grocery stores for intermediated marketing (USDA, 2011). The study claims that farms that sell exclusively direct-to-customer account for \$877million of the entire market, while the intermediated marketing chain accounts for

\$2.7 million. There is a group of 22,600 farms that sell using both methods that can lay claim to \$1.2 billion in sales. Understanding how local farmers sell their produce is an important aspect to developing a cohesive venture because the trend shows that the farms using both methods are absolutely trumping the farms and markets that are using exclusive methods.

Social Entrepreneurs can initialize ventures incorporating the use and sale of farmers' markets and their goods. While Mr. O'Keefe and his Worcester Farmers' Market Group may not completely fit the description of a social entrepreneur, they are proof that a purely entrepreneurial venture can survive in a farmers' market setting. The only requirement of social entrepreneurship that O'Keefe fails to meet is the use of innovation to meet the needs of a given community. While the conceptualization of a farmers' market is an effective means of helping local farmers, it is by no means a new one. But Mr. O'Keefe did and continues to act as an entrepreneur in starting and maintaining these markets, meaning he took on all the risk and work associated with an entrepreneurial venture. Mr. O'Keefe found a niche within the community of farmers in which he could help them sell their products. He also provided them with market platforms for them to function from. Mr. O'Keefe does not make a profit from the operation of these markets, meaning that he runs this venture out of a desire to support the farmers of Worcester. The REC markets focus solely on providing a service to the community in order to create social value. This social value includes training and educating people on the subject of food insecurity, creating sustainable operations to help combat food insecurity, and increasing accessibility to organic and nutritious food (Regional Environmental Council, 2011). Not only does this create social value, it can

also provide local farmers and community gardens access to profits, which in turn contribute to their sustainability for the future.

An example of farmers markets conducting social entrepreneurial activities was when The Food Trust utilized EBT systems in farmers markets in Philadelphia, PA (Young, Karpyn, Uy, Wich, & Glyn, 2011). By implementing this system, it provided local community members of low income to have access to the produce the market was selling. The system increased the market share that the farmers market possessed and increased net profits without increasing costs.

3 Procedures

The goal of this project is to develop recommendations that employ social entrepreneurial strategies for local farmers' market participants and health advocates. These recommendations will in turn, help fight food insecurity throughout the city of Worcester. In this chapter we provide an overview of the steps we took in order to gather the information and feedback necessary to provide those recommendations. We initially interviewed customers, vendors, and managers of the two main farmers' markets in the Worcester area to gather multiple perspectives on the markets, and details of each operation. Our background research indicated that there are several local and national organizations dedicated to the problem of food insecurity and healthy diets, so we followed up the on-site market interviews with local advocates and attended lectures discussing the food security on a larger scale and strategies to integrate social entrepreneurship. Next, we compared the prices and processes used by competitors of farmers' markets that may have negative impacts on the markets.

Once we compiled all the feedback, we analyzed it quantitatively and qualitatively by categorizing the perceived benefits for both the consumer and sellers at farmers' markets, including price differences of similar products sold at conventional stores in order to provide appropriate recommendations that could address food insecurity through farmers' markets using social entrepreneurial principles.

3.1 Research into the Current State Worcester County Farmers' Markets

After exploring the general background of farmers' markets in Worcester County we attempted to meet four relevant objectives through on-site market consumer and operator interviews:

- Determine the main purpose of the market.

- Determine the typical types of customers seen at each market.
- Determine what factors affect business income for the different markets and the flow of capital for each.
- Determine the advantages/disadvantages of shopping and selling at a farmers' market.

To complete our first objective we traveled to Worcester area farmers' markets organized by two different local groups. These stakeholder interviews provided us with a strong knowledge base on the motives, responsibilities, and costs associated with organizing and selling at markets, as well as the reasons behind customers choosing to buy products at the markets. On-site market interviews were approached with a flexible set of questions in hopes that more specific questions would stem from them. The gathered information was recorded using pencil to paper transcription aimed at capturing the main idea of each answer.

We started by interviewing Mr. O'Keefe, organizer of the Worcester Farmer's Markets Group. Mr. O'Keefe started the Worcester Farmer's Market Group as a means of providing local farmers with a platform from which to sell their goods. The main motivation for the farmers at these markets is livelihood. As seen in **Appendix A**, many of the farmers rely on these markets as a main source of income. We went on to interview the organizers of the REC supported farmers' markets who attempt to provide local, fresh food options at cheap prices in easily accessible locations out of a sense of social responsibility rather than for profit, as seen in **Appendix B**.

Throughout our visits to the Worcester area farmers' markets, we interviewed customers and sellers at the market in order to gain a well-rounded perspective on the reasons for each party's presence. A total of fifteen customers agreed to participate in the full interview.

3.2 Determine the Most Prevalent Concerns Regarding Food Security in Worcester, Massachusetts and Potential Methods to Address Them

To identify the greatest food security issues in Worcester, we conducted interviews with local health advocates in order to help answer the following research objectives:

- Determine the biggest issues concerning food security facing Worcester today.
- Become familiar with ideas that have succeeded and failed in addressing healthy living and food security issues in Worcester.

We tapped the knowledge of several professionals from within the farmers' market industry in an attempt to create a multi-angled view on food insecurity and potential resolutions to attack it. We interviewed Liz Sheehan-Castro, project manager for the Worcester Food and Active Living Policy Council to learn of current problems related to food security in Worcester, as well as current and future action that is meant to minimize the problem. This interview was approached with a flexible set of questions so that any follow-up questions could be asked. This interview was also tape recorded with the permission of Ms. Sheehan-Castro, and can be found in **Appendix D**.

3.3 Compare and Contrast the Process in which Farmers' Markets Main Competitors Market Similar Products

In trying to understand the food market as a system, we conducted an interview with a local organic grocer, as well as compared the prices and marketing strategies for each concerning similar products by focusing on the following objectives:

- Compare the products at farmers' markets to their competitors, such as grocery stores, on 3 dimensions:
 - o Quantity/Availability

- Price
- Quality
- Determine the general opinion of farmers’ markets, organic grocers, and competitors towards each other.
- Research different marketing techniques used by the fresh produce market players to determine the following criteria:
 - Target Market
 - Effectiveness of Current Marketing Approaches

To complete this, comparison charts and criteria were created for farmers’ markets, healthy food stores, and local grocery stores. These charts and criteria focused on examining the quantities available, the price, and quality of the food. The list of products was chosen based on the most common goods found among the different venues. **Figure 1** is a list of products found at markets.

Vegetables	
Beets	Lettuce
Broccoli	Onions
Carrots	Green Peppers
Celery	Yellow/Orange Peppers
Corn	Potatoes
Cucumbers	Spinach
Eggplant	Tomatoes
Garlic	Squash (Butternut)
Green Beans	Zucchini

Fruits	Herbs	Miscellaneous
Apples	Basil	Grade A Eggs
Peaches	Chives	Grade A Jumbo Eggs
Pears	Cilantro	Grade AA Jumbo Eggs
Strawberries	Oregano	Top Round Steak
Blueberries	Parsley	Ribeye
	Rosemary	Ground Beef
	Sage	Chicken Breast
		Whole Chicken

Figure 1: List of Compared Food

Additionally, consumers at all locations, grocery stores, markets, as well as in individuals at random locations where both grocery stores or markets were not nearby, were polled and surveyed for their opinions concerning where they shop and why. We conducted 151 surveys and chose the most popular stores within the city of Worcester. A total of ten customers agreed to participate in the full interview at grocery stores. The surveys and interviews were done separately. The interviews were more in-depth and required substantial feedback, while the surveys were short and direct. We minimized selection bias by attempting to randomize our sample as much as possible by addressing everyone and not leaving any shoppers out. Limitations for these interviews include time of day, whether the consumer is shopping for themselves alone or a family, and what season it was at the time of the interview. The produce managers, owners, and organizers were also polled for their opinions. Finally, the organizers/managers were also polled concerning their opinion on competition, their target market, and their general opinion of the market place.

3.4 Develop Recommendations Based on Interview Feedback

We tried to keep our recommendations in line with the category of innovative, social entrepreneurial methods. In order to focus the scope of these recommendations, we established the below objectives as guidelines for our research and interviews. In an attempt to get a better look at the strengths and weaknesses of the system, we also created a SWOT analysis comparing Worcester to a city of similar scale, Providence, RI.

- Determine the perceived largest pros and cons of farmers' markets.
- Determine different types of motivation to attend farmers' markets.
 - Intrinsic?
 - Extrinsic?

- How can motivation be amplified?
- List ideas that can help create incentive to shop at farmers' markets.
- Determine ways to make farmers' markets be more accessible to all customers.
- Determine methods to increase awareness of farmers' markets.

In order to complete these objectives, participants, members, and organizers were interviewed regarding their opinion on farmers' markets, specifically pros and cons. The consumers were then polled in order to determine their motivations and incentives. The subjects were also interviewed for their opinions on how to improve the system. From this data, potential recommendations and implementations will be drawn.

3.5 Summary

On-site interviews helped us gain an understanding of the dilemmas facing farmers' markets in terms of profit and advertising. Interviews with food insecurity experts allowed for an in-depth analysis of the problem as it faces Worcester. These interviews helped us understand the public knowledge of food issues and options within the city, such as levels of food insecurity, where food is available, where the food comes from, as well as the price and quality of the food. Comparing prices helps us understand the actual difference between market and grocery store food prices compared to consumer perception. These differences may help explain the difference in the financial success between the two institutions. Key possibilities for solutions to address low food security levels in Worcester County should emerge from identifying the current advertising methods used by markets, the organization of the markets themselves, and through analysis of those affected most by low food security

levels, connecting these people to the existing healthy food options available within Worcester.

4 Findings

In this chapter, we present our research findings. We begin by mapping the flow of resources for both groups of farmers' markets in Worcester. We present the data in flow charts that can be found in the following text. Next, we use pie charts and histograms to represent the types of markets where our respondents purchase their food as well as their opinions regarding grocery stores and farmers' markets. Finally we provide a detailed SWOT analysis of available Worcester farmers' markets. The SWOT analysis serves as a summation of the quantitative and qualitative data reported throughout this chapter.

4.1 Local Markets' Flow of Resources

A flow diagram was created for the Worcester Farmers' Market Group markets and the REC markets separately using data collected during on-site interviews, research, and observations at those markets. These flow charts aim to analyze the flow of resources between the farmers, the market managers, and the customers.

4.1.1 Worcester Farmers' Market Group

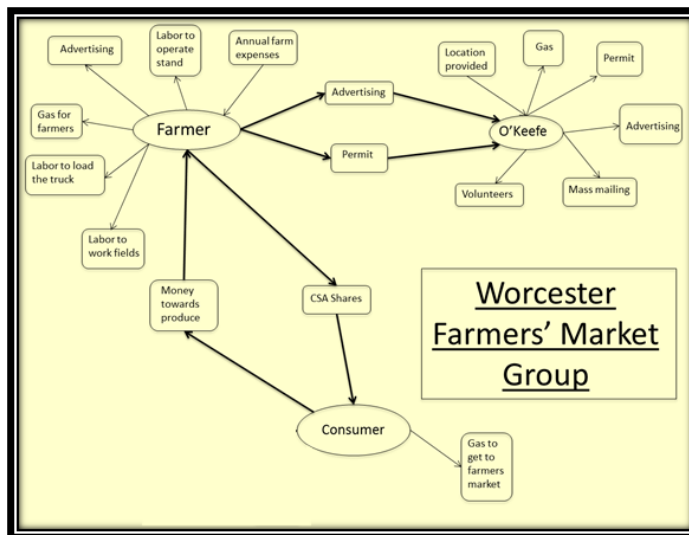


Figure 2: Worcester Farmer's Market Group Flow Chart

There are three main constituents of the Worcester Farmers' Market Group: the farmers, consumers and Mr. O'Keefe.

The farmer runs the vendor stands and has many different costs associated with the operation. It starts at the farm with working the fields to grow and harvest the produce, which is then loaded onto the trucks. The farmer requires a certain amount of capital in order to keep their operation going. They need to cover the cost of seed, fuel, labor, land taxes, etc. The farmer also has to cover the cost of bringing their produce to market. To operate the farm stand it takes the resources of either hired labor to run the farm stand or the farmer's time that could be spent conducting operations at the farm, there is a money vs. time tradeoff. Many vendors also produce their own advertising materials. There is also the money used to run the farmers' market that Mr. O'Keefe collects from each vendor. This includes other advertising costs, permits and gasoline for the truck that Mr. O'Keefe uses for market operations. The only input to the entire system is the money gained from selling produce to the consumers.

According to Mr. O'Keefe, the farmers' market manager does not make any profit (**Appendix A**). The money he receives from the farmer goes into running the market and the materials needed. He puts all the money gained from the farmer into advertising costs, permits and gasoline for the manager's truck. The advertising includes fliers, pens, bumper stickers, and mass mailings. There are some resources that he gets donated to him that he would normally have to pay for such as the market's location, facilities, and volunteers.

The consumers are an integral part of the system. They input money to the system in return for CSA shares and produce.

4.1.2 REC Farmers' Markets

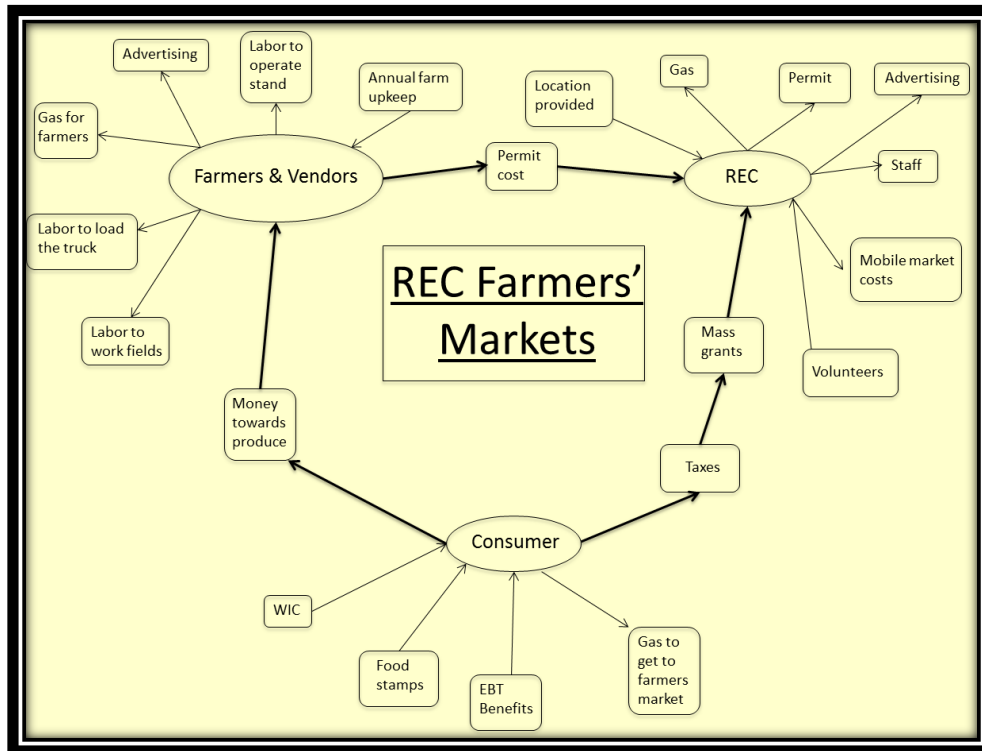


Figure 3: REC Market Flow Chart

The REC Farmers' Markets are also made up of three main constituents: the farmers/vendors, consumers and the members of the Regional Environmental Council. The State of Massachusetts, the city, and the owners of each venue act as additional players as sources of external resources.

For farmers the biggest difference between the REC markets and the Worcester Farmers' Market Group markets is how they are coordinated. The REC members collectively organize the markets, even separating the allocation of responsibility. So, instead of one person running the market, the REC utilizes a staff of employees and volunteers to run the market. The market is funded through various state grants that are applied for by the REC. The grants are roughly \$5,000 and it is unlikely that they will

continue. The funds go towards the staff, permit costs, transportation costs, and marketing costs (**Appendix B**).

For consumers the only difference in utilizing the REC market is if the consumer purchases food with food stamps. The REC offers a 50% price reduction on all food items for customers who use food-stamp related welfare programs. This is subsidized through state grants. This allows low-income individuals and families to purchase healthy, local food options that are typically more expensive than grocery store counter options in greater quantities (**Appendix B**).

4.1.3 Summary

One of the conclusions that we can make from comparing the two market groups is that the REC markets are much more reliant on external funding from state and third party funding than Mr. O'Keefe's markets. The Worcester Farmers' Market Group relies strictly on funds internally contributed by the farmer who receives money from the consumer in order to cover their operation permits.

Both markets have many resources donated to them, the largest example being the location at which the farmers' markets do business. This is a large donation because in a city, space is very limited and precious. If social entrepreneurs desired to start a farmers' market in the greater Worcester area, they will have to weigh this consideration heavily as they attempt to acquire such an asset.

Heavy reliance on volunteers and staff would also play a crucial role in the formation of a farmers' market. The use of volunteers, committees and organizations is extremely important and beneficial to any social entrepreneur. REC markets emulate this principle by utilizing volunteers to run their markets. Mr. O'Keefe is able to utilize

volunteers at a very minimal level, which shows that while it may not be a social one, an entrepreneurial venture can also be effective if run by an individual. The success of the REC's Main South market proves the theory put forth by Sarah Carter and Eleanor Shaw, who state in their 2007 journal article titled *Social Entrepreneurship: Theoretical Antecedents and Empirical Analysis of Entrepreneurial Processes and Outcomes* that social entrepreneurship ventures are more effective with the use of volunteers, committees and organizations. But the foundering of the REC's Great Brook Valley market causes some concern as to whether or not this theory is consistent.

4.2 Farmers' Markets vs. Grocery Stores

In this section, we present our major findings regarding Worcester area shoppers' opinions towards where they shop as well the alternatives. A majority of shoppers interviewed believed that farmers' markets were more expensive than the average grocery store. We understand some interviewees have shopped at both institutions while some have only been to one. This affects their understanding of the prices, but we are focusing on understanding their perceptions. **Table 1** is a comparison of the price differences between the Worcester Farmers' Market Group, and the REC. Ten people were interviewed at grocery store locations. Fifteen people were interviewed at farmers' market locations. To confirm this opinion we compiled a list of common foods found at both Worcester farmers' markets and grocery stores. We included an organic, for-profit distributor of local, organic food items in the comparison in an effort to produce the most comprehensive analysis of the options available in Worcester (**Appendix E**).

	Worcester Farmers'	REC's Main South		
FRUITS	Market Group	Worcester, MA	Average Farmers' Price	Qty.
Apples	\$2.50	\$2.00	\$2.25	lb
Peaches	\$3.00	\$3.00	\$3.00	lb
Pears		\$3.00	\$3.00	lb
Strawberries		\$5.00	\$5.00	lb
Veggies				
Broccoli	\$2.75	\$2.50	\$2.63	lb
Corn		\$0.75	\$0.75	per ear
Onions	\$1.50	\$1.00	\$1.25	lb
Potatoes	\$1.50		\$1.50	lb
Tomatoes	\$3.00	\$2.00	\$2.50	lb
Squash	\$1.00	\$0.65	\$0.83	lb
Zucchini	\$2.50	\$1.50	\$2.00	lb
Herbs				
Cilantro	\$3.00	\$6.00	\$4.50	Bunch
Oregano	\$2.50	\$3.00	\$2.75	.75 Oz
Parsley		\$1.50	\$1.50	Bunch
Misc.				
Grade A Eggs	\$3.00	\$4.00	\$3.50	Dozen
Top Round Steak		\$10.00	\$15.00	lb
Ribeye		\$15.00	\$15.00	lb
Bread		\$3.00	\$3.00	Loaf

Table 1: Prices at Worcester Area Farmers' Markets

A further analysis of the prices in the Worcester food system provided us with a comparison of prices at local grocery stores as well, which is the purpose of **Table 2**.

FRUITS	Shaw's	Price Chopper	Average Store Price	Qty.
Apples	\$1.19	\$1.49	\$1.34	lb
Peaches	\$3.49	\$2.99	\$3.24	lb
Pears	\$2.49	\$1.49	\$1.99	lb
Strawberries	\$3.49	\$2.99	\$3.24	lb
Veggies				
Broccoli	\$1.99	\$1.99	\$1.99	lb
Corn	\$1.25	\$0.99	\$1.12	per ear
Onions	\$1.49	\$1.00	\$1.25	lb
Potatoes	\$1.49	\$1.49	\$1.49	lb
Tomatoes	\$1.79	\$1.99	\$1.89	lb
Squash	\$1.69	\$0.99	\$1.34	lb
Zucchini	\$1.79	\$1.00	\$1.40	lb
Herbs				
Cilantro	\$1.99	\$1.49	\$1.74	bunch
Oregano	\$2.49	\$2.49	\$2.49	.75 Oz
Parsley	\$1.29	\$1.49	\$1.39	bunch
Misc.				
Grade A Eggs	\$2.39	\$2.69	\$2.54	dozen
Top Round Steak	\$4.99	\$5.49	\$5.24	lb
Ribeye	\$11.99	\$11.99	\$11.99	lb
Bread	\$1.59	\$2.00	\$1.80	loaf
Whole Chicken	\$1.39	\$0.89	\$1.14	lb

Table 2: Prices at Grocery Stores

A third player in the Worcester system is Living Earth. Since they are neither a grocery store nor a farmers market, we created **Table 3** to layout their prices. Living Earth is a store that purchases organic produce to stock the store.

FRUITS	Living Earth	Qty.
Apples	\$2.49	lb
Peaches	\$2.99	lb
Pears	\$2.69	lb
Strawberries	\$2.99	lb
Veggies		
Broccoli	\$2.99	lb
Corn	\$0.99	per ear
Onions	\$2.99	lb
Potatoes	\$2.49	lb
Tomatoes	\$3.99	lb
Squash	\$1.49	lb
Zucchini	\$2.99	lb
Herbs		
Cilantro	\$2.79	bunch
Oregano	\$2.99	.75 Oz
Parsley	\$2.79	bunch
Misc.		
Grade A Eggs	\$2.99	dozen
Top Round Steak	\$7.39	lb
Ribeye	\$13.69	lb
Bread	\$2.49	loaf
Whole Chicken	\$2.79	lb

Table 3: Prices of Goods at Living Earth

Table 4 is a composite comparison of average prices throughout the food system. We combined the average prices from grocery stores, farmers’ markets, and Living Earth in order to create a side-by-side comparison.

FRUITS	Average Farmers' Price	Average Store Price	Living Earth	Qty.
Apples	\$2.16	\$1.34	\$2.49	lb
Peaches	\$3.00	\$3.24	\$2.99	lb
Pears	\$3.00	\$1.99	\$2.69	lb
Strawberries	\$5.00	\$3.24	\$2.99	lb
Veggies				
Broccoli	\$2.63	\$1.99	\$2.99	lb
Corn	\$0.68	\$1.12	\$0.99	per ear
Onions	\$1.16	\$1.25	\$2.99	lb
Potatoes	\$1.25	\$1.49	\$2.49	lb
Tomatoes	\$2.66	\$1.89	\$3.99	lb
Squash	\$0.88	\$1.34	\$1.49	lb
Zucchini	\$2.00	\$1.40	\$2.99	lb
Herbs				
Cilantro	\$4.17	\$1.74	\$2.79	Bunch
Oregano	\$2.83	\$2.49	\$2.99	.75 Oz
Parsley	\$1.75	\$1.39	\$2.79	Bunch
Misc.				
Grade A Eggs	\$3.33	\$2.54	\$2.99	Dozen
Top Round Steak	\$15.00	\$5.24	\$7.39	lb
Ribeye	\$15.00	\$11.99	\$13.69	lb
Bread	\$3.00	\$1.80	\$2.49	Loaf
Whole Chicken	\$2.50	\$1.14	\$2.79	lb

Table 4: Composite Price Comparison

A majority of shoppers at grocery stores indicated that they valued the convenience and price factors strongly in their decision to shop there. The majority of shoppers at farmers' markets indicated that they valued the local and fresh/healthy factors heavily in their decision to shop there. We interviewed 15 people at farmers markets and 10 at grocery stores. Once we established why each shopper was at their respective location, we tried to understand what the shoppers thought of the price and quality of the food. The following tables were compiled to accurately reflect the opinion of shoppers interviewed at each separate location. The result was a quantitative and qualitative analysis of Worcester food buyers in general (**Appendix E**).

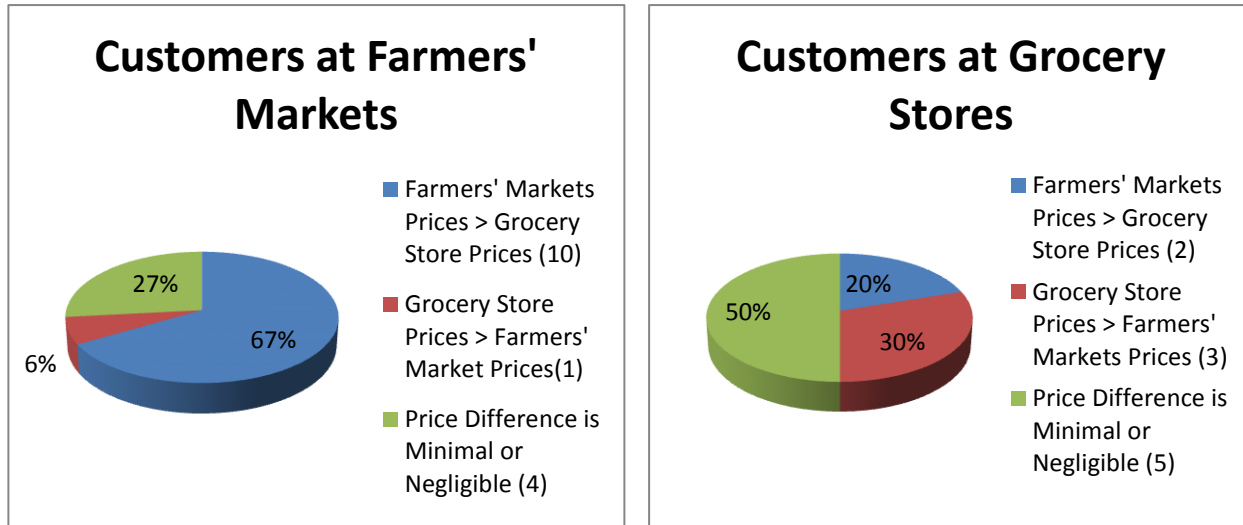


Figure 4: Shopper Knowledge of Price Differences

Figure 5 depicts a breakdown of common beliefs regarding the price differences between the produce bought at farmers' markets, and the produce bought at grocery stores. The trend shows that of the 15 customers who shopped at farmers markets, 10 of them thought that prices at the farmers' market were higher than those found in grocery stores. **Figure 5** shows that of the 10 people interviewed, 2 held that prices were higher at farmers' markets, 3 thought prices were higher in grocery stores, and 5 believed that the price difference was negligible.

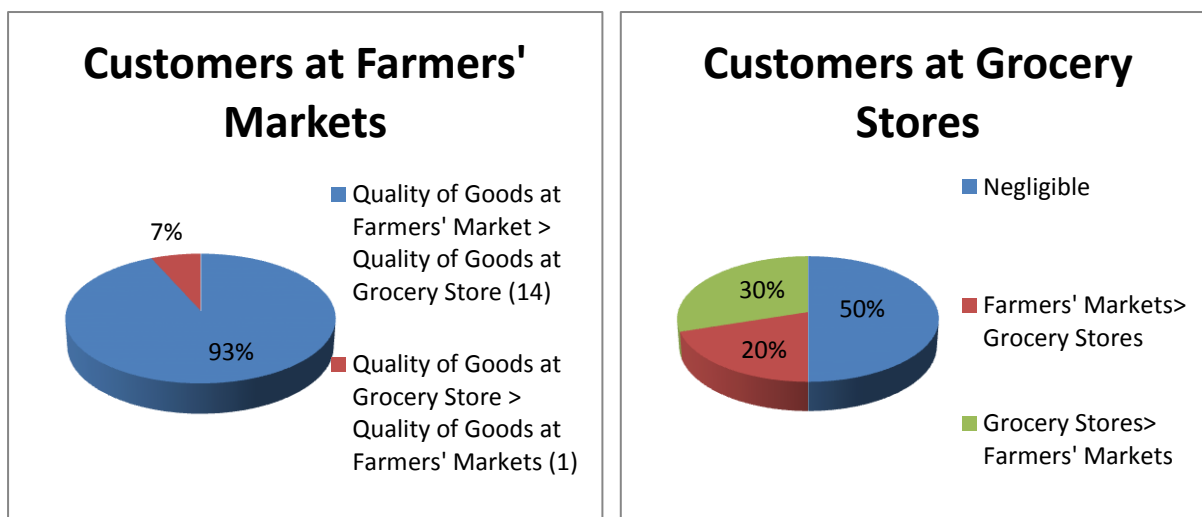


Figure 5: Quality of Goods

One of the main selling points of farmers' markets is that they are renowned for their quality produce. We sought to test whether or not this is true through the survey. According to **Figure 6**, 14 out of 15 customers interviewed at the farmers' market said that the quality of produce is better at the farmers' markets than at the grocery stores. Customers interviewed in grocery stores had a slightly different view. Half of those interviewed believed there was a negligible difference between the quality at farmers' markets and at grocery stores. Roughly 20% said that farmers' markets had higher quality. They are unaware that farmers' markets sell produce that is often of higher quality than what can be found in the grocery stores.

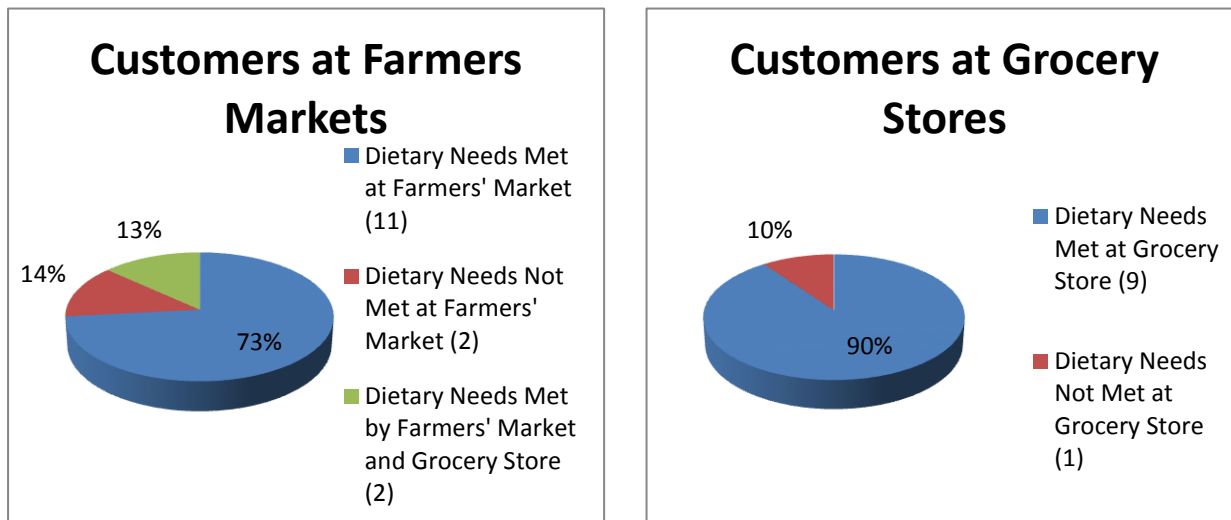


Figure 6: Dietary Needs Being Met

Based on the nutritional value of produce at farmers' markets and grocery stores, we attempted to breakdown where people feel their nutritional needs were best met. **Figure 7** is the breakdown of the results. We found that the largest diversity of responses were found in the farmers' markets, where most people thought their needs were being met at the market, but a few believed that farmers' markets alone do not help them achieve a healthy, balanced diet. Of the customers interviewed in grocery stores, 90% of those asked believed that their needs were being met by the stores.

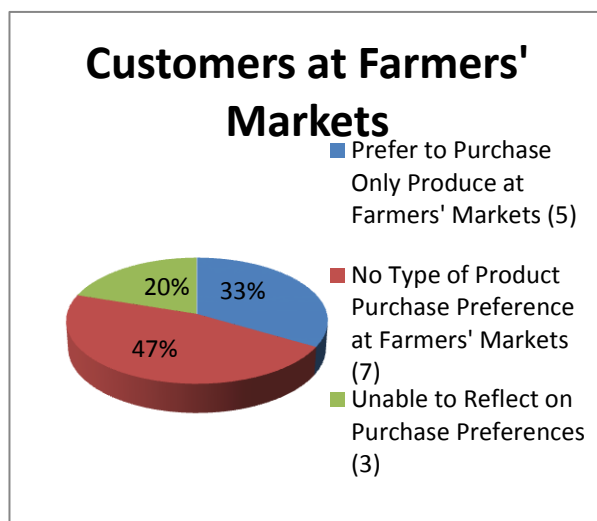


Figure 7: Purchasing Preference

(Data for grocery stores not available. All produce available.)

People come to the farmers' markets for many different reasons. Some come for specialized items like herbs and seasonings. Others might come for specific fruits. The customers interviewed at the farmers' markets were able to provide us with a breakdown of the different reasons why they shop at the markets. As seen in **Figure 8**, almost half of those interviewed claimed to have no specific purchasing preference at the farmers' markets. They are the customers that come to the market to see what is new. One could also say that they are the impulse buyers, those who buy items that they weren't planning on buying, but purchase them because they were available at the market. 20% were unable to tell whether they came to the market for specific reasons, and roughly 30% come specifically for produce. Grocery store customers were not interviewed due to the vast nature and supply that large retail stores have to offer.

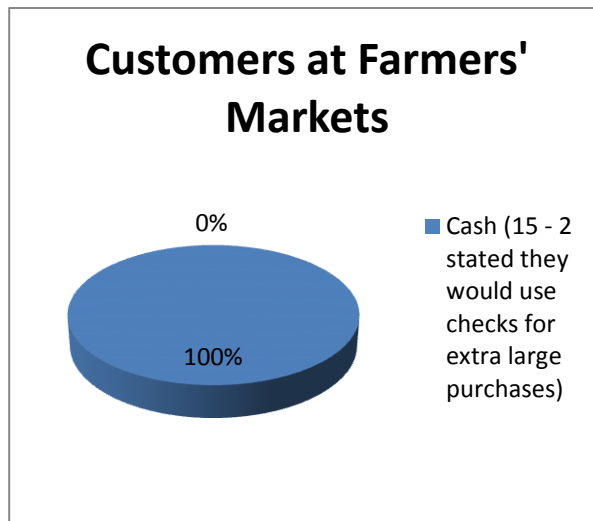


Figure 8: Typical Methods of Payment
 (Data for grocery stores not available. All payment methods available.)

As can be expected with farmers’ markets and other sources of local commerce, cash is the preferred method. **Figure 9** illustrates the unanimous use of cash when conducting transactions at the farmers’ market. The data for grocery stores was not collected. Most grocery stores accept all kinds of payment, making it difficult to see what the major payment method is.

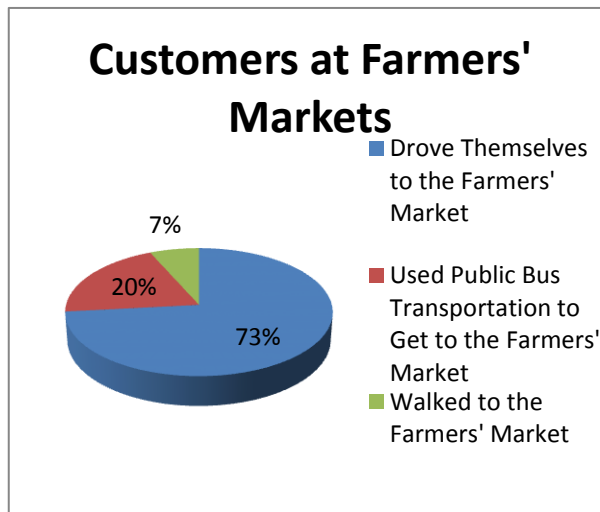


Figure 9: Transportation to Farmers’ Markets
 (Data for grocery stores not available. Stores are exponentially more frequented.)

One of the biggest issues with farmers’ markets is ensuring that the local population can get to them. This is important both in combatting food security, and in creating “customer

traffic” through the market. In order to get a better picture of customer’s accessibility to farmers’ markets, we asked them how they travelled to the market. **Figure 10** is a breakdown of their response. A large portion drives personally-owned cars, and then a slightly smaller portion used the public transportation system. These results were consistent throughout the markets observed.

4.3 Worcester Population Tendencies towards Farmers’ Markets & Local Farmers

In order to fully comprehend the demographics relating to grocery shopping, surveys were also conducted at five demographically different locations. We spread out our surveying initiative across Worcester in an attempt to establish a random sample. The following is a list of 5 sites visited for our survey: Intersection of Main St & Marble St; Intersection of Chandler St & Park Ave; Worcester Commons; Intersection of Seward St & Shrewsbury St; and the intersection of Burncoat St & Lincoln St. These sites were chosen based on an attempt to gather diverse data from multiple areas of Worcester County, resulting in an even spread across Worcester. We wanted a solid understanding of all of Worcester, so the sites are spread apart and were meant to include diversity, representative of Worcester. A total of 151 persons agreed to participate in the survey. We aimed to gather data related to categories ranging from grocery spending habits, to food insecurity awareness, to transportation preferences and convenience mechanisms. The following graphs periodically represent the questions and data collected (**Appendix D**).

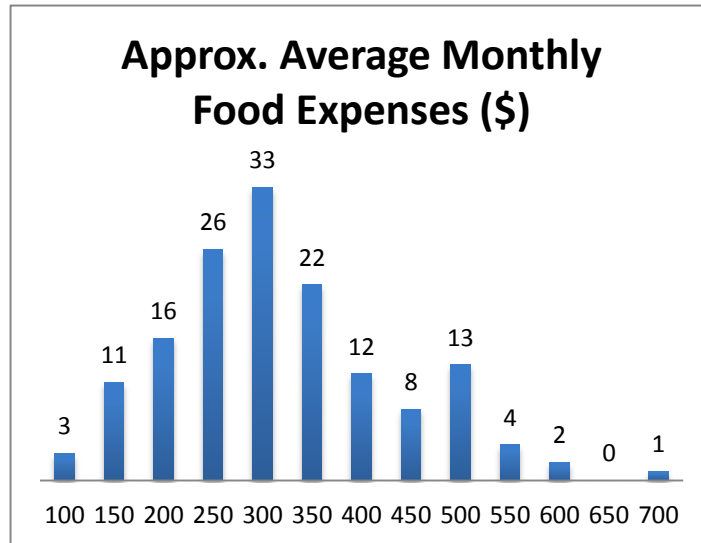


Figure 10: Average Monthly Food Expenses
 (Of the 151 interviewees, 102 willing to spend more than their current monthly average on food.)

In an attempt to find out how much the average person spends on groceries each month, we asked people about their monthly food expenses. It seems that according to **Figure 11**, the average person spends around \$325 each month on food. Of these 151 residents, 102 of them claim that they would spend more each month in order to purchase quality produce.

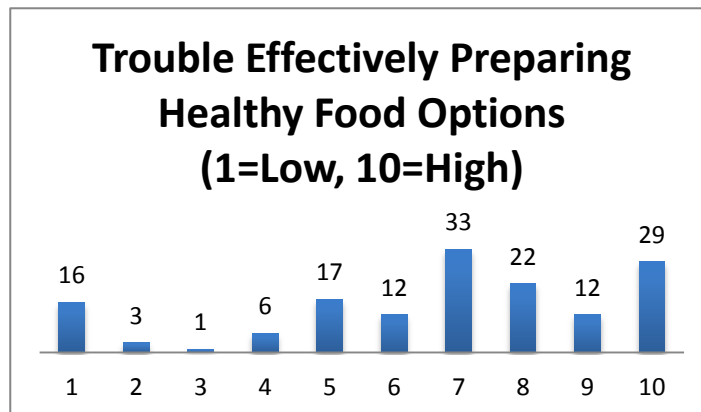


Figure 11: Preparing Healthy Food Options

We also asked these residents about their interest in attending cooking classes. One of the things that we found in our background research was that most people are not privy to cooking methods when it comes to fresh produce. The REC offers cooking classes that help people learn how to cook. We asked them, on a scale of one to ten (ten being most desirable), if they would be interested in attending such classes, if they were offered for free. The results were widespread, but overall, the majority of people said they would be interested. These results are outlined in **Figure 12**.



Figure 12: Importance of Buying Local

One of the benefits of farmers’ markets is that it provides support for the local farmers. While that is widely known as one of the positives, our results in **Figure 13** show that Worcester residents are mixed in their opinion. The majority of those interviewed chose a 5 out of 10 when asked to rate the importance of supporting local farmers.

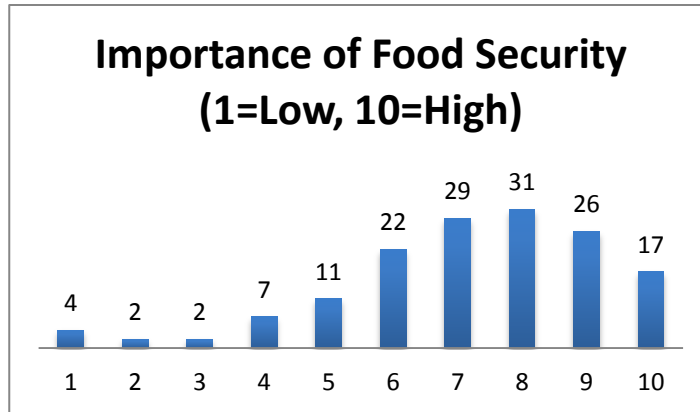


Figure 13: Importance of Food Security

Surprisingly, when asked: “What is the importance of food security?” residents wanted a further explanation of what the term meant. We explained that it is the ability or inability of an individual to access food, particularly food with high nutrition levels. Once it was explained, most people believed that it was a concern that Worcester should be worried about. **Figure 14** is evidence that the majority of Worcester residents are concerned about food insecurity.

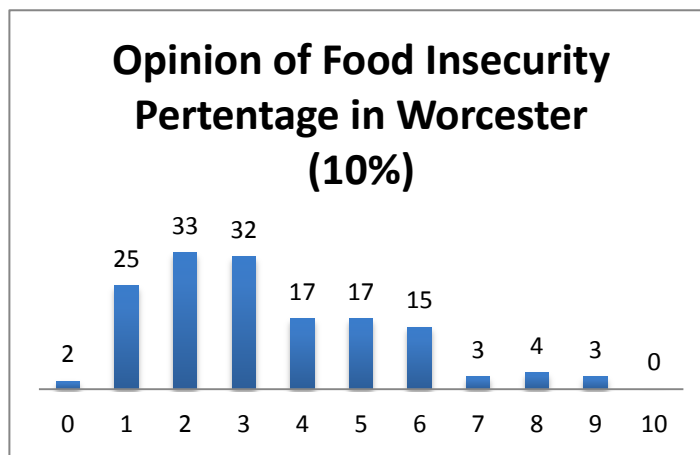


Figure 14: Food Security in Worcester

While most people said that food insecurity is something to be concerned about, they also believe that food security in Worcester is not a major concern (**Figure 15**). The majority of

residents interviewed believed that Worcester ranks a 5 or lower on a scale of 1 to 10, with 10 being very important.

When asked about transportation related issues with farmers' markets only 22 of the 151 interviewees stated that would travel further than they currently do to buy local, healthy food alternatives. However, 107 survey participants stated they would participate in a Worcester farmers' market home delivery system that charged a small fee, if such a system existed. 93 participants also stated they would support legislation that allocated state funds to enhance the effectiveness and use of farmers' markets (**Appendix D**).

4.4 Summary: SWOT Analysis of Worcester Area Markets

Worcester area farmers' markets share operational similarities to most markets across the country. But it is very difficult to gain a sense of the strength of farmers' markets in Worcester without looking at other systems. In an attempt to gauge this, Worcester farmers' markets were compared to farmers markets in Providence. In comparing the two, we were able to create a SWOT analysis that highlights the major advantages and disadvantages that Worcester farmers' markets possess.

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> - Farmers’ markets incorporate social initiatives into system (YouthGROW, UGROW) - Smaller farmers’ market system, therefore not as much competition - One farmers’ market operating in the winter time 	<ul style="list-style-type: none"> -Bi-partisan system based on using farmers, not very organized - Lack of overseeing organized committee - Limited acceptance of payment methods - Relatively few markets due to size of Worcester metropolis
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> - Display farm and state origins, establishes locality of market - Common banner to organize under - Organized website listing locations of farmers, farmer profiles, payment listings, vendor applications, volunteer solicitations, etc. - Solicit funding from third-party organizations rather than rely on state funding - Expand use of winter time markets -More programs like REC’s 2 for 1 benefit and Providence’s \$2 for \$5 program 	<ul style="list-style-type: none"> - Difficulty to obtain permit/jump through policy obstacles - Lack of funding throughout the area - Facing opposition from grocery stores

Table 5: SWOT Analysis of the Worcester Farmers’ Market System

Organizers and vendors at the markets need to secure a large share over the fresh/organic, local food market before corporate grocery stores in the area secure their place at its top by offering the same products to low-income and welfare-benefiting families at reduced prices, or sell directly to the grocery stores themselves. If the appropriate resources are made available, both the Worcester Farmers’ Market Group and the Regional Environmental Council can utilize entrepreneurial strategies in an effort to increase access to locally grown food options by setting a strategic focus that converts current visible weaknesses of the markets into strengths.

In comparing the farmers’ market system in Worcester with that of the likes of Providence, there are many opportunities that can be implemented in Worcester so that famers’ markets here might see the success that is taking place in the system in Providence. Worcester has several strengths that the Providence markets have on a small-scale. The biggest one is that Worcester markets have social programs integrated into their farmers’ markets like the REC’s YouthGROW and UGROW programs, where Providence’s markets tend to be mainly composed of traditional style farmers and vendors.

There are some takeaways that we found at the Providence markets that could possibly be integrated into the Worcester system. The most noticeable being the presence of a single entity called Farm Fresh RI, which organizes the farmers' markets under a single banner. Farm Fresh RI has created a network of 45 markets throughout the greater Providence area, and has organized the information for these farms in one convenient, easy-to-access website. The website lists what farms participate in the farmers' markets, as well as giving the location and a profile for each farm. They also have links that provide detailed information about food education programs that are offered for free. If something along the same lines could be implemented in Worcester, then the Worcester farmers' markets should experience an increase in customer awareness, customer base, revenue, and profit.

Another opportunity the Worcester farmers' markets seem to fall short on is the solicitation of funding from third party organizations. It appears that most of the funding for the farmers' markets in Worcester comes from either a) the farmers themselves, or b) state-approved grants and funding. While there are some grants from third party foundations such as the Health Foundation, it appears that the reliance is on state grants. The Providence markets rely on funding from third party entities such as Whole Wave Foundation, Citizen's Bank, June Rockwell Levy Foundation, Bank RI, and generous individuals. The Wholesome Wave Foundation, June Rockwell Levy Foundation, and The Rhode Island Foundation are all initiatives formed to help fund programs that meet the needs of Rhode Island. Citizen's Bank, and Bank RI, are banks that offer lending programs. Similar to the REC, the Providence markets offer \$2 for every \$5 of federal benefits spent at their markets. This program is funded entirely out of private grants offered by donors, organizations, and businesses.

Worcester could improve in this area by getting away from their sole reliance on government grants and self-funding.

One of the weaknesses that Worcester farmers' markets had is limited acceptance of payment methods. The Providence markets accept SNAP, WIC, Senior Coupons, Credit/Debit cards, and cash. The main methods of payment in Worcester appear to be cash, and benefits, which are delivered using the EBT system discussed in Chapter 2. Without the acceptance of Senior Coupons, Worcester markets are missing out on a large section of purchasing power. Many people can pay cash as opposed to credit, but the convenience of being able to pay with credit or debit cards allows for people who would have potentially been unable to pay due to lack of cash. The urban spread of Worcester is smaller compared to cities of similar size, making Worcester's farmer's market network relatively small. This forces the farmers' market network in Worcester to be smaller.

To summarize, there are several opportunities and weaknesses that Worcester farmers' markets could capitalize on in order to enjoy the success that the Providence markets are seeing. That's not to say that there isn't any strength in the Worcester system. But it would appear that there are certain things that need to be improved upon in order for the system to operate at a higher efficiency.

5 Recommendations

In this chapter, we present possible solutions based on the findings presented in Chapter 4 of the report. We start with an in-depth plan for how farmers' markets can become more organized, and then expand on potential ways to increase awareness and accessibility, with specific emphasis on locations, hours, and seasonal availability. Every proposal in this chapter is accompanied by a feasibility analysis as well as a plan of implementation.

5.1 Key Issues in Worcester Farmers' Market

From the findings it became clear that farmers' markets are lacking a distinct level of organization, both within the markets and between them. Our interviews with customers, organizers, and farmers revealed several important facts. First, the hours of operation are poor; markets tend to be open only for short periods on certain days of the week. Usually, the markets are open only a few hours on the weekend. Also, most of them are not open throughout the year. Because the markets are only open seasonally, buying habits cannot be established with their potential customer base. Another important fact is that there are multiple markets that do not coordinate with each other on any level. Although competition is an important part of any economy and marketplace, the lack of inter-communication does not facilitate growth. Yet another important fact is that there is no central "farmers' market" location. In other words, there is no central location that farmers participate in, at which citizens can go to daily to purchase goods or obtain information. This is a negative factor because it is a distinct advantage that grocery stores have over farmers' markets. A central location allows for more customer awareness, visibility, and transparency. This would work alongside satellite locations but we hope the central location would become an understood designated location of the markets.

Another key issue is that there is currently not enough revenue for the farmers' markets to operate effectively. The yearly flat rate covers expected costs such as the permit and basic flyers. So without any more financial resources there is no way to expand locations, expand marketing techniques or provide any upgrades to the current system. Without increased financial resources, the current farmers' market system will become outdated. Therefore, it is recommended that the markets apply for additional grants in order to help raise capital. We recommend additional applications for grants in order to help raise capital for the farmers' market.

Based on our surveys, we found that a majority of customers at grocery stores believe that all of the produce they purchase is of greater or equal quality to that found at farmers' markets. The problem that we see is that potential customers undervalue the quality of food at a farmers' market. Only twenty percent of the customers who shop at grocery stores think that farmers' market produce is of greater quality. But the majority of customers at the farmers' market found that the produce they purchase at farmers' markets were of greater quality than grocery stores.

Another major issue of food insecurity is affordability. The REC already utilizes state grants to make the produce more affordable for welfare qualified individuals; individuals who tend to be more food insecure. Unfortunately, these customers tend to cash in their benefits at grocery stores, because most Worcester farmers' markets do not accept welfare payment options. We suggest that markets in Worcester who currently do not accept welfare payment re-allocate funds towards the acceptance of welfare programs, thereby increasing affordability and the size of the markets' customer bases.

Another section of our survey shows that seventy three percent of farmers' market customers utilize their own form of transportation to reach the market. A low twenty percent utilize public transportation and an even lower seven percent walk. From this we can infer that our target market, low income communities, do not have access to personal transportation. Based on this information, we can also infer that these types of communities have difficulty getting to the markets.

Based on random sample surveys, as shown in **Figure 11**, we found that most people have a medium to large difficulty cooking the food options that are found at farmers' markets. To be able to be effective at both business and solving food security, a farmers' market has to be able to help its customers utilize the products that they have to offer.

5.1.1 Market Organization

We recommend that all the markets within Worcester County form solid and distinct levels of organization and communication under a managerial committee of volunteers. There should be at an established sense of communication and common goal between the both organizations. One of our main findings from the SWOT analysis is that the markets lack organization and communication and that there are several opportunities that can become strengths with greater cooperation. This strategy draws on the strength of the individual smaller markets, but allows them to mitigate the threat of grocery stores by working together. There are numerous ways in which to organize this, but increased cooperation between the organizations is the first step. Our findings indicated that the two main farmers' markets organizations (the REC and the Worcester Farmers' Group) have attempted to coordinate, but were never able to come to an agreement, which resulted in a lack of communication between the two

organizations. Although these two institutions have different cultures, philosophies, and objectives, we would like to reiterate that they both could benefit from increased cooperation. Following in the same line as a business, this synergy could result in raised revenue and lowered costs, allowing the farmers' market network to expand throughout the city of Worcester.

Perhaps the best way to organize the two markets would be a common, top down, structure as seen in **Figure 15**. This pyramid of management would begin with a volunteer committee of managers. Both organizations would fall underneath the committee. Effectively, the two organizations would become a single entity. The committee would also take care of business concerns (i.e. advertising, establishing a central website, disseminating information regarding the markets). This would mean some internal restructuring regarding management positions. Some positions may have slightly different responsibilities, but in the long run, they would be able to specialize at whatever role they currently hold.

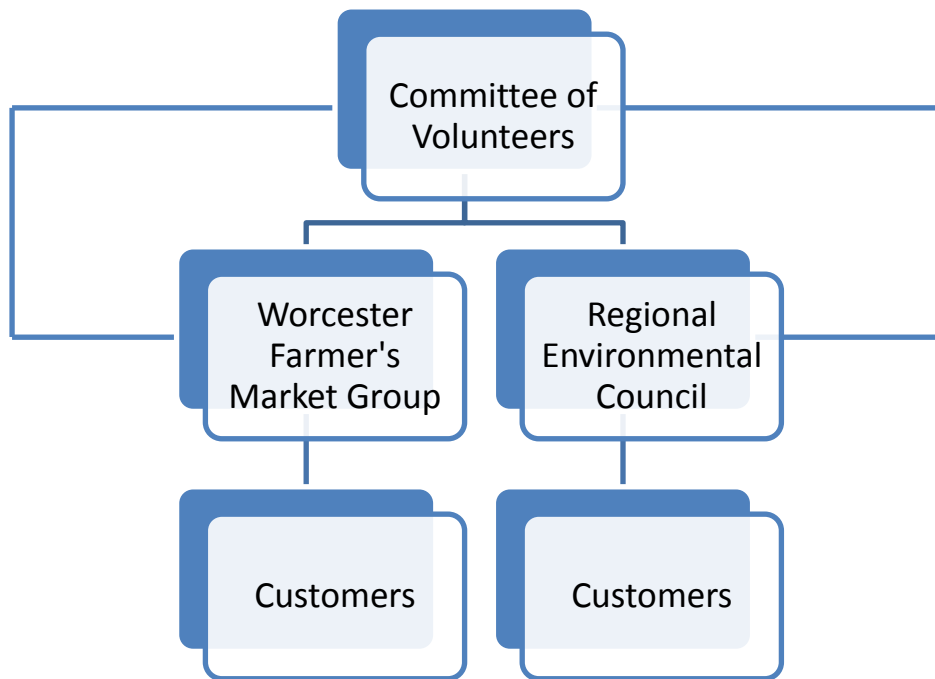


Figure 15: Example of Market Organization under a Committee of Volunteers

This coalition allows for a social entrepreneur or a group of social entrepreneurs to transform the system by creating a stronger initiative that can benefit both groups. These benefits would apply to both types of organizational strategy but based on the motivations of each group, we suspect the hands-off management type is preferred. This would be a great opportunity for a social entrepreneur to help organize the two groups, and could be handled by a committee of volunteers.

We believe there are four main benefits from having a board of directors synergistically connecting the two organizations: improved efficiency, utilizing economies of scale, incorporating technology, and improving market reach and industry visibility. These will allow both organizations to maintain their own values, but in a more effective manner.

While each organization will be autonomous, this new committee will be able to provide a larger picture, and mediate an option that is beneficial for both parties. This will increase the efficiency of each group by speeding up decisions and evoking

stronger momentum for the farmers' market system as a whole. Since the committee is merely a management tool, they have the ability to focus on making sound business recommendations. The farmers will be able to specialize in farming while the managers can focus on managerial activities. Third party oversight of both organizations will allow each to effectively move forward without creating inefficiencies, such as overlapping markets, which could result in wastes of both time and money. These inefficiencies could also produce unintentional competition, which works against our goal of fostered cooperation.

By increasing the size of the organizations, the new organization will have more purchasing power, managerial ability, better interest rates for loans, ability to spread marketing costs, and more operating power. This is beneficial because by having more revenue as a single entity, the organizations could rent larger locations, leading to improved purchasing power. This purchasing power can be used to obtain greenhouses, extra locations, or a variety of supplements. Additionally, as a larger organization, they could request larger grants.

One of our main recommendations is to start writing more grants in order to increase funding. One thing that is evident from the activities of the REC is that they substantially rely on grants and public policy to keep things going. Their "50% off" program is funded by a five year grant that is set to run out in 2012. Our interview with Liz Castro shows that the grants the REC receives also funds approximately 50% of their markets. There are several grants offered by the United States Department of Agriculture (USDA) that could be applied to the farmers' market systems in Worcester, (**Appendix G**). One such is the Farmers Market Promotion Program (FMPP), which is

a \$100,000 grant. This grant is extremely flexible in terms of what it can be applied to. Using this grant, the Worcester farmers' market system could bring EBT systems into markets without them, raise customer awareness through promotion and outreach, educate growers and farmers in business practices, increase market awareness through advertising and branding, and purchase new infrastructure items like refrigerated trucks or equipment. This grant saw great success in Pittsburg, PA, where it helped a cooperative market grow 12-fold in a period of five years. Grants are a vital part of our recommendations because all of our recommendations require some level of financial backing.

From a managerial aspect, organizers will be able to specialize, increasing managerial ability. Larger companies with larger revenues and higher levels of operating cash, receive lower-interest charges when borrowing from banks. Through this collaborative effort the marketing department would be able to spread funds allocated for advertising over a greater range of media outputs. More operating power would mean greater flexibility concerning supply chains and logistics. If one farmer cannot come in for a day, there may be others farmers available that take their place. This flexibility in the supply chain can create a solid coverage of a wide variety of farmers who offer different varieties of food. This would also help fulfill the convenience aspect that the farmers' markets sometimes lack. One of the biggest criticisms of the current system is of the inconvenience created for a customer when the specialist in a given product is unavailable. On one of our trips to the farmers' markets, the bread stand wasn't available and a customer was inconvenienced because they had come to the market specifically for bread. The increase in communication and

connection would enable the two organizations to operate at levels they were not able to when they were alone. All of these benefits of increased size reduce the Long Run Average Costs (LRAC) by mitigating and minimizing the Short Run Average Total Costs (SRATC).

Through this synergistic business development, the organization can implement technologies easily that would improve overall performance. New technologies such as improved inventory management systems could be incorporated into both organizations, improving efficiency. Through these new technologies, farmers would have a better idea of how much they need to produce, the organization would be able to manage individual farmers better, and there would be less waste. In our findings, leftover produce proved to be an excessive waste. Just like the practices of lean processing and six-sigma business, waste needs to be eliminated in order to improve flow within the business model. **It is our recommendation that integration of current business models and philosophy need to be incorporated into the merged organization.** When we talk about the “flow” throughout a business, we are referring to the movement of capital, resources, and information throughout the organization. Currently, there are different flows for each of organization, leading to both waste, and disjointed decisions. One centralized flow with an emphasis on pooled resources and information could help alleviate the waste and confusion that the current system has created. Leftovers are considered excessive waste and an impediment because it is a needless loss of cash. By incorporating techniques such as Just In Time (JIT) inventory management, farmers will know more accurately how much to produce and how much to store. There has been marked success using JIT in the wine-making industry. Usually

grape-growers will plant a crop, and hope that a winery will purchase the grapes before they go bad. Charlie Barra utilizes JIT by planting the grapes, and crushing them on his own, selling packaged bottles to vineyard buyers just in time (Cline, 2012). The JIT strategy has helped Barra cope with an industry that is being flooded with imports that are produced at a fraction of a cost outside the U.S. JIT inventory management is a fairly new inventory strategy that ensures there is just enough supply and inventory to address a certain period of time (usually short period of time) with the re-supply of inventory coming right before the end of the cycle. JIT inventory management increases the effectiveness of the supply chain, and considerably minimizes the risk of leftover produce.

This can be an effective technique when a farmer runs out of a specific product. The next shift of farmers could bring more of that product in order to keep the customers looking for that specific item at the market. Or, the farmers could coordinate to ensure that the market as a whole has enough of specific produce items. Utilizing a cooperative approach and JIT inventory management, waste could be minimized, and gaps caused by under stocking can be alleviated. It is important to minimize the amount of waste these organizations because they do not have a lot of financial flexibility and can't afford wasted products.

Another advantage to a coalition of the organizations would be an improved and enhanced market reach. Instead of being two organizations with limited reaches, there will essentially be one organization that is reaching into both market territories. While enhancing organizational power and visibility, this new reach could be further supplemented using the FMPP grant discussed earlier in the report. The organization

housing the committee of volunteers could apply for the grant and use it to create a larger infrastructure for the organizations already existing in the current system. Trucks could be purchased and lent to the farmers' markets to establish markets on the other side of Worcester, creating produce outlets for farmers in locations that they previously had no access to. This concept could be specifically applied to low-income areas of the city, thereby combatting food insecurity, maintaining the already existent business platforms of the farmers, and creating new outlets for farmers' markets as a whole.

5.1.1.1 Feasibility & Implementation

Since the existing organizations are barely on speaking terms when it comes to cooperation, the feasibility of our recommendation is moderate. It is extremely difficult to create one organization with two missions. Usually, even in small scale systems, one mission must be relinquished in order for the new entity to survive. With our recommendation, a "hands-off" management of the Worcester Farmers' Market Group and REC by the committee will allow both organizations to carry out the same tasks and uphold the same motivations as they did before the collaborative effort. **Appendix G** is a map of the city of Worcester that shows the locations of different food sources. Farmers' markets are currently spread across the belt of the city, where the concentration of population is high. A concentrated effort supported by these locations will allow a larger scope of access to the city for farmers' markets as a whole.

One of the best ways to implement this coalition would be to organize the committee of volunteers. People who are already well versed in farmers' markets and food security that can volunteer are ideal for these positions. While the next step is time consuming, the committee should file for funding. The FMPP grant is

the most suitable grant, because it would allow for this committee to setup an infrastructure that the farmers' markets can use to expand their market reach. The farmers' markets can then utilize this new infrastructure under the condition that they make reports of their activities (i.e. setting up new markets, implementing new educational programs, bringing in more farmers). The grant can also be used to create more educational programs that can educate people on food security issues, nutritious decisions, and how to prepare the food available at the farmers markets. The interest is out there, we just need to create the programs (**Appendix D**). We found that one of the underlying issues in the system is a lack of education when it comes to the information surrounding food.

The reports submitted to the committee establish a sense of 1) how this new infrastructure is being utilized, but more importantly, 2) see where improvements can be made. Rather than forcing the Worcester Farmers' Market Group and the REC to correspond with each other, they will correspond with the committee. Instead of trying to create a partnership between the two, we suggest establishing that they both begin an alliance with the committee. With a real-time view of the big picture, the committee can continually make objective recommendations to the two groups in order to maximize the efficiency of the Worcester farmers' market system.

With regard to implementing JIT inventory management, it is feasible with some education of how the JIT system works. One thing we learned from our interview with Liz Sheehan Castro (**Appendix C**) was that there aren't many business-savvy people in the current farmers' market system. The implementation of JIT would not

affect the amount of produce that farmers grow, but rather the amount of produce they bring to market, minimizing the amount of produce leftovers that are re-entered into the inventory cycle. Because this system will be applied to the amount of produce brought to market versus the amount of produce grown, weather and seasonality are no more of a concern than they were in the original system.

5.1.2 Marketing

We recommend that with the amalgamation of the two organizations, there should be a large marketing campaign using guerilla marketing strategies.

Through our interviews and surveys, we found that a low awareness of the importance and value of farmers' markets is prevalent throughout the city of Worcester. Many people had no idea about the offerings of markets throughout Worcester, their hours of operation, or where they are located. This marketing campaign would focus on raising awareness of the markets and the importance of eating healthy while utilizing low-cost, high-exposure methods. Guerilla advertising strategies often encompass methods of advertising that are outside the realm of classical advertising strategies (i.e. flash mobs, graffiti, and sticker bombs). The farmers' market movement may be able to spread a low-cost advertising campaign while partnered with the city of Worcester. Things like manhole covers, bus stop benches, could be painted with permission from the city. Tag postings with the markets' information could be posted on telephone poles in the centers of high population.

Two of the most important target groups for the advertising campaign are middle age women and young adults. Middle age women account for the majority of grocery shoppers so they would be a prime target market for our campaign. In targeting middle

aged women, the markets will be able to play upon maternal instinct, encouraging women to buy nutritious, local food to bring home to their families. Targeting young adults helps spread the awareness of farmers' markets to younger generations. A system can never undergo a sustainable change if only one generation is involved. By involving young adults in the evolution of the farmers' market system, we impart the importance of farmers' markets and food security to younger generations, encompassing a "hook them while they are young" mentality.

The advertisements should be bright, warm, earthy colors (brown, green, etc.). Bright, warm colors create an inviting perception of farmers' markets, brown and earth-tone colors make customers feel comfortable. The advertisements should also stress convenience, conveying the different locations and times of the markets throughout Worcester (Oracle ThinkQuest, 2012). This would raise awareness on the hours of operation, as well as building brand identity (convenience should be a central message associated with the brand).

For young adults, the campaign would focus not only on eating healthy, but the importance of doing so. This would revolve around the corporate power that is commanding the food industry, appealing directly to young adults, and acting as an informative tool. These advertisements should stress that a veil is being brought over young adults' eyes by corporations and that much of what they buy is from the same brands. We draw this from the documentary movies that we have watched, such as Food Inc., as well as the Stony Field presentation that we attended. This information should encourage young adults to make different produce selections, and inspire them to start attending farmers markets. Only they have the power to get involved and as

they grow within the community, maintain strong connections allowing further growth and awareness of the organization. Additionally, it will be entirely up to the young adults to incorporate emerging technology such as social media marketing, internet presence, and mobile applications into the farmers' market industry. These technological innovations will be vital to maintaining market growth, and staying competitive with grocery stores and other sources of food. Based on our observations and conversations with Mr. Andy O'Keefe, roughly thirty percent of his customers are above sixty. His advertisements come in the form of local radio broadcasts, mass mailings to his current customers and flyers. These methods are effective if the target group is approximately sixty years of age. But when it comes to reaching a larger, younger, market segment, Mr. O'Keefe's advertisements fall short. These advertisement methods need to be adjusted in order to gain a larger consumer base or further educate the community on the benefits of eating healthy. If younger generations can be brought into the farmers' market customer base, the marketing campaign can grow to encompass social media and mobile application technology for smartphones. Thus the farmers' markets will be able to better target individuals using multiple advertising channels. Tailored commercials/advertisements can be used to reach specific demographics groups, capitalizing on customer exposure to the advertisements. Another advertising strategy is a logo or a slogan that can be used to recognize the product. If there is something that can be associated with the farmers' market, it will become well known through word of mouth.

5.1.2.1 Feasibility & Implementation

In terms of feasibility, this recommendation is entirely possible. **We recommend the committee of volunteers manage the marketing campaign.** They will be able to overcome the cost of advertising, which will be miniscule, since they will use guerilla advertising tactics. They will be responsible for maintaining the goal of targeting a young audience, keeping in mind that the campaign can later be expanded to include social media and mobile applications. We hope to attain the proper funding for this from the additional grants that the organization applies for. Continuous management of the campaign is required as the advertising landscape constantly changes.

The campaign would require flyers to be distributed around the city and possibly radio advertisements and television commercials (television will most likely be too expensive at first). In order to target middle age women, flyers should be distributed at schools, malls, parks, bus stops, and other locations frequented by middle age women. In order to target local youth, the numerous colleges in the Worcester county area should be utilized via flyers around campuses and local youth stores.

5.1.3 Agritainment

One way to increase awareness of the Worcester farmers' market is through the concept of "agritainment". **We recommend that the farmers' markets incorporate the concept of "agritainment" in order to attract more customers and raise the awareness of food security issues.** "Agritainment" is a fusion between agriculture and entertainment. Farms across the country have realized that people are willing to pay in order to be entertained. During the harvest season, farm stands become packed as people rush to pick pumpkins, traverse corn mazes, enjoy hay rides, etc. The term has

also revolutionized the way vineyards along the North Fork of Long Island, NY, conduct business. Wine tasting has become a prestigious event where customers travel from vineyard to vineyard in limousines and party busses. Vineyards host music festivals, bringing in well-known rock bands from the 1960's and 70's. As long as there is an added value of entertainment, customers are willing to pay slightly higher prices. These attractions also bring an influx of customers. On the farmers' market level, we propose that the markets hold themed days in an attempt at the first sustainable "agritainment" attempt in Worcester.

5.1.3.1 Feasibility & Implementation

We realize that rock festivals are a bit costly and ostentatious, but we feel that the incorporation of "agritainment" is a feasible recommendation for the farmers' market system in Worcester. In an effort to minimize the cost of these events, we recommend that they start out as simple. Themed market days would be the best way to implement this. For example, the markets could have an "Equipment Day", where the farmers are encouraged to bring their tools or equipment to the market. This might also include equipment like trucks, shovels, hoes, and other farming paraphernalia. Another theme could be "Animal Day", where farmers bring in chickens, pigs and other livestock that they might use to produce eggs, cheese, and meat. These themes help transform farmers' market visits from weekly chores to family experiences. The first two themes focus on bringing the families to the markets by appealing to their children, but there can also be themes focused on the interests of adults. For instance, a "Restaurant Day" can be organized at the markets, where the chefs of local restaurants (The Sole Proprietor, Via Italian

Table, 111 Chophouse, etc.) can come and teach cooking techniques or give demonstrations using farmers' market produce. Not only does this incorporate restaurant partnerships into farmers' market activities, but using advertising by both the restaurant and the farmers, it could bring an entire new crowd of people to the markets.

5.1.4 Education

We recommend that the coalition of volunteers have a focus on raising awareness through an educational approach. Based on our interviews and our background research a majority of potential consumers do not realize the value of farmers' markets or that they exist at all. By raising awareness of the subject through educational avenues we think there would be an influx of consumers at farmers' markets.

One way we recommend to implement this is to focus on grammar schools and high schools in Worcester. Other paths for the education approach are through social programs such as YouthGROW. They can conduct informational sessions and hand out pamphlets.

5.1.4.1 Feasibility & Implementation

This recommendation is feasible although there are many possible challenges that can be presented. One of which is finding someone to volunteer to run these classes and the program development. One way to address this is to recruit college students from the local consortium who can help teach the classes.

5.1.5 Sponsorships

We recommend that the committee of volunteers look into sponsors for other sources of funding. Sponsors can provide resources that are outside the form of money. There are many useful ways in which organizations can help the farmers' markets. Additional volunteers, knowledge, space, advertising and the strength of multiple organizations are just a few forms of resources that can be provided.

First the new coalition of volunteers should come up with a list of companies and organizations to approach. To do this the farmers' market coalition should come up with criteria for which companies and organizations they can approach. An example of this would be:

- A focus on community development
- A focus or interest on food security
- A focus or interest on healthy living

Having these criteria will help narrow down the list of companies and organizations to a realistic and attainable list which will save time and energy. Based on these criteria the following organizations are just a few of potential sponsors: Main South Community Development Corporation, Worcester Consortium schools, Friendly House, local restaurants, life insurance agencies, and the YMCA. Other options would be individual private sponsors who are independently wealthy in Worcester that care about the issues.

5.1.5.1 Feasibility & Implementation

This recommendation is highly feasible. Many organizations utilize sponsors, especially groups that have a social agenda. The only problem would be that many of these organizations receive outside funding that is used for specific activities, so there may not be a lot of money to draw from these companies.

5.2 Additional Implementations

Aside from organizing the markets, additional implementations would be necessary. These implementations focus on external investments that would benefit the organization, farmers, and customers as a whole. Said implementations would require investment capital, and would be considered long term investments.

5.2.1 Support Services for Worcester Farmers' Markets

Based off of our surveys and comparisons to other farmers' markets we recommend that additional services that complement the farmers' market be implemented. One such service is showing its customers how to cook healthily. As seen in our surveys many potential customers and even customers of the farmers' market have a medium to high level of difficulty in preparing the healthy options offered by the farmers' market. Possible ways to fill this void are cooking classes, similar to those offered by the REC, which focus on how to prepare the produce that is sold at the markets. Another idea is to sell small cook books available with different recipes. One vendor at the Worcester Farmers' Market Group had recipe cards posted next to each basket of produce. This education method could be a market-wide occurrence, allowing customers to learn how to prepare food without requiring a significant amount of time. This is also a cost effective way to spread

information for both the farmers and the markets, because there will be no additional time or cost required. Another opportunity is to organize a canning class to educate on food preservation, which would help alleviate the lack of fresh produce in the winter months. Customers would be able to purchase excess produce during the harvest season when it is the freshest and can it themselves. This would also benefit the farmers selling bulk produce that customers purchase for canning.

We also suggest that the local markets offer a comprehensive website that is easy to navigate and contains all of the information needed. Our findings show that it is extremely difficult to find information on farmer locations, farmers' market locations, hours of operation and what produce is available. We have witnessed this issue firsthand, trying to visit markets that were closed, or arriving at locations that didn't exist. If one is willing to look hard enough they may be able to find all of the information but only on third party websites. There is currently no website organized by a farmers' market entity. Not only should the website contain all of the basic information for the markets, it could also offer features such as profiles for farmers and farmer and vendor application forms. This will not only help attract younger generation growers who are more technically savvy. Most successful business ventures today can be found on the world wide-web, whether the organization is for profit or not.

5.2.2 Mobile Market

We recommend incorporating a bus system in which buses are retrofitted to be travelling farmers' markets. We discovered through our findings, specifically our interviews, that one of the hardest aspects of actually attending farmers' markets is the location and hours. Incorporating a traveling system would greatly improve

accessibility on many levels. This would dramatically increase the range of customers, as well as increasing the convenience level of accessing farmers' markets for the customers. These buses would follow select routes closely resembling the current Worcester Road and Transit Authority (WRTA) bus routes, inter-mingled with shopping areas, such as large grocery stores. This would allow for easiest access by the majority of Worcester County residents. Based on our socio-economic and food store map (**Appendix F**), there are almost no food stores in the northwest corner of the city. While this is an area that has more affluence, it still falls under the category of the of a food desert due to the lack of food sources. Other areas that might be better suited are the suburban areas near Great Brook Valley, as well as down Park Avenue and the neighborhoods surrounding western Main Street, near Cherry Valley. These are areas of the city we believe can benefit the most from a mobile market.

5.2.2.1 Feasibility & Implementation

The biggest inhibitor regarding this recommendation is acquiring the bus(es) and driver(s). Our recommendation would be to purchase a used bus from the WRTA. These buses have a proven track record of traveling through Worcester and are spacious enough to fit a bar type feature along one side behind which a seller would operate. It might also be wise to see if it is possible to purchase or rent a WRTA driver to operate this new bus, because conveniently the driver would already know the city, and the buses. This might prove difficult because good public transportation drivers might be hard to find and WRTA might not be willing to part with or lend any drivers.

It is our estimate, based on current used public buses, that the bus would cost \$30,000 (+/- \$10,000) to purchase and retrofit as a selling station (Sale, 2008). The bus would need to park in empty spots along the routes, in order to not interfere with traffic. This is probably the weakest point in terms of implementation because it would be very difficult to find designated areas along or near bus routes free daily. It is important to note that this recommendation has relatively high risk and should only be undertaken if there is a lot of operating cash available. It is our recommendation that this should not be implemented unless the organization has at least double the required cost as a safety net. Additionally, there should be a survey administered to the Great Brook Valley, Main Street, and Cherry Valley areas. This survey should be aimed at determining the needs of the community, in order to gauge the strength of demand for the mobile market.

5.2.3 Greenhouses & Storage

We recommend that the farmers' market organization should purchase or rent out large buildings to be used as greenhouses, enabling year-round operation.

The space can be provided by the abandoned warehouses throughout Worcester retrofitted in to greenhouses. According to our findings, many farmers do not have a way to grow and sell their food throughout the winter. Having a greenhouse would be extremely beneficial from a financial aspect, because it mean a full-year revenue stream, rather than 6-8 months. Farmers would be allocated space within the greenhouse to grow their products during the winter. Additionally, farmers that needed more space or specific conditions during the summer would also be able to utilize the greenhouse, maximizing their revenue and profits. It is our goal to have these

renovations funded by the additional grants or through farmers providing upfront capital. The reason farmers would be inclined to do this is because it is an investment with potentially high returns due to around the year selling.

Efficient food storage can also be utilized in these buildings. It would be advantageous for farmers to be able to store some of their produce for selling later or at better times. This would include sections of the buildings specifically designed for climate control, enabling short and long term storage. This would work synergistically with proper inventory management.

5.2.3.1 Feasibility & Implementation

The increased revenue that could result from the hands-off management approach discussed earlier in Chapter 5 would make this recommendation feasible. The largest inhibitor would be finding adequate buildings to rent/purchase that would allow for crops to grow healthily. From first-hand observations, we have noticed that there are abandoned warehouses and other factory-type buildings located in Worcester. These buildings could be renovated and rented based on a contractual basis, allowing for the city to sell them to a larger company after the contract is over, or renew the contract (possibly with negotiations).

Regarding implementation, farmers would be able to purchase shares of the greenhouses. There would be a limit on the amount of shares the farmer could purchase, preventing one or two farmers from buying out the whole greenhouse. This limit would be based on the amount of farmers purchasing shares, enabling each a fair share if desired, with the remainder auctioned at the end. The selected

buildings would need to pass certain health and agricultural standards before growing would take place.

5.3 Summary

The goal of this project was to utilize our collective knowledge of farmers' markets in order to identify social innovations in farmers' markets that could address the gaps in Worcester's food security, based on the current infrastructures and operations of existing Worcester area farmers' markets. Through our interviews, on-site inspections, and research, it is our recommendation is to consolidate the farmers' markets within Worcester County in order to grow the market, increase revenue, and increase competitiveness. This consolidation will greatly increase revenue, which enables the reach and ability of the farmers' markets. This increase will enable those involved to achieve much higher levels of success than currently possible. When these recommendations succeed, it will prove to be a solid business plan for local farmers' markets across the country, with Worcester, MA being the first example.

References

- AMO Software. (2011). *Lancaster Central Market*. Retrieved November 07, 2011, from Central Market's History: <http://www.centralmarketlancaster.com/about/history/>
- Boynton, D. (2007, September 07). Harvest Boon; Area Farms, Residents Reaping Yields in CSA program. *Telegram & Gazette*. Worcester, Massachusetts.
- Carter, S., & Shaw, E. (2007). Social entrepreneurship: Theoretical antecedents and empirical analysis of entrepreneurial processes and outcomes. *Journal of Small Business and Enterprise Development*, Vol. 14 Iss:3, 418-434.
- CDC. (2011). *Fruit and Vegetable Benefits*. Retrieved October 11, 2011, from Nutrient Information: http://www.fruitsandveggiesmatter.gov/benefits/nutrient_guide.html
- Clark University. (2012). *Sustainable Clark: Office of Sustainability*. Retrieved February 3, 2012, from Clark University: <http://www.clarku.edu/offices/campusSustainability/news.cfm>
- Cline, H. (2012, August 28). *Success with JIT grape grower strategy*. Retrieved March 2, 2012, from Western Farm Press: <http://westernfarmpress.com/grapes/success-jit-grape-grower-strategy?page=1>
- Cohen, T. (2010, September 14). *Funders, nonprofits work together*. Retrieved November 5, 2011, from Philanthropy Journal: <http://www.philanthropyjournal.org/resources/special-reports/corporate-giving/funders-nonprofits-work-together>
- Commonwealth of Massachusetts. (n.d.). *Mass.gov*. Retrieved November 29, 2011, from Food Security and Food Stamp Participation in Massachusetts: <http://www.mass.gov/eohhs/researcher/basic-needs/food/food-security-and-food-stamp-participation-in-mass.html>
- Community Food Security Coalition. (2011). *Community Food Security Coalition*. Retrieved November 29, 2011, from What Is the Community Food Security Coalition?: <http://www.foodsecurity.org/index.php>
- County Health Rankings. (2011). *County Health Rankings*. Retrieved November 07, 2011, from 2010, Worcester, Massachusetts, Access to Healthy Foods, Archived Data: <http://www.countyhealthrankings.org/massachusetts/worcester/30/archived-data/2010>
- Dayal, P. (2011, January 16). *Right, Wrong Ways to use Food Stamps*. Retrieved September 28, 2011, from ProQuest: <http://ezproxy.wpi.edu/login?url=http://search.proquest.com/docview/840663914?accountid=29120>

- FAO.org. (2008, December 9). *Food and Agricultural Organization of the United Nations*. Retrieved November 29, 2011, from Number of hungry people rises to 963 million: <http://www.fao.org/news/story/en/item/8836/>
- Farmacy Gardens. (2011). *Farmacy Gardens*. Retrieved November 07, 2011, from Our CSA: <http://www.farmacygardens.com/our-csa.html>
- Frank, P. (2011). Schumpeter, Kirzner, and the Field of Social Entrepreneurship. *Journal of Social Entrepreneurship*.
- Global Perspective Program*. (n.d.). Retrieved October 5, 2010, from Worcester Polytechnic Institute: <http://www.wpi.edu/academics/GPP/Overview/index.html>
- Google. (n.d.). Retrieved from www.google.com
- Greentowns.com. (2011). *Green Hill Farm*. Retrieved February 3, 2012, from Greentowns.com: <http://www.greentowns.com/initiative/community-supported-agriculture/green-hill-farm-shrewsbury-ma>
- Greve, A., & Salaff, J. (2003). Social Networks and Entrepreneurship. *Entrepreneurship Theory and Practice*, 1-22.
- Guthman, J., Morris, A. W., & Allen, P. (2006). *Rural Sociology*.
- Healthy Corner Stores Network. (n.d.). *Healthy Corner Stores Network*. Retrieved November 2, 2011, from <http://healthycornerstores.org/about/>
- Hinrichs, C. C., Gillespie, G. W., & Feenstra, G. W. (2004). Social Learning and Innovation at Retail Farmers' Markets. *Rural Sociology*, pp. 31-58.
- Houle, B. (2005, June 29). Worcester Farmers Market will deliver to your door. *Telegram and Gazette*.
- Jones, P., & Bhatia, R. (2011). Supporting Equitable Food Systems through Food Assistance at Farmers' Markets. *American Journal of Public Health* 101.5, 781-783.
- Keil, T. H. (2010, October 4). Department Head in Physics at Worcester Polytechnic Institute. (P. Stanley, & A. Morrison, Interviewers)
- Kropf, M. L., Holben, D. H., Holcomb, J. P., & Anderson, H. (2007). *Food Security Status and Produce Intake and Behaviors of Special Supplemental Nutrition Program for Women, Infants, and Children and Farmers' Market Nutrition Program Participants*. Retrieved February 02, 2012, from IN.gov: http://www.in.gov/isdh/files/Journal_of_the_American_Dietetic_Association_WIC-WIC_FMNP.pdf
- Liz Castro, P. M.-H. (2006, October 6). (A. Meldrim, Interviewer)

- Local Harvest, Inc. (2011, October). *Farmers' Markets*. Retrieved October 2011, from Local Harvest: <http://www.localharvest.org/farmers-markets/>
- Mass Farmers Markets. (2011). Massachusetts Farmers Markets 2011. *Massachusetts Farmers Markets 2011*.
- McCullum, C., Pelletier, D., Barr, D., Wilkins, J., & Habicht, J.-P. (2004). Mechanisms of Power Within a Community-Based. *Health Education Behavior*, 206-222.
- O'Keefe, A. (2011, September 07). Greater Worcester Farmers Markets. (C. Garceau, Interviewer)
- Oracle ThinkQuest. (2012). *Effective Advertising*. Retrieved March 3, 2012, from Colour of Advertisements: <http://library.thinkquest.org/06aug/02403/english/colors.html>
- Peredo, A. M., & McLean, M. (2006). Social entrepreneurship: A critical review of the concept. *Journal of World Business*, 56-65.
- Regional Environmental Council. (2011). *Regional Environmental Council of Central Massachusetts*. Retrieved November 07, 2011, from What We Do: <http://www.recworchester.org/what-we-do/>
- Riley, N. J. (2009, August 17). *Dig Worcester's new cabbage-patch education*. Retrieved February 3, 2012, from Telegram.com: <http://www.telegram.com/article/20090817/NEWS/908170326/1003/RSS01&source=rss>
- Sale, B. f. (2008). *Used Transit Buses*. Retrieved February 18, 2012, from www.busesforsale.com: <http://www.bargainbusnews.com/search.php>
- Samuelson, R. J. (2010, September 6). Why School 'Reform' Fails. *Newsweek*.
- Schachterle, L. (2010, Septemeber 30). Professor in Humanities and Arts Department at Worcester Polytechnic Institute. (P. Stanley, & A. Meldrim, Interviewers)
- Seijts, G., & Crim, D. (2006). What Engages Employees the Most or, The Ten C's of Employee Engagement. *IVEY Business Journal*, 2-5.
- Shoenberg, R. E. (2004). *The Value of the IQP*.
- Shoenburg, R. E. (2004). *The Value of the IQP: A Report to the interdisciplinary and Global Studies Division*. Worcester Polytechnic Institute.
- Taylor-Powell, E., & Renner, M. (2003). *Analyzing Qualitative Data*. Retrieved November 11, 2010, from UW- Extension Program Development and Evaluation: <http://learningstore.uwex.edu/assets/pdfs/g3658-12.pdf>
- (2001). In K. Teel, & A. DeBruin-Pareki, *Making School Count: Promoting Urban Student Motivation and Success*. New York: Routledge Falmer.

- Telegram & Gazette. (2010, October 12). *Swiped By Fraud*. Retrieved September 28, 2011, from ProQuest:
"Swiped<http://ezproxy.wpi.edu/login?url=http://search.proquest.com/docview/757450332?accountid=29120>
- The Food Trust. (2004). *The Food Trust*. Retrieved November 2, 2011, from Healthy Corner Store Initiative: <http://www.thefoodtrust.org/php/programs/corner.store.campaign.php>
- (1972). The Interactive Qualifying Project. In I. Z. The Zwiebel Committee. Worcester, MA: Worcester Polytechnic Institute.
- Trask, R. (1973). The IQP Center Story. *WPI Journal*, 10.
- USDA. (2011). *Direct and Intermediated Marketing of Local Foods in the United States*.
- Vallianatos, M., Shaffer, A., & Gottlieb, R. (2002, October). *Transportation and Food: The Importance of Access*. Retrieved November 29, 2011, from Urban and Environmental Policy Institute: http://departments.oxy.edu/uepi/cfj/publications/transportation_and_food.pdf
- Woods, D. W. (1999). *Review of IQPs Completed in 1998/99*. IGSD.
- Worcester Advisory Food Policy Council. (n.d.). *Worcester Advisory Food Policy Council*. Retrieved November 1, 2011, from Worcester Advisory Food Policy Council: Worcesterfoodpolicy.org
- Young, C., Karpyn, A., Uy, N., Wich, K., & Glyn, J. (2011). Community Development. *Journal of the Community Development Society*, 208-220.
- Zerbe, L. (2011, June 1). *Farmer's Market Innovations Make Healthy Food an Easy Option*. Retrieved January 30, 2012, from Rodale: where health meets green: <http://www.rodale.com/farmers-market-ideas?page=0,1>

Appendix A: Interviews with Andy O’Keefe

1st Interview with Andy O’Keefe (9/7/11)

1. How long have you been running farmers’ markets?

I’ve been running them for about 40 years now. We’ve been in several different locations depending on how well the market was doing. I started with 3 markets that had 5 vendors, now I have 5 markets.

2. How difficult is it to run a farmers market?

It’s difficult to set up if done right, but you have to be a hammer. I’ve had many community growers try to come in and try to sell, but I don’t allow it “if you don’t grow it, you can’t sell it”. The primary reason is because these growers can’t accept coupons from welfare programs.

3. How do you select which farmers you want at the market?

They usually come to me. All of them have to farmers in order to come, because otherwise I won’t let them in. They also have to be able to pay for their share the fees associated with the farmers’ market.

4. How do the financials work for the market?

I have actually lost money doing the markets. According to the IRS it’s my “hobby”. Most of the time I don’t make any kind of profit. I taught for a long time, and this what I do now.

5. Do you have any demographics for your customers?

I would say about 30% of the customers are over 60 years old.

6. How do you reach out and advertise?

We have a mailing list that reaches about 3000 people, but they sign up through me. We also use the radio, and have bumper stickers and pens.

7. How many people attend your markets on the average day?

Well, right now it’s kind of quiet because it’s the off season. During the summer it’s the busiest because people are home. But I would say anywhere between 300-1000 during the main part of the season.

Notes:

Farmers/farms present:

- Silva Farms Dighton, Ma
- Brook Gardens W.Brookfield, Ma
- Flats Mentor Farm Lancaster, Ma
- Shivick Farm Oxford, Ma

2nd Interview with Andy O'Keefe (10/10/11)

1. **Can you go just a little farther into the details of how the finances work?**

Surely, the annual fees pay for the bills, this includes the permit and the gas for the truck etc. I'd rather you not write it all down, but each stand needs to make a certain amount at the end of the day in order for it to be worth it to the farmers. So take that amount for each day, times three or four months...that's a good amount of cash. The fee for each farmer is about \$300 a year, and it's split evenly between the farmers. (Monetary amounts withheld at request of Mr. Andy O'Keefe)

2. **How did you determine what the hours should be? They seem kind of inconvenient for people who work.**

In the summer, the hours are very convenient. A huge portion of my customer base is the employees of local schools. During the summer, these people have plenty of time. It's most convenient just to keep it the same and not change it on people throughout the year, this is how it has always been. My new market is in the afternoon to try and cover the afternoon hours.

Farmers' Motivation to sell at farmers' markets

Shivick Farm Oxford Ma:

I knew Andy. But primarily it's our source of livelihood

E.L. Silva Farms Dighton Ma:

I do it to get out of the house. We go to 10 markets a week. This isn't the only one that we go to.

Brook Gardens West Brookfield Ma:

The biggest thing is livelihood, there are more people here. I'm getting out of the business because there is too much competition. I wouldn't really call it competition, just some people are selling their products cheaper, but it makes things tough.

Hardwick Vineyard and Winery:

This is our first year here. In fact, this was the first year that an alcohol vendor was allowed at farmers markets. It's working out well overall, but the farmers' markets are mostly a way to get our name out there.

Notes:

-Indoors farmers' market for the winter. Three farmers have greenhouses to use for this, before they didn't have a venue to sell to, so they were not utilizing the greenhouses. There is going to be meat, bread, honey, maple syrup, lettuce and greens available.

-They are going to be open Sundays 11-3

-Recently appointed to Council in Dudley Ma. Wants to build low cost greenhouses but needs to find someone to finance and operate it

-Tuesday market at UMass Med., but only for UMass staff and patients

Interview with Andy O'Keefe (1/29/12)

1. How much is the fee for the city of Worcester permit?

There isn't any. To my knowledge there isn't a fee for a permit. We're allowed to use these facilities for free because I only use the parking lots. There are certain stipulations that you have to follow that are set forth by the city, things like cleaning up after yourself. A lot of places lose access to places like this because they don't take care of them.

2. What is the cost to the farmer? In other words do they pay the price of the permit divided by the number of farmers?

The fee that the farmers pay is to cover the cost of marketing mostly. They pay for part of the advertising and the other expenses of running the market. Usually there isn't anything left, but when there is very little. I think there was about \$400 after last summer.

3. Is the cost subsidized by anyone (government, organizations, etc.)?

No, not right now. I applied to the Department of Agriculture once, just for one year. It was \$2000, but then they sent me a 1099 form and I had to pay taxes on it. I didn't have any money left over to cover that so I wound up having to spend even more money. I don't do that anymore because I just about spent more money with the grant than without it.

Appendix B: Interviews with the REC

Interview with Anthony Gardner

1. Would you consider this area a food desert?

I think it should be categorized as one, whether it technically is or not.

2. Why do you organize this market?

It's part of the REC Mission. We want to give access to low income neighborhoods. The food quality from our markets is better because it is not shipped from far away and the food lasts longer. Welfare recipients get around \$200 per month for food, which is not enough to feed them. I take the mobile market around Worcester and sometimes I see people eating out of trash cans. We have the market at Great Brook Valley that isn't doing so good. But that's why we hope this (Main South) is going to stay open, because it's in a low-income area, and it's taken off.

3. We saw the signs on the mobile market van, what is that all about? Are they sponsors?

Yes, they are. We applied for Mass Grants to fund a program in which purchases paid with food stamps are able to pay for twice the amount of food. The program subsidizes/matches the purchase to be able to fund twice the amount of produce. The farmer still gets money for the produce.

4. How long does the farmers' market stay open for?

Oct 29th is our last farmers' market.

5. How much money does the farmers' market bring in?

\$23000 total sales so far this year

6. What is the deal with the mobile van?

The idea is to refit the back (of the van) to hold produce that the farmers sell, the van goes around and opens the back for customer access. We're going to set a table outside the van for a scale and register. We still need to revamp and amp it up. But basically, the idea is that it will be kind of like a mobile store, where customers can go up the ramp, through the van, and then pay at the cashier table on the other side.

Interviews with REC Vendors

YouthGrow Farms

1. How does YouthGROW work?

It's an REC staffed and organized program that is supplemented with community volunteers, most of which are the local youth.

2. What do you do at YouthGROW?

Our main goal is to provide food for people in low income areas. But our effort serves a dual purpose, because the food that we sell at the market is grown by the local youth volunteers. The program educates them about how to grow all sorts of vegetables, which are in turn sold at the REC's farmers' markets in order to keep the program going. We also make and sell our own hot sauce.

Foppema's Farm

1. Where is your farm located?

We're in Northbridge, Massachusetts.

2. Why do you come to the REC's market?

One of the biggest reasons we come here is because it's an outlet for our extra produce. It's also a great area to work with, and we know that we're helping people out by being here.

3. How long does it take you to set things up and take them apart?

It takes us about two hours to get things loaded up into the truck and then to set up the stand once we get here. It's about the same to break it all down. Not including travel time though.

Nuestro Huerto

1. Can you tell us a little about your farm?

Sure! It's a volunteer-run community farm focused on the idea of good food. There are a few people that volunteer to do the farming, and then we take turns selling the produce at the market.

2. What is your motivation for coming to the REC's market?

It's all about the relationship with the land, need to take care of the earth. We don't feel the pain because we are disconnected from the earth. It's definitely not about the money, money is meaningless. We need to protect the soil and grow in sustainable ways.

Artichoke Food Co-op

1. What is the Artichoke Food Co-op?

Basically, we're a redistributor of food. People, mostly students from Clark, place orders with us for food, and then they buy it from us. Mostly we deal with dried and naturally preserved food. We aren't doing as well as we were a few years ago.

2. What do you think of the REC's efforts?

I think they're good. Things need to change in order for the markets to really take off.

Residential Honey Vendor

1. Where do you produce the honey?

In my own backyard actually. I live in Southbridge, and have hives in my backyard. Overall, they're really easy to maintain, so I just keep them up and then bring the honey here.

2. Why do you come to the REC's markets?

Social reasons mainly. I sell both light and dark honey, and people have all kinds of questions about them. I like talking to everyone and selling the honey.

Appendix C: Interview with Liz Sheehan Castro

What has been effective recently with addressing the issues of food security in Worcester?

Liz: The programs run by the REC have been pretty effective. They've expanded food stand sales, school food access, farmers markets accept food stamps and WIC (low-income mothers), over the last three years food stamp sales have gone up a lot. They have two markets now, one at the YMCA, and one in Great Brook Valley.

Have there been any problems in thinking of innovative solutions?

Liz: There is a big need to really figure out how to make these markets sustainable. They are admission driven, which means they rely mostly on good turnouts. They always need to be grant funded.

Do you help with the grants? If so, to what extent?

Liz: I don't do as much grant writing, but they use the grants to fund about 50% of the farmers markets. After 2012, the funding is set to run out. Types of policies that we work with focus on urban farming, being able to keep chickens as source of eggs, etc. We don't do as much with farmers' markets, or at least any that will help bring in other sources of funding.

Do you think technology will be at play or be part of the solution?

Liz: Definitely, technology always helps streamline the process. Food stamps especially, where the technology they use to process applications and purchases is extremely outdated. As more and more people have access to smartphones (not necessarily in low income areas), people will be able to see food prices from around the area. Worcester supermarkets are known for being super expensive.

Do you think that there are a lot of food deserts in Worcester?

Liz: There is probably not anywhere in Worcester that is actually a food desert in the sense that they do not have access, I think what we are going to see the issue in Worcester is, we have had two super market in Worcester close, but I think in Worcester the issue is that the prices are so high, the super markets just don't make enough money so they raise their prices to try to fill that profit gap, but they are doing this in the lowest income communities. So it just means that people are paying too much for food. What we have found here is that the farmers market prices are not higher than the super market prices so that just means that the super market prices are actually a lot higher here because generally the farmers market prices are a lot higher. I think that has been to our advantage because people come to our markets because they do not see the price difference

Do have any ideas that you have not started working on for food security and do you have any ideas for us to address food security through farmers markets ideally? Or other ideas too so that we have a good grasp...?

Liz: One thing is looking at food sold in corner stores like small convenience stores because sometimes that is what people rely on if there is lack of transportation to a super market. So a lot of the corner stores in the low income neighborhoods just have a poor selection if any of anything fresh, any produce. A lot of the healthier and staple foods you have to go look for and everything that is really highlighted and on sale is the usual candy, chips, soda. So there are other places that have done this in the country called the healthy corner store project looking at helping corner stores help procure healthier food, so that can be a connection with the farmers markets.

Sell directly to the corner stores?

Liz: Yes. Also help the corner stores rearrange and remarket so what they are highlighting are the healthier items. The candy, soda and chips will still be there and people will buy them but at least they will not be so highly encouraged to buy them through the visual marketing piece. So that is something that I have thought of but haven't done. I think the other piece is the mobile market.

Has the REC advertised on the radio and all of that?

Liz: They have done a little bit of that this year.

Because I know that they use the internet but...

Liz: Yeah not everyone has internet. Yeah I think that if they could get more corporate and media sponsorship that would be helpful.

Because we saw some of the posters on the mobile van and maybe getting things like that on the radio...

Liz: Definitely I think this last year is the first they got anything on the radio.

Andy O'Keefe does all of that, he is on the radio and on tv. It seems that his farmers' markets are all about making a profit, while the markets of the REC is more for the social responsibility. I think that while the REC is doing good work, they should be taking up some of the business practices that make a business successful, and I think that is going to be something that we are going to look into.

Liz: Yeah, I think that is definitely true and I think that they realize that too and are just trying to figure out how to do those things. Because they don't necessarily have business savvy people on staff as much.

Do you know why Andy seems to be against subsidizing? What's wrong with subsidizing the cost if the farmer gets all of the profit? He's the only other farmers' market manager in the city.

Liz: And he had a lock on it until the REC came in, so it could just be that he is upset that other people are doing it.

He, personally, doesn't turn a profit. He's not in it for money, in fact he actually ran things at a loss for a while.

Liz: Really? That's what I was wondering because I thought they had to either be running even or at a loss. How does he do it?

The IRS records it as a hobby, it's not a business or anything because of what it looks like on paper. The farmers just pay a fee to cover the expenses of sustaining the market. Do you think he would be open for a meeting of the minds?

Liz: It was tried one time because before the REC started their farmers markets they went to him because it seemed like a logical thing to partner with him. He didn't so there has just been escalating conflict. But I think the director of REC is planning on having a sit down with just the two of them and become friendly at least.

It seems that Worcester is a difficult city to move food through. Is this true?

Liz: Worcester is definitely one of those cities that are not easy to get in and out of, driving wise. If a farmer or grower is coming from an hour away, it could be a pain.

Andy didn't want us to write down how much they are making, apparently they are making a bunch of money. Each stand on average has to take in \$500 a day. A lot of the older population, 30%, is 60+ years of age. They have more money to spend than those in the low-income areas.

Liz: Interesting. When REC first started, they partnered with a larger farm. They told the REC that they had to average at least \$500 a day in order to keep coming back to the market. They didn't in the first year so they stopped coming.

Right, according to the typical life cycle of a business, the first year or two is always rough. Maybe the farmers markets are taking an unrealistic business standpoint?

Liz: Right, that's how business works. But it's really hard to get funders to think like that. With Main South, we've seen it grow dramatically. We think that because of its success, we can get funders to continue to back it, but Greatbrook Valley is suffering really bad, and it's just getting worse.

Can you see this project helping your goals?

Liz: Totally, I think as long as you guys continue communication with REC and we can always continue communicating, just to make sure everything is in line with the needs of Worcester.

Does the group you work with have an off season?

Liz: Summer is usually the off-season. Everyone I work with is really busy with other things, so I have nothing to do all summer long. Other people I work with are higher level execs, they take long trips. Not much goes on at the REC either because they're out at markets, farming, etc.

How is your program funded?

Liz: We are completely funded by the Health Foundation located here in Worcester. Our main funding is a five-year grant for Hunger Free & Healthy. We are in fifth year now, and we're looking to extend it for a sixth year. Mostly this funds my salary and farmers markets. Basically, I work alone. I am the organization.

Do you think farmers' markets are the answer?

Liz: Well, that's the question! If you don't think farmers markets are the solution, make sure you let your instructors know and make the necessary changes. Connections and relationships between farmers markets and established retail could be a great model.

The Mobile bus is also a good idea, walk in one door and out the other. We talked about that with Anthony.

Liz: Oh definitely, sounds like it would be a great idea. I am free to connect whenever.

Notes:

- Liz: Manage the Worcester Food & Active Living Policy Council
 - Major Project: Hunger Free & Healthy
 - How to expand healthy food access and decrease hunger within the city of Worcester.
 - Done so by:
 - Starting Farmers markets in low-income communities (there are currently 2).
 - Offering cooking classes in low-income communities.
 - Working with public schools school food to make sure school meals are as healthy as possible.
 - A lot of advocacy around the policy of Food Stamps
 - Also support school gardens (currently 14).
 - Elm Park: Hybrid community/school garden
 - Funds are becoming diversified, responsibilities are getting allocated.
 - Liz's managerial responsibilities are declining.
 - She is working more on public policy and the coalition building portion part of the policy council.
 - Works a lot with the REC. Primary food justice organization, they manage farmers markets, community gardens, school gardens, & cooking classes.
 - Different healthcare institutions: UMass, Saint Vincent's, Health clinics, schools, anyone doing anything with hunger, nutrition, food.
 - They are trying to become the umbrella of Worcester food health.

Appendix D: Random Sample Interviews

1. What is your average food expense per month? Please round to 00 or 50.

Themes Responded:

- 100 (3/151)
- 150 (11/151)
- 200 (16/151)
- 250 (26/151)
- 300 (33/151)
- 350 (22/151)
- 400 (12/151)
- 450 (8/151)
- 500 (13/151)
- 550 (4/151)
- 600 (2/151)
- 650 (0/151)
- 700 (1/151)

COMMENT: Most people spend between \$150-\$400 per month for food.

2. Are you willing to spend more on food?

- Yes (102/151)
- No (49/151)

COMMENT: Approximately 2/3 of those surveyed said they would willingly spend more for nutritious food.

3. How interested in free cooking classes would you be if offered near you?

- 1—Not at all (16/151)
- 2 (3/151)
- 3 (1/151)
- 4 (6/151)
- 5 (17/151)
- 6 (12/151)
- 7 (33/151)
- 8 (22/151)
- 9 (12/151)
- 10 – Definitely (29/151)

COMMENT: A majority of those surveyed were interested in free cooking classes.

4. How important is supporting local farmers to you?

- 1—Not at all (14/151)
- 2 (4/151)
- 3 (6/151)
- 4 (17/151)
- 5 (34/151)
- 6 (16/151)
- 7 (23/151)
- 8 (13/151)
- 9 (10/151)
- 10 – Definitely (14/151)

COMMENT: Overall, there's the sentiment that it is important to support local farmers. But there isn't really a wide spread indicating that most of the population surveyed feel that it is extremely important.

5. How important do you think food security is?

- 1—Not at all (4/151)
- 2 (2/151)
- 3 (2/151)
- 4 (7/151)
- 5 (11/151)
- 6 (22/151)
- 7 (29/151)
- 8 (31/151)
- 9 (26/151)
- 10 – Definitely (17/151)

COMMENT: After some explanation of the term “food security”, it became apparent that the residents of Worcester believe that food security is a concern in Worcester.

6. What percentage of Worcester do you think is food insecure?

- 0% (2/151)
- 10% (25/151)
- 20% (33/151)
- 30% (32/151)
- 40% (17/151)
- 50% (17/151)
- 60% (15/151)
- 70% (3/151)
- 80% (4/151)
- 90% (3/151)
- 100% (0/151)

COMMENT: The majority of those interviewed believed Worcester is between 10%-60% food insecure.

7. What do you think is more expensive?

- Farmers' Markets (116/151)
- Grocery Stores (35/151)

COMMENT: According to the survey, most people think that farmers' markets are more expensive than grocery stores. The truth is that they are fairly comparable (especially within Worcester), with farmers' markets actually running some promotions that are better than the offerings of grocery stores.

8. Are you willing to travel farther to buy food?

- Yes (22/151)
- No (129/151)

COMMENT: Most residents refuse to travel farther to buy food than they already do, which means that any implementation we recommend has to bring the service to the customers rather than the other way around.

9. Would you use a food delivery system if it cost slightly more than your normal grocery bills?
- Yes (107/151)
 - No (44/151)
10. Would you sign a petition or legislation supporting the use and/or effectiveness of farmers markets & local farmers?
- Yes (93/151)
 - No (58/151)

COMMENT: Shows an interest in helping to develop policies regarding food security. However, the interest isn't staggering, which is somewhat disconcerting.

Appendix E: Interviews with Customers

Farmers' Markets Customer Interview

1. How long have you been involved/attending farmers' markets/fresh food?
 - a. Five years.
 - b. I have been purchasing my summer and fall produce here for about 7 years.
 - c. I have been a couple of times, but usually my wife is the one who is doing the shopping.
 - d. I have been coming to farmers' markets for as long as they have been in the area. For me, it's more convenient.
 - e. I come to the market on random weekends, but not really on a regular basis. Just when I need something.
 - f. Since I moved here, so about 4 years now.
 - g. Only this past summer, I wasn't aware of them in the area before.
 - h. I grew up on a farm and have been buying farm fresh food forever.
 - i. I'd say about 2 or 3 years now.
 - j. Since I had my kid, so 7 years now.
 - k. Since college, so about 5 years now.
 - l. For years now, couldn't tell you how many, maybe 8-10?
 - m. Only the past 2 years.
 - n. A few months.
 - o. Since last year.

Comment: The overall trend is that people have only really discovered farmers' markets in the last ten years or so.

2. What is your reason for doing so rather than going to a normal grocery store?
 - a. I still go to grocery stores, but like fresh options too.
 - b. Because the food is local and fresh.
 - c. I would say because it's straight off the farm.
 - d. The quality of food is much better and you can trust the farmers.
 - e. It's a fun way to shop when the weather is nice.
 - f. Well, I felt it necessary to eat healthier now that I'm getting older.
 - g. I think it is important to support local farmers.
 - h. I've just always eaten farm fresh food, I guess it is out of habit and upbringing.
 - i. Ever since I saw Food Inc., that movie about the corporations behind food, I started looking for healthier food choices.
 - j. When I had my boy, I re-evaluated what was important to my family, one of the first things I wanted to change was what we ate.
 - k. Near the end of college, I started to eat healthier, and continued after graduation.
 - l. I guess it's out of habit.
 - m. I just found out about them this past spring.

- n. Health reasons.
- o. I hate the staff at local stores, they are awful.

Comment: Most people said they like the farmers' markets better because they know its healthier, and they know where it comes from.

3. Do you feel all of your nutritional/dietary needs are met here at the market?
- a. Yes. The things I buy here are much healthier for you.
 - b. Yes, but obviously there are things I cannot find here.
 - c. They have some good things here but a lot of what I eat I buy at the grocery store.
 - d. Yes, I feel by eating vegetables from here I stay healthy.
 - e. Yes, but my kids don't always like what I get here.
 - f. Oh, definitely.
 - g. Yes, especially with the meat quality.
 - h. Yes.
 - i. Certainly better than grocery stores.
 - j. Just about everything, although I don't like the cheese here.
 - k. Yes.
 - l. No.
 - m. I think it's a good foundation, but not everything.
 - n. Most of it yes.
 - o. I've no idea to be honest.

Comment: Overall, the feeling is that farmers' markets do cover most of the nutritional needs. Although it doesn't look like people think they can cover all of them.

4. Do you feel that prices are better here at the market/fresh food store than a grocery store?
- a. Markets are a little more, but not enough to matter.
 - b. I don't really notice a huge difference.
 - c. You pay more here for fresher food.
 - d. Farmers' markets are slightly more expensive, but the quality makes up for it.
 - e. I don't come here enough for it to be a big deal, but I can imagine tomatoes cost more here.
 - f. I'm sure they are better at grocery stores.
 - g. Definitely more expensive here.
 - h. I'm pretty sure some things are more expensive here, but I'm sure some things are cheaper.
 - i. More expensive here.
 - j. Costs more here but that doesn't matter to me.
 - k. I never really found a difference.
 - l. I'm not sure.

- m. It's negligible.
- n. I don't even pay attention to the prices to be honest, the difference doesn't matter.
- o. I'm not sure.

Comment: People think the prices at farmers' markets are higher for certain items, but most people find it to be a relatively negligible difference.

5. Do you feel that quality is better here at the market/fresh food store than a grocery store?
- a. Yes. It hasn't been processed in some giant plant somewhere.
 - b. Probably. It's local and usually organic.
 - c. Yeah. That's why people shop here over grocery stores.
 - d. Yes. The farmers selling care about the quality and customer. It's the freshest option.
 - e. Absolutely I just can't get here as much as I want.
 - f. The quality is better here.
 - g. As I said, the meat quality here is unbeatable.
 - h. Certainly better here.
 - i. Quality is better here, that's why it's more expensive.
 - j. Pay more here, get better quality.
 - k. I think its nutritionally better, I'm not sure, certainly tastes better though.
 - l. Must be better here.
 - m. I think it's better here.
 - n. I think it's more about the quality of life of the animal.
 - o. I doubt there is any real difference.

Comment: The overall consensus is that everything at the farmers' market is way better than the grocery stores.

6. What is the general scope of items you purchase here (i.e. just veggies, just meat)?
- a. I usually get produce for whatever I plan to cook that night or the next.
 - b. Your normal vegetables and fruits. But always look forward to corn later in the season.
 - c. I heard some stands bring great red meat, but my wife also comes to see if there are crafts. Today I bought some fresh herbs... basil.
 - d. When it's open I primarily shop here. And whatever I needed and couldn't find I'll get at the store.
 - e. Whatever catches my eye. Today honey and maple syrup!
 - f. Mainly greens.
 - g. Pretty much everything, especially meat.
 - h. Depends on what I need.
 - i. I try to get a little bit of everything, there is almost always something new.

- j. Everything but the cheese, I usually go to a grocery store for cheese.
- k. My basic needs mainly eggs and greens.
- l. Veggies.
- m. I get all my eggs here.
- n. I like to get meat here.
- o. Greens.

Comment: Most people just come to the market to see what's available, or they come specifically for vegetables or meat.

7. How do you normally pay? Cash/credit?
- a. Cash.
 - b. Cash.
 - c. Cash.
 - d. Cash. But some markets around here take cards.
 - e. Cash. I didn't know they allowed credit cards.
 - f. Always cash.
 - g. Cash.
 - h. Cash, sometimes farmers accept checks if I buy in bulk.
 - i. Cash.
 - j. Cash.
 - k. Cash.
 - l. Cash.
 - m. Cash.
 - n. Cash.
 - o. Cash.
8. How do you get here? Car? Public Transportation?
- a. I drove myself.
 - b. I usually take the bus to the closest stop.
 - c. Drove.
 - d. Drove my car.
 - e. We came with my sister and her kids.
 - f. I take the bus.
 - g. Car
 - h. I drive.
 - i. Car.
 - j. Car
 - k. Car.
 - l. Car.
 - m. Bus.

- n. Drove here.
- o. Walked.

Comment: The majority of people drove to the farmers' markets, which means that parking is crucial when taking the needs of the customer into consideration.

9. On a scale of 1-10, how food insecure would you say the area is, 10 being the highest?
- a. 7
 - b. 5
 - c. 7
 - d. 7
 - e. 5
 - f. 6
 - g. 6
 - h. I'm not sure what food insecure means. (After brief explanation: 7)
 - i. 5
 - j. 4
 - k. 5
 - l. 4
 - m. 7
 - n. 2
 - o. 4

Comment: Most people feel that Worcester is between 60-70% food insecure.

Grocery Stores Customer Interviews

1. Have you ever considered going to a farmers' market or fresh food store rather than a grocery store?

Shaw's

- a. I have been to a farmers' market, but it easier to get what I need here.
- b. I often shop at farmers' markets, but it's easier stop here on my way home from work during the week.
- c. No. I find everything I need here.
- d. I go to farmers' markets during the summer, but it's more expensive for the same things.
- e. No. I'm not a big organic fan.

Price Chopper

- a. I usually go to markets when I need to small things like vegetables and greens. I come here for big grocery shopping days.
- b. Farmers' Markets got higher prices, I'm on a budget and can't afford to pay more.
- c. I bulk shop so I come here to get everything I need.
- d. I actually don't normally come here, I just need pet food and cleaning supplies.
- e. Nah, I don't see the point, the prices and choices are better here.

Comment: People tend to favor grocery stores because of their convenience factor and their lower prices.

2. Do you see any advantages/disadvantages to one over the other?

Shaw's

- a. Yes. I can see why people like farmers' markets. It's usually fresher.
- b. I like farmers' markets because they support a healthy diet, but it's tough to make it there.
- c. Grocery stores have everything.
- d. Yes. They both have the items I want.
- e. People who shop at farmers' markets like organically grown food.

Price Chopper

- a. I like the freshness of the greens at markets, but sometimes I need a variety of things that aren't at markets.
- b. I can see why people like to buy local food, I just can't afford it.
- c. The biggest disadvantage I see about farmers' markets is the choices, I can't buy everything I need there.
- d. I really like supporting local farmers, I know quite a few.
- e. As I said, I don't see why people go to farmers' markets, the choices are so limited.

Comment: Many people cite convenience as a huge advantage for grocery stores. Some wish they could get to farmers' markets, but can't make the set times.

3. Do you feel all of your nutritional/dietary needs are met here at the store?

Shaw's

- a. Yes.
- b. Yes.
- c. Yes I can get everything I need here.
- d. You can find the same things at both places, plus grocery stores are cheaper and have more choices.
- e. Yes.

Price Chopper

- a. More or less.
- b. I certainly hope so.
- c. Yes.
- d. Here? No. At the markets, yes.
- e. Definitely.

Comment: Most people think grocery stores meet nutritional requirements, but some think the markets meet them better.

4. Do you feel that prices are better here at the grocery store than at markets/fresh food stores?

Shaw's

- a. You can find better deals here.
- b. Food is cheaper here, but sometimes farmers will also give you a discount.
- c. Yes.
- d. Grocery stores are cheaper.
- e. I bet the same things are about the same price.

Price Chopper

- a. Prices are better here.
- b. Way more expensive at markets.
- c. I doubt there is much difference.
- d. The difference in price is negligible to me.
- e. I'd bet that prices are much better here.

Comment: Most people think that prices are better at grocery stores.

5. Do you feel that quality is better here at the grocery store than at a market/fresh food?

Shaw's

- a. It depends on your taste. Sometimes organic tastes bad.
- b. For similar things, farmers' markets are probably healthier.
- c. You can get the same things no what where you are.
- d. Yes and no. I like to buy meat at the grocery store.
- e. I'm not sure if organic is definitely healthier, but if it is then farmers' markets.

Price Chopper

- a. I doubt there is much difference.
- b. I'd think it's the same.
- c. Probably better here.
- d. Farmers' markets have better quality food in my opinion.
- e. I bet its better quality here, bigger companies are more regulated.

Comment: Most people think that quality is fairly similar in regards to grocery stores vs. farmers' markets.

6. How do you get here? Do you travel by car? Public transportation?

Shaw's

- a. My car.
- b. In my car.
- c. I take the bus, or borrow my mom's boyfriend's car.
- d. I drove myself.
- e. I drove.

Price Chopper

- a. Drove.
- b. Car.
- c. Car.
- d. Drove.
- e. Car.

Comment: Just about everyone drives their own, or someone else's car to the store.

7. b) On a scale of 1-10, how food insecure would you say the area is, 10 being the highest?

Shaw's

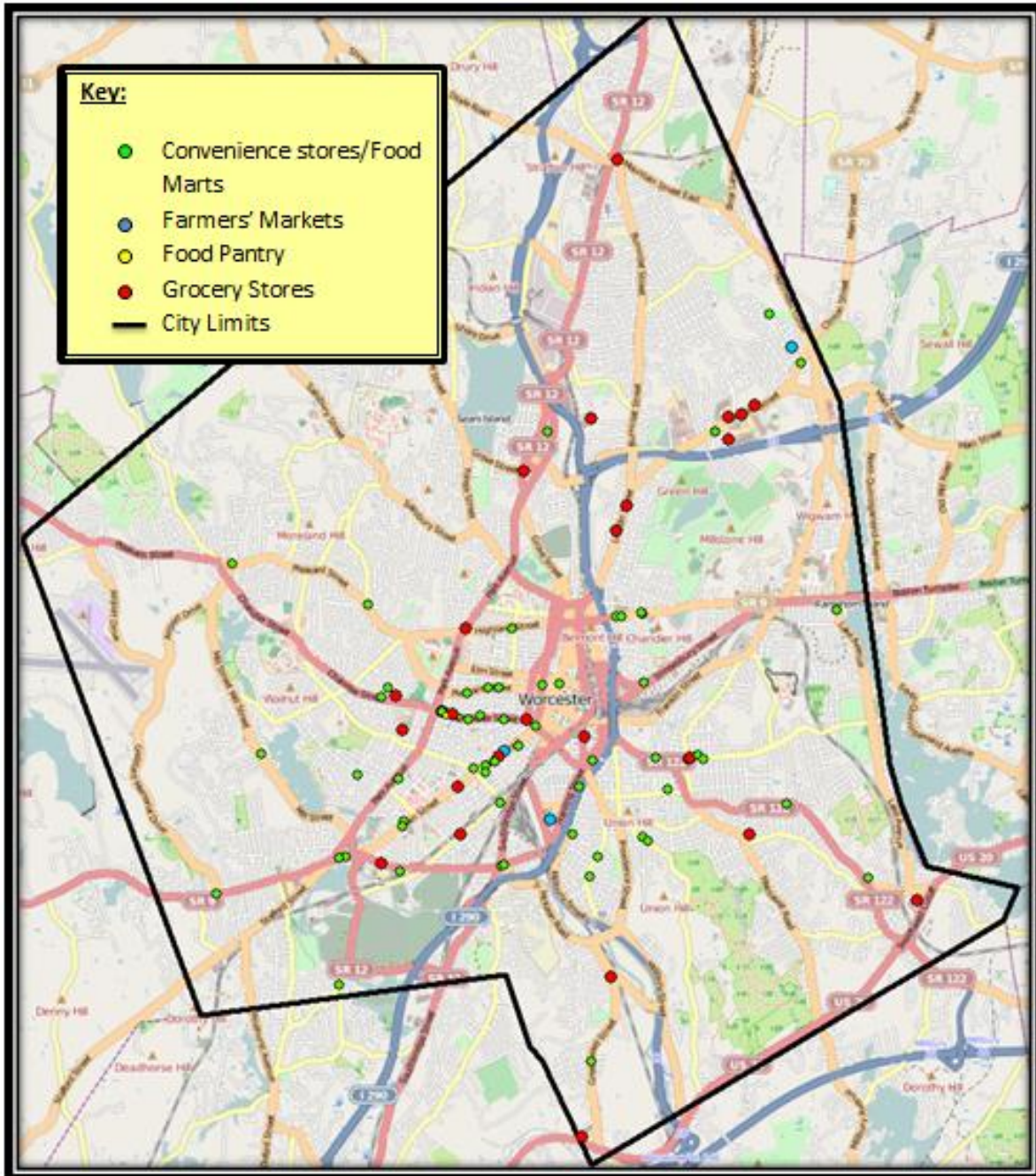
- a. 6
- b. 7
- c. What do you mean? 3.
- d. 5
- e. 5

Price Chopper

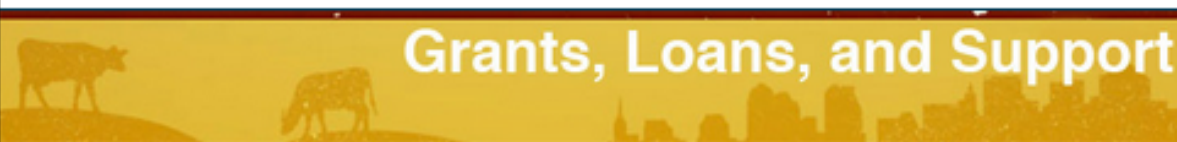
- a. 5
- b. 6
- c. 4
- d. 7
- e. **After explanation: 5**

Comment: Most people who shopped in grocery stores thought Worcester was roughly 50% food insecure.

Appendix F: GIS Map of Worcester



Appendix G: FMPP Details



Grants, Loans, and Support

Farmers Market Promotion Program (FMPP)

Type: Grants

Max award: \$100,000

Big idea: To help communities support local food systems through direct marketing. Direct marketing includes farmers markets, roadside stands, community-supported agriculture, agri-tourism and other direct producer-to-consumer marketing opportunities. Project awards increase access to local foods by low-income consumers, expand opportunities for farmers and growers to market their products directly to the consumer, and raise customer awareness of local farm products through promotion and outreach.

Who can apply: Agricultural cooperatives, economic development corporations, local governments, non-profit organizations, producer associations and producer networks, public benefit corporations, regional farmers market authorities, and Tribal governments.

Possibilities: FMPP grants are available to:

- Bring local farm products into federal nutrition programs with electronic benefits transfer (EBT) technology at direct-market outlets.
- Raise customer awareness of local foods through promotion and outreach.
- Educate farmers and growers in marketing, business planning, and similar topics.
- Increase market awareness through advertising and branding efforts.
- Purchase infrastructure, such as refrigerated trucks, or equipment for a commercial kitchen for value-added products

Real example: Penn's Corner Farm Alliance of Pittsburgh, Pennsylvania used a \$45,000 FMPP grant to make infrastructure upgrades to their cooperative market, including new refrigerated storage and trucks. The market, which serves restaurants and a CSA program, has helped their business grow 12-fold in five years, and the Alliance now has over 700 CSA shareholders and 30 farmers and serves three dozen restaurants.

Get more information: For more program information click [here](#).