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# AN INTEGRATED STRATEGY FOR STRENGTHENING WORCESTER'S REGIONAL FOOD SYSTEM: KEY ROLES FOR EDUCATION AND INFORMATION

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AN INTEGRATED STRATEGY FOR STRENGTHENING  
WORCESTER'S REGIONAL FOOD SYSTEM:  
KEY ROLES FOR EDUCATION AND INFORMATION

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A MASTER'S PAPER

Submitted to the faculty of Clark University, Worcester, Massachusetts in partial fulfillment of the requirements of the degree of Master of Science in the Department of International Development, Community and Environment

And accepted under the recommendation of

Dr. Timothy J. Downs, Chief Instructor

## **Abstract**

Food security and access to healthy food are public health issues that continue to persist in the United States and are ones that are strongly influenced by social and environmental factors. In Worcester, Massachusetts there are many organizations that contribute to alleviating the resulting effects, but do not always have the capacity to reach full potential and expand upon current initiatives. Students can provide existing human resources and knowledge that would benefit all parties. This would allow for organizational capacity development, ultimately impacting local residents, and for students to gain deeper connections to the greater Worcester community while learning vital work skills. Research shows that the College of the Holy Cross, Worcester Polytechnic Institute, and Clark University have the greatest infrastructure in place that would foster this integrated strategy. Therefore, this paper proposes a framework for increasing the capacity of Worcester's food programming and initiatives through integrated partnerships with the city's universities, with recommendations for Clark University.

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## **1.0 INTRODUCTION**

Food security and access to healthy food are both local and nationwide issues that require serious attention. Within a household, food security is defined as “access by all people at all times to enough food for an active, healthy life” (Cohen, Andrews, & Kantor, 2002). At minimum, food security must also allow for the ready availability of nutritionally adequate and safe foods as well as the assured ability to acquire acceptable foods in socially acceptable ways (Cohen, Andrews, & Kantor, 2002). This definition expands as the scale of food security grows. When examining a community, food security is considered “the underlying social, economic, and institutional factors within a community that affected the quantity and quality of available food and its affordability or price relative to the sufficiency of financial resources available to acquire it” (Cohen, Andrews, & Kantor, 2002). However, the sustainability of the food system is a major influence in the prospect of household and community food security.

Unlike food security, the sustainability of the food system must consider the relationship between humans and the environment of which our food is produced. For a variety of reasons, the current system is unsustainable, indicated by nationwide food insecurity levels. In 2014, nearly one in seven households was estimated to be food insecure at least one time during the year, with nearly six percent having very low security (White House, 2015). This means, “in nearly seven million households, at least one person in the household missed meals and experienced disruptions in food intake due to insufficient resources for food” (White House, 2015). Even further, 19.5 percent of households with children under the age of 18 were food insecure in 2013, and 20.9 percent



of households were considered food insecure with children under the age of six (Colman-Jenson, Gregory, & Singh, 2014). These statistics drastically change when a single parent headed a household. About 34.4 percent of households with children headed by a single woman were considered food insecure, while 23.1 percent headed by single men were food insecure (Colman-Jenson, Gregory, & Singh, 2014). Several determinants are influential in promoting these statistics.

Race and socioeconomic status play major roles in food insecurity throughout the country. It was reported that 26 percent of households headed by African Americans and 22 percent of households headed by Hispanics were food insecure in 2014 (White House, 2015). Predominantly black and lower income neighborhoods have shown to have lower availabilities of healthy foods as well, resulting from a lack of transportation and overabundance of convenience stores (Franco et al., 2008). Consumers without the means of transportation to shop at supermarkets outside of their neighborhoods will have limited choices and could pay higher prices (Andreyeva et al., 2008). Convenience stores, on the other hand, tend to have higher calorie and more highly processed foods that have detrimental health effects (Andreyeva et al., 2008).

Lacking access to healthy food has major health consequences, both long and short-term. Generally, consuming high levels of energy dense foods, high in fats and sugars, promotes higher levels of obesity or being overweight (Popkin & Gordon-Larsen, 2004). While under-nutrition affects 800 million people worldwide, overconsumption of high-energy foods is associated with the main causes of death in countries like the United States (Horrigan, Lawrence, & Walker, 2002). These main causes of death include cardiovascular

disease, cancer, and diabetes (Horrigan, Lawrence, & Walker, 2002). Overall, in the United States, such health implications have shown major shifts towards minorities of lower socioeconomic and education levels (Popkin & Gordon-Larsen, 2004).

In Worcester, there are many initiatives aimed at combating food security and access to healthy food. The Department of Public Health (DPH) participates in the Healthy Markets program, which strives to provide convenience stores with greater options of fruits and vegetables. The Regional Environmental Council (REC) focuses on urban agriculture and farmer's markets in the city, as well as developing a Worcester regional food hub. The Food and Active Living Policy Council works on public policy initiatives on a state level and partners with the REC to further develop sites for urban agriculture. The Worcester School Lunch program in public schools provides healthy options to students for breakfast, lunch, and snacks. While these initiatives have shown major successes, they also are understaffed.

Though Worcester has several organizations that combat the issue of access to healthy food, there are challenges that do not allow for full potential to be reached. *The purpose of this paper* is to propose an integrated capacity model that strives to connect city organizations, college institutions, and the greater Worcester community in promoting more access to healthy food. The findings discussed respond to the national context of the issues and the situation in Worcester, including recommendations to strengthen the existing capacity.

## **2.0 METHODS**

The proposed research questions were answered through two main methods, including secondary research and in-person interviews with Worcester community leaders. Although inspired by a personal experience, the only primary research present in this paper is from the interviews.

The purpose of the interviews was to gain a better understanding of the responsibilities of the community organizations, the benefits of increasing capacity, and to develop recommendations based on the responses. Sample questions for these interviews are as follows:

- What are your main responsibilities with your organization?
- What programs/initiatives have shown the most success? Was it sustainable?
- What have been the main challenges for your organization in improving access to healthy food in Worcester?
- What else can be done to promote further impacts of current programming and initiatives? Can the universities play a role? What kind of role?
- What are plans for your organization in the future?

## **3.0 FINDINGS AND DISCUSSION BY RESEARCH QUESTION**

### **3.1 What is the National Context?**

#### **3.1.1) Supplemental Nutrition Assistance Program**

The Supplemental Nutrition Assistance Program (SNAP) is the national program to combat hunger for individuals experiencing food insecurity. According to a recent White

House report, “nearly one in two households receiving SNAP benefits have children, and three-quarters of recipient households have a child, an elderly member, or a member with a disability” (White House, 2015). Overall, about 45.8 million Americans receive SNAP benefits each month, including about 20 million children (White House, 2015). While the SNAP program reaps of benefits in health and wellbeing, it falls short in reaching its full potential.

Over half of SNAP households currently report experiencing food insecurity (White House, 2015). This is mainly attributed to current levels of benefits, which have shown to not sustain families through the end of the month (White House, 2015). One recent study found a direct link between the end-of-month drop off in consumption and the amount in benefits that the household receives (White House, 2015). Major consequences have resulted, such as increasing hospitalization rates throughout the month (White House, 2015). In 2014, the rate of hospitalizations of hypoglycemia in California over the SNAP “benefit cycle” was 27 percent greater in the last week compared to the first week of the month (White House, 2015). With no comparable trend in hypoglycemia admissions among high-income households or in conditions unrelated to diet, this study concluded, “exhaustion of food budgets are likely to be an important driver of the increased hospitalizations” (White House, 2015).

SNAP benefits may not sustain families throughout the month because the cost for nutrients generally exceeds the cost for calories as well, especially in communities with limited access to a supermarket. In Washington D.C, there are about 200,000 residents who have to travel three times further to their closest grocery store than their closest convenient

store (Khazan, 2015). Supermarkets offer a wider variety of higher quality goods at lower prices than convenience stores (Andreyeva et al, 2008; Morland, Wing, & Roux, 2002). With less availability to a supermarket, such neighborhoods have been associated with lower quality diets (Franco et al., 2009).

### **3.1.2) Role of the Neighborhood**

Neighborhood characteristics play a role as well, including race and socioeconomics. In Baltimore, predominantly black and lower income neighborhoods were found to have fewer healthy options, such as fruits, vegetables, and whole wheat bread (Franco et al., 2008).

Many of these neighborhoods also have an overabundance of fast food restaurants or processed foods at convenience stores. High access to these types of food is a significant contributor to higher overweight or obesity rates (Morland, Wing, & Roux, 2002). Not to mention, increased health risks of chronic degenerative diseases, cardiovascular disease, cancer, and diabetes are major consequences (Morland, Wing, & Roux, 2002). In children, these health problems pose even greater risks and create the greatest impact for minority and low-income youth populations (Franco et al, 2009; Morland, Wing, & Roux, 2002). A study conducted in Philadelphia found that about 25 percent of the total energy intake in children is due to snacking (Borradaile et al. 2009). The study also found that 4<sup>th</sup>-6<sup>th</sup> graders bought on average about 350 calories at a time when visiting convenience stores close to school (Borradaile et al. 2009). Convenience stores create poor eating habits on children and promote greater health risks in the future.

Supermarkets and grocery stores vary from inner-city neighborhoods to wealthier communities as well. Zip codes that indicated the lowest of incomes in 21 of the country's largest metropolitan areas had only 55 percent of the supermarket square footage when compared to wealthier zip codes (Pothukuchi, 2005). On the other hand, costs of inner-city supermarket operation can be higher than in suburban locations (Pothukuchi, 2005). This indicates that higher buying power of residents and implementation of larger stores are important in understanding why grocery stores are smaller, or not present, in inner-city neighborhoods.

### **3.2 What are the Baltimore, Philadelphia, and Washington D.C. contexts?**

While there are a plethora of determinants for accessing healthy food in low-income or inner-city neighborhoods, many cities have developed innovative programs and initiatives aimed at alleviating the problem. In Baltimore, the Baltimarket has the Virtual Supermarket Program that allows residents to order groceries online and pick them up at community-established locations (Baltimarket, 2016). The Philadelphia Food Trust has a successful Healthy Corner Store Initiative that has expanded the healthy product inventory in over 600 stores in the city since April 2010 (Food Trust 2014). In Washington D.C., the Central Kitchen is capable of transforming 3,000 pounds of leftover, unwanted food into 5,000 healthy meals every day (Central Kitchen 2016). Each of these cities and their food-related programs serve as examples for possible implementation in Worcester.

### 3.2.1) Baltimore

Through a partnership with the Baltimore City Health Department, Baltimarket is a suite of community-based food access and food justice programs, including the Virtual Supermarket Program, the Healthy Stores Program, and the Neighborhood Food Advocates Initiative (Baltimarket, 2016). The Virtual Supermarket Program allows Baltimore residents to order groceries online and pick them up at set locations on a weekly basis with no registration or delivery fees (Baltimarket, 2016). Along with the help of staff and trained volunteers, ordering can be done at designated public housing, low-income senior housing, library sites, or from any computer (Baltimarket, 2016). There are even holiday bonuses that can be spent on healthy foods, and food stamps can be used for purchases as well (Baltimarket, 2016). This service addresses issues of transportation and grocery options, as delivery sites provide greater convenience to residents regarding traveling distance and access to healthier foods.

The Healthy Stores Program and Youth Neighborhood Food Advocates Initiative are also strengthening the community's access to healthy food. Over the last three years, the Healthy Stores Program has worked with eighteen corner stores to stock and sell fruits, vegetables, whole grain foods, low-fat milk and dairy, and healthy snacks and drinks (Baltimarket, 2016). The program works in conjunction with Neighborhood Food Advocates, whose mission is to organize Baltimore City food desert residents to address the problems in the city's food system (Baltimarket, 2016). This is done through educating and organizing residents, developing community food groups, and building a coalition with organizations all to increase delivery and availability of healthy food in the city

(Baltimarket, 2016). Such comprehensive collaboration between city organizations and residents is key in improving community health through healthy eating. The Youth Neighborhood Food Advocates Initiative also serves to empower individuals to create positive change that is both long-term and sustainable.

### **3.2.2) Philadelphia**

Much like Baltimarket, the Food Trust works to increase access to healthy food in Philadelphia through collaboration between neighborhoods, food providers, and policymakers (The Food Trust, 2012). The Food Trust has shown significant success in the last decade as well, particularly pertaining to obesity rates. A recent study by the Philadelphia Department of Public Health found that the obesity rates among Philadelphia school children decreased by five percent between 2006 and 2010 (The Food Trust, 2012). To put this into perspective, this is one of the first studies that show a reversal of the country's obesity trends (The Food Trust, 2012). This would not have occurred if it were not successful implementation of The Food Trust's programs.

Though The Food Trust does work in a variety of settings, the People Eating and Cooking Healthy (PEACH) program, Healthy Corner Store Initiative, and Pennsylvania's Fresh Food Financing Initiative have promoted access to healthy food through community outreach and state funding. PEACH promotes healthy eating and physical activity by educating and introducing youth to healthy food choices, showing parents how to buy and prepare healthy and affordable food, offering cooking demonstrations and nutrition workshops, providing tips on how to stretch a tight food budget, and encouraging exercise and healthy decision-making (The Food Trust, 2012). PEACH programming is offered at



over 400 sites in southeastern Pennsylvania, such as churches, community and wellness centers, libraries, schools, and YMCAs (The Food Trust, 2012). The Food Trust has also measured its success of this program. As of 2015, over 50,000 SNAP recipients were provided with nutrition education and over 1.3 million lessons have been taught to low-income adults, families, and children (The Food Trust, 2015). This has resulted in 98 percent of caregivers saying they will change how they eat and shop for food, and an impressive 90 percent of fourth graders who made food with their family after a four-week series of PEACH (The Food Trust, 2015).

The Healthy Corner Store Initiative also utilizes community outreach and education to expand healthy food options in corner stores throughout Philadelphia. The network of corner stores committed to stocking these food items and educating customers on the healthier choices exceeds 600, and this includes education for store owners on product sourcing and selling as well (The Food Trust, 2014). This has resulted in conversions of about 300 stores, which can include installation of small shelving and refrigeration units to add space for and prominence of healthy foods (The Food Trust, 2014). The measureable impacts are drastic to say the least. On average, stores at the basic levels of participation introduced 37 new healthy products, which is equivalent to a cumulative total of over 23,000 new healthy products throughout Philadelphia (The Food Trust, 2014). Many store owners also believe customer's purchasing behaviors have changed as well, which can be attributed to store owner training and customer education (The Food Trust, 2014). Overall, the major lessons learned from this initiative include working with committed store owners

to provide promotional options, developing incentives for customers, and providing ongoing support to store owners (The Food Trust, 2014).

The Pennsylvania's Fresh Food Financing Initiative (FFFI) takes a more economic approach to providing healthier options to low-income residents in Philadelphia. In 2001, a citywide task force including representatives from the public health, economic development, and grocery retailing sectors to identify the challenges to operating supermarkets in underserved areas and propose policy recommendations to address these challenges (The Food Trust, 2012). This resulted in the establishment of FFFI, an innovative grants and loan program to encourage fresh food retail development in underserved areas (The Food Trust, 2012). Seeded with \$30 million in state funds over three years, FFFI has approved 88 projects for funding, representing 1.67 million square feet of retail space and 5,000 jobs created or retained (The Food Trust, 2012). This has increased the availability of healthy food for 400,000 residents throughout the state (The Food Trust, 2012). Ultimately, The Food Trust in Philadelphia has been exemplary through its unique community outreach and state funding and it serves as a successful model for implementation in other communities in the United States.

### **3.2.3) Washington D.C.**

The Central Kitchen in Washington D.C. has been featured in major news outlets as one of the country's leaders in reducing hunger, and while it shares similar qualities to Baltimarket and The Food Trust, it has its own unique set of programs as well. This blend of initiatives incorporates food recovery, culinary training for unemployed adults, and campus kitchens (D.C. Central Kitchen, 2016).

Every year, massive amounts of food waste end up in landfills and not in the hands of hungry citizens. The United States Department of Agriculture (USDA) estimates that over 30 million tons of food gets wasted each year, much of which is blemished but still edible (D.C. Central Kitchen, 2016). The Central Kitchen has thus partnered with farmers local to the D.C. area to procure misshapen or blemished produce into healthy meals for residents in homeless shelters, rehabilitation clinics, and afterschool programs (D.C. Central Kitchen, 2016). In 2014 alone, Central Kitchen recovered 807,534 pounds of food that was used in 1.7 million meals to at-risk residents in the community (D.C. Central Kitchen, 2016). This could not be done without the help of volunteers and culinary employees.

The Central Kitchen offers a Culinary Job Training Program that has shown immense success that continues to grow. The 14-week program is meant to prepare unemployed, underemployed, previously incarcerated persons, and homeless adults for careers in the foodservice industry (D.C. Central Kitchen, 2016). Students who participate also take part in a self-empowerment course to encourage dialogue about strategies on how to deal with personal challenges (D.C. Central Kitchen, 2016). In 2014, 85 students graduated which was a 19 percent increase from 2012 (D.C. Central Kitchen, 2016). What resulted from this is most significant. There was a 90 percent job placement rate upon graduation and an 86 percent job retention rate after six months of employment, with over \$10.48 per hour average starting wage (D.C. Central Kitchen, 2016). These statistics reinforce that the Culinary Job Training Program does not just help with food donations for

at-risk individuals; it strengthens the community economically and promotes a deeper connection to healthy good and well being.

Campus Kitchens, a facet of the D.C. Central Kitchen, also serve to reduce food waste and insecurity and has been replicated in many locations throughout the country. Through partnership with high schools, colleges, and universities, students recover food from cafeterias and food retailers to prepare and deliver meals to members of their community (D.C. Campus Kitchen, 2016). Using donated kitchen space during off hours, trained volunteers use food donations to prepare nourishing meals, which are then stored based on established food handling regulations (D.C. Campus Kitchen, 2016). Once the meals are prepared, they are delivered to various individuals, families, and organizations, and often time's volunteers stay to have conversations with food recipients (D.C. Campus Kitchen, 2016). This is great for everyone involved in the conversation. Those who receive meals can feel empowered to share their experiences food insecurity, while students and volunteers can gain a better understanding of an issue that they may not know too much about. Connecting students and educational institutions with their surrounding communities can be beneficial for many reasons, and Campus Kitchens serve as a successful model for universities throughout the country.

### **3.3 What is the Worcester Context?**

#### **3.3.1) Demographics**

The city of Worcester, Massachusetts is a melting pot with great amount of diversity in its community members. The 2014 total population estimate is 183,016 people

(U.S. Census Bureau, 2015). Regarding diversity, about 11 percent of the population is Black or African American, six percent Asian, and 21 percent Hispanic or Latino (U.S. Census Bureau, 2015). From 2009 to 2013, the median household income was \$45,932 and 21.4 percent of residents were below the poverty level (U.S. Census Bureau, 2015). Both of these values are worse off compared to the state of Massachusetts, with a median household income of \$66,866 and 11.4 percent of people living below the poverty level (U.S. Census Bureau, 2015). As low-income and being a minority are two determinants for lacking access to healthy food, it is an issue that has required major attention in Worcester.

### **3.3.2) Higher Education**

Worcester is also diverse in its array of colleges and universities. With nine colleges in the city and half a dozen more in neighboring communities, Worcester is home to over 36,000 students of higher education (City of Worcester, MA, 2016). Ranging from liberal arts to engineering, these institutions have a plethora of courses as well as students of many different backgrounds. Students may also take the opportunity to work, volunteer, and intern in the community, with several organizations working with students to increase access to healthy food.

### **3.3.3) Food, Organizations, and Initiatives**

Through governmental and nonprofit agencies to expanded school lunch programs, promoting healthier lifestyle choices by healthy eating is a high priority in Worcester. The Department of Public Health (DPH) participates in the Mass in Motion program, a statewide initiative that funds communities and aims to support resident's healthy lifestyle choices (City of Worcester, MA, 2016). While the Greater Worcester Community Health

Improvement Plan has a focus on healthy eating and active living, the Healthy Markets Program strives to increase availability of fruits and vegetables in corner stores (City of Worcester, MA, 2016). Similar programs across the country have shown high levels of success, as corner store initiatives can increase the supply and demand for healthy food in low-income and high minority neighborhoods (City of Worcester, MA, 2016). This program is also possible through a partnership with the Regional Environmental Council (REC), as they are able to deliver local produce from a variety of local farms. However, the REC has its hands in several admirable projects and initiatives.

A nonprofit organization based in Worcester's Main South neighborhood, the REC aims to create a healthy city through food and environmental justice as well as community empowerment (REC Worcester, 2015). Of all its endeavors, the YouthGROW and farmers market programs directly help promote greater access to fruits and vegetables.

YouthGROW is an urban agriculture-focused youth development and empowerment program that employs 32-40 teenagers year round as they manage two urban organic farms (REC Worcester, 2015). While the teenagers' ideas are highly utilized in YouthGROW's decision-making process, the teenagers also complete a curriculum that enhances leadership and job skills (REC Worcester, 2015). The REC farmers markets, on the other hand, display an assortment of fruits and vegetables grown by local farmers. The REC offers three markets, including a mobile market, that function for six days of the week during the summer and fall (REC Worcester, 2015). Located in various areas of the city, the REC markets accept SNAP, WIC, and Senior Farmers Market coupons as well as have a 50 percent match on SNAP benefits up to 40 dollars (REC Worcester, 2015). In 2014

alone, purchases using these three benefits accounted for 48 percent of purchases at the Main South and Mobile Market sites (REC Worcester, 2015). Thus it is evident that these farmers markets cater to a diverse group of consumers, many of whom may not have the means to purchase healthy food elsewhere. Along with the DPH, the REC partners with the Worcester Food & Active Living Policy Council on urban agriculture-related work in the city, such as zoning changes.

Comprised of a steering committee, working groups, and members, the Worcester Food & Active Living Policy Council (WFALPC) categorizes its priorities into advocacy and legislative groups (WFALPC, 2015). The Council has a range of issues it prioritizes on the local level, from urban agriculture and SNAP participation to city plans that impact transportation and streets (WFALPC, 2015). Pertaining to food, the Council's legislative priorities are as follows: improve and protect the SNAP program, establish a statewide healthy incentives program, and implement and fund the Massachusetts food trust (WFALPC, 2015). The Council has also worked closely with Worcester Polytechnic Institute (WPI), specifically the Center for Sustainable Food Systems, to sponsor student-led research projects that benefit both the Council and the students (WFALPC, 2015). This partnership must absolutely be replicated; it allows college students to apply classroom knowledge into real-world experiences and provides resources for city organizations striving for healthy food security.

The Worcester Public Schools also aim to provide availability of healthy meals to students throughout the school day. Under the Community Eligibility Provision, the Worcester Public Schools can provide in-class breakfast, lunch, and afterschool snacks to

students who all students who wish to take advantage of the opportunity (D. Lombardi, personal communication, November 18, 2015). This significant achievement takes away the negative stigma for students accepting school-provided meals, as eligibility for free or a reduced priced school meal was based off family income for each individual student in the past (D. Lombardi, personal communication, November 18, 2015). While farmers markets and corner store initiatives can promote greater access to healthy food throughout Worcester, schools are another environment where food plays a pivotal role in wellbeing and providing more healthy options for students throughout the day can really go a long way.

### **3.4 What is the Existing Capacity in Worcester?**

#### **3.4.1) Interviews with Community Organizations**

In order to determine the capacity of food organizations and initiatives, interviews were conducted with high-ranking representatives of each respective entity. Each representative discussed successes and shortcomings as well as provided insight for the need of greater collaboration with Worcester colleges and universities.

Zachary Dyer, Deputy Director at the Worcester Division of Public Health, addressed many responsibilities of the Division during his interview, including the necessity to navigate systems to increase access to healthy food (personal communication, November 23, 2015). Z. Dyer elaborated on this and said, “knowing our role and what is not our role” are important, especially in a city that has several food-related organizations with their own expertise (personal communication, November 23, 2015). By understanding



their role, the Division can help leverage the expertise of these organizations and provide additional resources (Z. Dyer, personal communication, November 23, 2015). For example, the Greater Worcester Community Health Assessment, an essential tool for identifying major health priorities and goals for the region, is meant to inform organizations about the resident's healthy food access, particularly because these organizations do not have the means to conduct this research themselves (City of Worcester, MA, 2016; Z. Dyer, personal communication, November 23, 2015). The Division still continues to face challenges, such as providing cultural diversity when teaching healthy eating, but Z. Dyer believes that internship programs with Clark University and the REC's proposed Food Hub provide significant solutions for the future (personal communication, November 23, 2015).

Casey Burns, the Food Justice Program Director for the Regional Environmental Council (REC), spoke in detail regarding the REC's community school gardens, YouthGROW program, and various farmers' markets throughout the city. C. Burns' main concerns stemmed from the notion that Worcester is not as invested in an urban food system as it needs to be (personal communication, October 29, 2015). Affordability and proximity of healthy food options are significant barriers in accessing these resources, but Burns says there is more to it. C. Burns mentions cultural competency of resources, education of communities and the investment it takes in education about nutrition, empowerment through the use of readily available resources, and a lack of trust in programming all play major roles in meeting certain needs of the Worcester community (personal communication, October 29, 2015). From an organizational perspective, C.

Burns says that addressing staffing and investment support would promote deeper changes in programming (personal communication, October 29, 2015). Based on these remarks, it was concluded that the knowledge and resources that college students could provide would absolutely be beneficial for the REC in many capacities.

Liz Castro, Director of the Worcester Food and Active Living Policy Council (WFALPC), discussed that the council's current focuses are on SNAP and healthy food financing public policy initiatives on the state level (L. Castro, personal communication, November 2, 2015). On the local level, the Council has shown a focus on urban agriculture and "working with the city to change zoning regulations so that urban agriculture for commercial purposes is a viable option for land use" (L. Castro, personal communication, November 2, 2015). L. Castro pointed to the grant-funded Hunger Free and Healthy Project as a major milestone for the city that increased programming, including the REC's community school gardens and Main South farmers market, but that several obstacles continue to bear a great burden (personal communication, November 2, 2015). L. Castro mentioned how the rate of food insecurity continues to grow in Worcester and that costs to healthy food put many consumers and farmers in unfavorable situations (personal communication, November 2, 2015). Regarding the Council specifically, general funding and a lack of money for marketing are constant challenges (L. Castro, personal communication, November 2, 2015).

Both Donna Lombardi and Jack Foley were interviewed to discuss children's access to healthy food in the Worcester Public Schools. Foley, a member of the Worcester School Committee, highlighted the Community Eligibility Provision (CEP) that allows all

students to have breakfast, lunch, and a snack after school (J. Foley, personal communication, November 3, 2015). Whereas about 70 percent of students were eligible for free school meals in the past, the expanded CEP removes the stigma of taking advantage of this opportunity, and it is predicted that usage of these meals will increase as a result (J. Foley, personal communication, November 3, 2015). Lombardi, Director of Nutritional Services in the Worcester Public Schools, highlighted several major barriers for the lunch and breakfast programs, specifically the facilities and staff training (D. Lombardi, personal communication, November 18, 2015). D. Lombardi noted that the current revenue stream and local partnerships are helping overcome the equipment and facility limitations (personal communication, November 18, 2015). However, according to D. Lombardi, the National Standards in the National School Lunch and School Breakfast Programs are almost clinical, so conducting proper staff training that adheres to the guidelines is critical (personal communication, November 18, 2015). Despite the complex guidelines, D. Lombardi seeks to diversify the schools' food sources and continue purchasing local foods when in season (personal communication, November 18, 2015).

### **3.5 How can efforts be integrated and capacities strengthened?**

#### **3.5.1) Integrated Capacity Model for University Involvement**

Participation by institutions of higher education in Worcester, and in particular the student bodies, can provide ample resources for food-related organizations. Regarding these initiatives as they pertain to public health and social issues, “the university is uniquely positioned among stakeholder groups because of its relatively unbiased role as a

multi-faceted societal educator and researcher” (Downs & Golovko, 2015). In the last several decades, there has been a noticeable shift in the university to collaborate with government, industry, and civil society for beneficial research and projects (Trencher et al., 2013). As a driver for innovation and partner for support, the colleges and universities of Worcester should maintain their roles as educators and researchers but they can provide a deeper level of commitment to the community as well.

In order to do this, an appropriate capacity model that includes the stakeholders in Worcester must be considered. Professor Timothy Downs at Clark University has successfully developed and implemented a model that can be applied to increasing access to healthy food for residents in the city. In his words, “six interdependent levels of societal capacity are used to assess existing capacity, and plan for capacity building (see Figure 1): 1) Garnering of political and financial seed capital to initiate collaboration and innovation; 2) Strengthening of human resources - education, training, raising awareness; 3) Strengthening of information resource - monitoring, knowledge integration, GIS; 4) Strategic planning and policy making - multi-criteria methods, policies, practices, laws; 5) Provision of basic infrastructure and appropriate technologies; and 6) Enterprise development and investment stimulation - the provision of products and services, stimulation of entrepreneurial activities (especially local) that provide economic sustainability to a given project and substitute seed finance” (Downs, 2007).

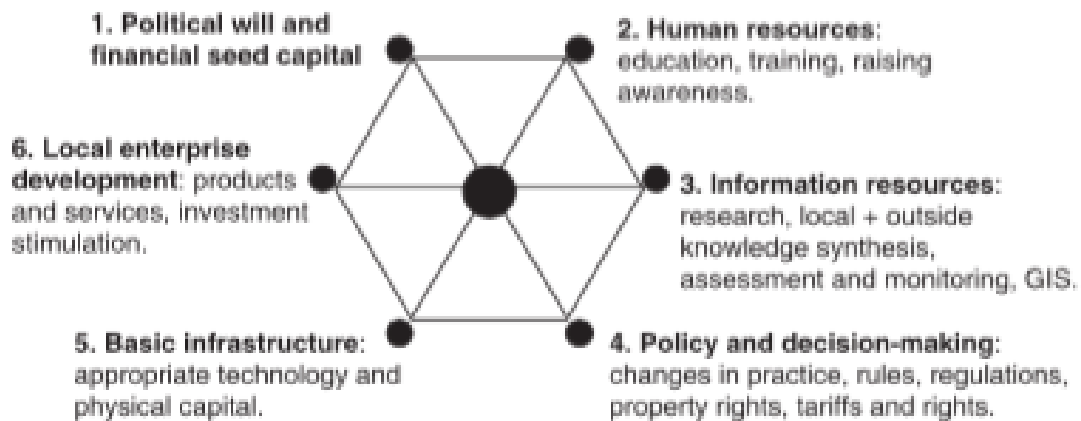


Figure 1: Societal capacity building.

Six interdependent levels of capacity must be used for a comprehensive solution to a potential problem. The levels are indicated by the hexagon, with the solution in the center.

*Source: (Downs, 2007)*

These capacity levels are currently implemented by the various organizations in Worcester. However, there are instances when capacity by an entity falls short in reaching its full potential. For example, an organization may struggle in strengthening its human resources and garnering political and financial seed capital if it is understaffed and underfunded. Thus these institutions should be considered stakeholders in this capacity model as they can provide human resources and knowledge that are beneficial to the students, city organizations, and greater community. This could also strengthen the Worcester consortium and allow students of the different institutions to collaborate and learn from one another.

### **3.5.2) Applicable Courses and Internships**

The colleges and universities in Worcester offer a variety of courses and internships that involve public health and food-related issues. While some schools do not currently

provide much opportunity in this field, many of the schools provide many resources that can be more greatly utilized. Of the consortium institutions, College of the Holy Cross, WPI, and Clark University are the frontrunners in educating students on food-related subjects and should be greater stakeholders in helping provide more access to healthy food in Worcester.

#### 3.5.2.1) **College of the Holy Cross**

The College of the Holy Cross currently provides opportunities for students to apply classroom learning into the community through particular courses. The Donelan Office of Community-Based Learning (CBL) lists specific courses that promote student projects and direct service opportunities to meet community identified needs (Holy Cross, 2015). Through these direct projects and field placements, CBL courses have made considerable impacts on students, particularly in recent years. From 2012 to 2014 CBL course assessments, 90 percent of students said CBL helped them learn more deeply than they otherwise would have and 93 percent said CBL helped them connect their course material to the real world (Holy Cross, 2015). Thus, there is a clear indication that students who enroll in CBL courses reap intellectual benefits and serve different partners in the community.

While inclusive of many organizations, the CBL courses that focus on access to healthy food are with Community Harvest Project and Rachel's Table (Holy Cross, 2015). This list of two courses must continue to expand, which can be done from within the college or through emphasis on enrolling in related courses at consortium schools.

### 3.5.2.2) **Worcester Polytechnic Institute**

A leading source for student engagement with Worcester community organizations and coalitions, the WPI Center for Sustainable Food Systems allows WPI students to organize produce projects that are related to the food system. These Individual Qualifying Projects (IQPs) are completed during students' junior year and are done through partnership with an external group sponsor, such as the Regional Environmental Council and the Worcester Food and Active Living Policy Council (WFALPC, 2013). The IQPs also range in topic, from food security and farmers' market assessments to proposals on how land use and transportation could improve the Council (WFALPC, 2013). The Worcester Food and Active Living Policy Council has praised these projects, saying, "they provide resources in the way of student volunteers and interns, as well as the capability to do research projects to benefit organizations such as ours that have very little capacity to conduct research ourselves" (WFALPC, 2013). The WPI Center for Sustainable Food Systems consistently shows successful institutional collaboration with Worcester organizations through strengthening of human and informational resources and serves as an example for future partnerships.

### 3.5.2.3) **Clark University**

Implemented several years ago, Clark University's Liberal Education and Effective Practice (LEEP) model has made great strides allowing Clark students to put knowledge to use in real-world settings. Clark identifies four outcomes of a liberal education, including knowledge of the natural world and human cultures and societies, intellectual and practical

skills, personal and social responsibility, and ability to integrate knowledge and skills (Clark University, 2016). These outcomes lead to the effective practice portion of the LEEP model, demonstrated by application of knowledge and skills by membership in larger communities of scholarship (Clark University, 2016). This effective practice is culminated through participation in a LEEP project which focuses on working with external organizations, building on existing research programs, or initiating a self-directed research project (Clark University, 2016). Much like IPQ's at WPI, LEEP projects provide human and informational resources to external sponsors and promote experiential learning for students.

Many courses at Clark University also engage students about socially and environmentally focused topics. Global and Local Environmental Justice offers hands on field research to support local solutions to pollution and a module on local and global food connections (Clark University, 2016). Environmental and Social Epidemiology investigates how social and economic factors influence disparities in public health and environmental exposures to diseases (Clark University, 2016). Program Evaluation for Youth and Community Development Initiatives allows students to understand the importance and challenges of conducting high quality program evaluations (Clark University, 2016). Along with grant writing and a large selection of geographic information system (GIS) courses, the subjects and curricula of many Clark courses can be applied to creating a healthier community through food-related endeavors.

Clark University also partners with community-based organizations and programs in the city of Worcester to help increase access to healthy food. In the summer months, Clark



students can work with the DPH as Healthy Markets Interns to grow the number of corner stores in the city that offer fruit and vegetable options. With the REC, Clark students can work at farmer's markets and participate in REC initiatives. Internships and courses that follow the LEEP framework are significant and create a positive impact on students, but Clark University absolutely has the capacity to develop deeper connections with food-related city organizations. The proposed integrated capacity model serves as a guideline for such participation.

#### **4.0 Recommendations**

The proposed integrated capacity model serves as a guideline for institutions of higher education and community-based organizations in Worcester to increase participation and education in greater access to healthy food in the city. The model is composed of six interdependent levels of social capacity (see Figure 1), but the focus of this paper is on: Strengthening of human resources - education, training, raising awareness; and Strengthening of information resource - monitoring, knowledge integration, GIS.

CBL courses at Holy Cross, IQPs at WPI, and LEEP projects at Clark are successful in providing experiential learning opportunities for students and strengthening human and informational resources for community-based organizations in Worcester. Upon consideration of the three initiatives, IQPs are required for graduation at WPI, offer the most incentive for students, and have made significant research contributions for the city (WFALPC, 2013). Thus it is favorable that Holy Cross and Clark adopt this level of requirement.

Incentivizing students to participate in food-related projects that benefit community do not necessarily have to be in the form of IQPs. It could be required for students to complete an internship for course credit prior to graduation, particularly with the DPH, REC, WFALPC, and Worcester Public Schools. These internships must also be offered during the academic year in order to strengthen relationships between the university and food-related organizations and continue to increase the capacity of stakeholders. For example, the Healthy Markets internship between the DPH and Clark lasts for ten weeks between June and August. This internship would make deeper impacts for the community if extended into the academic year and offered as a course credit, as students would foster better relationships with corner store owners in providing more healthy food options.

An extension of this internship could be to work with Neighborhood Food Advocates. Inspired by Baltimarket, these advocates would help organize Worcester residents to address problems with the city's food system (Baltimarket, 2016). This would be achieved through promotion of educational materials and meetings, development of community food groups, and building a coalition with organizations to increase delivery and availability of healthy food in Worcester (Baltimarket, 2016). Partnering student interns with Neighborhood Food Advocates would also serve long-term and sustainable change by empowering community members and enhance their relationships with colleges and a local governmental agency.

The colleges in Worcester could also offer internships in the Worcester Public Schools as nutrition educators and kitchen staff. Under the National School Lunch and School Breakfast Programs, there are specific nutrition standards that must be adhered to

(D. Lombardi, personal communication, November 18, 2015). Donna Lombardi says these nutrition guidelines are almost clinical and that certain limitations are “a function of our physical facilities and our ability to get trained staffing to follow the guidelines” (personal communication, November 18, 2015). Thus, handling, preparing, and cooking fruits and vegetables requires a significant amount of equipment and labor capacity. College students can serve as resources by providing additional labor in the kitchens, upon completing proper training, and increase the capacity of the kitchen staff. When college students are not helping with food preparation and serving, they could teach younger students the benefits of healthy eating, with a focus on cultural relevancy and the particular meals provided each week. If successful, nutrition education taught by college students should develop into a farm-to-school program, where Worcester students would visit farms and farmers markets, have in-class local food tasting, and cooking demonstrations with their parents. This would allow the students to connect with the food they are putting into their bodies, gain a deeper understanding of nutrition, and form behaviors that are crucial for future development.

Regarding community-based learning (CBL) courses, The Donelan Office of Community-Based Learning (CBL) at the College of the Holy Cross offers a model that has opportunity for replication. CBL courses promote student projects and direct service to meet community identified needs, strengthening available human and informational resources (Holy Cross, 2015). Clark University offers a course called Healthy Cities, where student-run teams propose solutions to the issues of opioid abuse and sexual exploitation in Worcester through partnerships with the Worcester Division of Public

Health and Worcester Alliance Against Sexual Exploitation (Clark University, 2016).

Thus, these courses serve as a model that has opportunity for replication for food-related issues.

GIS courses could make maps that indicate locations for healthy food options in the city, and the finished product could be placed on the websites of the Worcester Division of Public Health and Regional Environmental Council. Baltimarket, the Philadelphia Food Trust, and D.C. Central Kitchen all have similar maps on their websites, increasing the transparency and knowledge for residents to find available nutritional items in their neighborhoods. Marketing courses could also partner with Liz Castro and the Worcester Food and Active Living Policy Council and produce projects that would be of significant use to the organization, for example.

It is also imperative that the line of communication between all stakeholders is addressed (see Figure 2). It is recommended that community organizations have initial discussions regarding respective priorities, goals, and capacity. Upon doing so, these organizations should contact the university, or universities, and discuss possible projects for student participation. If the university determines that its infrastructure and resources are capable of the task(s), administration should contact specific faculty whose courses or research are applicable to the proposed projects. Name and contact information for specific organizations should be provided to faculty as well. Faculty can then inform students of the potential projects and the contact information for specific organizations.

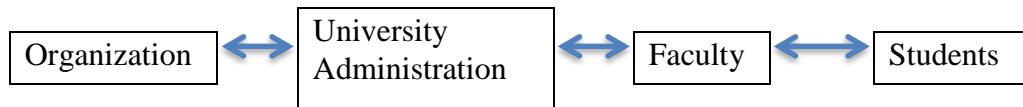


Figure 2: Communication between stakeholders

Initial line of communication between stakeholders begins with organizations and ends with students. Stakeholders must expand upon communication as projects progress. (Ex: Faculty and students communicate with organizations throughout project process)

Funding for these programs can come from local and non-local sources. Locally, potential sources include UMASS Memorial Medical Center, Unum, Worcester Regional Chamber of Commerce, Hanover Insurance Group, and Polar Beverages. Clark University can also take advantage of two major connections. Robert Shaich, President of Panera Bread, is an alumnus to Clark and has opened Panera Bread Cafes in recent years. These cafes are nonprofit, operate on a pay-what-you-can model, and are designed to raise awareness about hunger and food insecurity in the United States. Doug Rauch, former President of Trader Joe's, spoke at Clark about his organization The Daily Table and its mission of selling nutritious and affordable food that would have otherwise gone wasted. The listed organizations and individuals are by no means guaranteed funders, but serve as possible sources.

## **5.0 Conclusions**

Examination of current infrastructure within Worcester's universities indicates that applying community-based internships and courses, in which students provide existing

resources and knowledge to increase the capacity of local organizations, are both applicable and realistic. While there are many programs and initiatives that benefit the community in providing greater access to healthy food, Worcester's universities should serve as major stakeholders in the regional food system. Not only would local organizations gain necessary research and resources, but college students and the greater Worcester community would develop a stronger relationship to one another.

Of the six interdependent levels of societal capacity building, this paper mainly addresses human and information resources. However, application of this proposal has potential to lead to further work and research, including the advancement of local enterprise development. It would be interesting to assess the feasibility of a food cooperative in the Main South neighborhood that sells grocery products that represent the many diverse cultures, as well as the feasibility of a community kitchen space that offers local food tastings, cooking demonstrations, and culinary job training. In order to accomplish such achievements, gauging the ongoing needs and aspirations of the Worcester community must start by deeper integration of the universities as stakeholders and contributors.

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