

SCALING UP AND PRESERVING LOCAL FOOD VALUES: A VALUE CHAIN ANALYSIS  
OF LOCAL FOOD PROCUREMENT IN A METROPOLITAN PUBLIC SCHOOL SYSTEM

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## ABSTRACT

### SCALING UP AND PRESERVING LOCAL FOOD VALUES: A VALUE CHAIN ANALYSIS OF LOCAL FOOD PROCUREMENT IN A METROPOLITAN PUBLIC SCHOOL SYSTEM

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Farm-to-school programs are growing rapidly across the United States; being utilized for both education and providing fresh, healthy school meals. Local food procurement is a key component of farm-to-school programs, but implementing this practice often presents logistical challenges and budgetary constraints, as schools may have to adapt to new kitchen practices and new food items. How local food procurement fits into the existing agrifood supply chain is important because many schools are not able to make significant kitchen or menu modifications to incorporate local food. Using a values-based value chain framework for analysis, this qualitative case study explores local food procurement in a large public school district across the supply chain, including: farmers, distributors, food service company representatives, and school district representatives. These perspectives provide necessary insight to examine supply chain practices, embedded values and participant-perceived values. The results illustrate differences between perception, marketing, and reality of local food procurement within this supply chain. The findings also highlight the practical complexities of such a value chain. A farm-to-school values-based supply chain provides viable market opportunities for mid-scale farmers while at the same time retaining local food attributes. Addressing the scalability of value chain principles and how they fit into farm-to-school can help scholars and practitioners aid in building and improving local food systems.

The following pages are dedicated to my grandmother who is a continual source of inspiration through her strength and sense of humor, and to my grandfather who taught me that nothing tastes sweeter than homegrown produce.

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## CHAPTER 1: INTRODUCTION

Local food has emerged as a leading trend in the United States food economy. The food producer-consumer relationship has become increasingly intimate through improved access to farmers markets, community supported agriculture farms, and locally sourced products in traditional retail outlets. Hinrichs states, “direct agricultural markets promise a human connection at the place where production and consumption of food converge” (2000, p. 295). This human connection differentiates locally produced products from those supplied through more traditional means. The increased presence of local products is a direct response to consumer demand. Institutional markets are noted in literature as potentially new and viable markets for small and mid-scale food producers (Beery and Villianatos, 2004; Johnson and Stevenson, 1998; Tropp and Olowolayemo, 2000; Villianatos et al., 2004), but to reach those markets people supplying local food must scale up operations. While demand for local food is unambiguous, the definition of “local” is highly variable; and methods for scaling up access and supply so that local food can move into larger institutional markets are contested. In the food activist realm there are those who oppose scaling up and even utilizing corporations to reach a broader audience. There is concern that scaling up could pose risks to values and attributes associated with the local food movement. However, others believe that reaching a broader market is important and it will require accessibility of local food on a larger scale. As the experiences with organic and fair-trade products illustrate, this expansion often necessitates working through traditional food supply chains (Jaffee and Howard, 2010). This presents challenges as small and mid-scale food producers are often more accustomed to working through direct markets. Also, as local producers do access these larger markets it can be difficult to

preserve the identity and attributes of local food as it moves through a longer supply chain (Conner et al., 2008a).

A strategic solution to these challenges is suggested in a concept known as a values-based supply chain (VBSC), commonly referred to as a value chain (Bloom and Hinrichs, 2010; Stevenson and Pirog, 2008). VBSC, an idea developed in agrifood literature, is a supply chain business model intended to assist mid-scale producers in reaching institutional markets through a manner that is mutually beneficial for producers, intermediaries, and consumers (ibid). This research seeks to discover the challenges and viability of using a VBSC to scale up local food supply chains to meet the needs of large institutional purchasers, specifically in school meal programs. K-12 schools have been developing local food procurement programs with a dual purpose of providing wholesome meals as well as educating schoolchildren about healthy food choices. However, many school districts around the country are too large to work directly with farmers, creating a setting in which local food procurement must either be incorporated into an existing infrastructure or a parallel infrastructure must be created.

School meal programs present an exciting opportunity for scaling up local food programs using VBSCs. School meals have the ability to not only impact the health of the nation's schoolchildren but also the financial and social health of U.S. farms. This study assesses a local food procurement program at a large metropolitan school district through the use of existing distributional infrastructure. Furthermore, it aims to determine the perceived values in the local food supply chain as well as transmission of those values through the chain's actors. The goal of this research is to determine the extent to which the institution's local food supply chain maintains VBSC qualities – and the applicability of VBSC as an option for scaling local food movements to meet institutional demands.

The remainder of chapter one will introduce this research project and relevant academic literature. A review of the literature provides a backdrop for this research, outlining concepts and issues germane to this research topic, after which the research questions and research site will be described. The following two chapters present the methods and research results and discussion, respectively. Chapter four will conclude with implications of these results and suggested directions for future research.

### ***School Food: History and Current Budgets***

Federal funding for school meal programs was developed in 1946 with the National School Lunch Program (NSLP). The NSLP was created in response to reports of malnutrition that “sapped the nation’s civic strength and threatened domestic as well as military security” (Levine, 2008). Its aim was to support the health of the nation’s children while also boosting consumption of domestic agricultural products (National School Lunch Act, 1946). School meal programs were expanded in 1966 with the introduction of the School Breakfast Program (SBP). The SBP began with a pilot project under the Child Nutrition Act, and in 1975 it became a core offering in school cafeterias (Kennedy and Davis, 1998).

The NSLP operates in over 101,000 public and private schools and residential child care institutions. In 2009, there was an average daily participation of 31.2 million students. Total expenditures were \$10 billion, a 7.1% increase from 2008. In addition, an average of 11 million students participated daily in the SBP, with total expenditures of \$2.6 billion, an increase of 8.6% from the previous year (Oliveira, 2010). These numbers illustrate the immense size of school meal programs and their potential purchasing power.

For children who participate in school meal programs, “as much as 47% of daily energy intake comes from foods obtained at school” (Story, 2009, p. S8). Consequently, any changes to

these programs represent an opportunity to impact the health and wellbeing of children in schools nationwide. Unfortunately school food services face many challenges, not the least of which are tremendous budgetary constraints. As illustrated in Table 1-1, schools have less than three dollars to spend per meal (USDA Food & Nutrition Service, 2010).

**Table 1-1: School Meal Reimbursements (Contiguous States)**

<i>Effective July 1, 2010-June 30, 2011</i>			
<b>National school lunch program</b>	<b>Less than 60%</b>	<b>60% or more</b>	<b>Maximum rate</b>
Paid	\$0.26	\$0.28	\$0.43
Reduced Price	\$2.32	\$2.34	\$2.49
Free	\$2.72	\$2.74	\$2.89

Approximately one dollar of the maximum reimbursement rate is spent on food and roughly \$.20 to \$.30 of that dollar is used for fruits and vegetables (Conner et al., 2010; George et al., 2010). Moreover, approximately twenty percent of food service budgets are spent on commodity foods obtained at below market prices from the school food commodity program (Sims, 1998). These budgetary factors add complexity to school meal programs and their ability to purchase locally grown food. School meal programs are in a perpetual ‘trilemma’. They must balance meal nutrition, student participation, and costs associated with the program. Any changes – like the addition of locally sourced food – that might affect the delicate balance they must maintain, can result in contentious decision making (Ralston et al., 2008).

***Changing school meals: a renewed focus on delivering healthy meals and the school food environment***

While the focus of school meal programs is cafeteria activities, the school food environment (SFE) concept attempts to go beyond that: it includes wellness policies, availability of vending machines and their contents, snack bars, food-based fundraising, and classroom nutrition education (Finkelstein et al., 2008). Children spend a substantial amount of time

between the ages of five and nineteen in school and therefore the SFE has the potential to impact generations of eating habits. SFEs can foster an environment where children not only learn how to read and write, but also how to make lifelong healthy food choices.

The most recent School Nutrition Dietary Assessment Study (SNDA), a study that evaluates the NSLP and the SBP, found that fruits and vegetables were both lacking in children's diets. Only sixty percent of schools offered fresh fruit or raw vegetables on a daily basis and only 18% of the schools had permanent salad bars. Strikingly, vending machines, present in 20% of schools studied, outpaced salad bars. The SNDA report concluded by specifying improvements needed in school meal programs, including the incorporation of more fruits and vegetables. Adding, "schools need to do even more to reduce the availability of high-calorie, low nutrient foods and make school meals more nutritious" (Story, 2009, p. S12). Successful changes in the SFE require coupled classroom and lunchroom education, including the need for kitchen education about proper handling and preparation of fresh fruits and vegetables (ibid).

The current SFE environment is ripe for change - as it seeks to create more healthful, fresh meals it has begun to coordinate with the local food movement. Both efforts share similar goals of increased access to nutritious and fresh fruits, vegetables, dairy, and protein sources.

### ***Local food: an emerging food ethic***

Demand for locally grown, raised, and processed food has exploded in recent years despite the ambiguity of its definition. A survey by Wilkins (1996) determined that political boundaries (counties, states, regions) are often used to determine whether or not a food is considered "local." In a later study, Wilkins (2002) found that the definition of local food focused on distance and physical accessibility, in addition to specialty or uniqueness of products. Similarly, the United States Department of Agriculture (USDA) reported that there is no agreed

upon definition, but that geographic proximity commonly plays a central role. In addition, the concept of local has been associated with certain agricultural production practices, characteristics of the grower and the farm, or even characteristics of the supply chain (Martinez et al., 2010). Recently, the term “regional” has been used more frequently in agrifood literature and among advocates, although its perceived definitional boundaries have yet to be assessed (Kneafsey, 2010). Regional foods are less vague in the sense that they describe products from a specific region, and the distance associated with this terminology is typically larger than what is thought of for local foods (Tregear et al., 2007). Whether local or regional, definitions are multidimensional and sometimes contradicting (Hinrichs, 2003).

The lack of a precise definition of local food has not slowed consumers from seeking out these products. Motivated by ethical, environmental, or economic reasons people have been flocking to direct markets in search of locally grown, raised, and processed products (Conner, 2004). Farmers markets have been established in cities across the U.S., increasing from 1,755 markets in 1994 to 6,296 in 2011 (Martinez et al., 2010; USDA, 2011). Community supported agriculture (CSA) programs were initiated in the 1980s at a handful of farms, and have since grown to approximately 12,000 farms nationwide (ibid.; Wells et al., 1999). According to the 2007 Census of Agriculture, direct to consumer marketing amounted to \$1.2 billion (in real dollar terms), which was a 59% increase from 1997. Despite its phenomenal growth and increased visibility in recent years, these identified direct markets still only represent 0.4% of total U.S. agricultural sales (Timmons and Wang, 2010).

Institutional food purchasing has also demonstrated an expanding demand for local food, most notably in schools. Forty-seven states now have farm-to-school programs, with approximately 2,257 programs nationwide. These programs range in size from one participating

school in the state, to states with hundreds of schools with blossoming farm to school programs (National Farm to School Network, 2011). College and university dining halls are also joining the local food movement as food service managers and contract food service companies have begun working directly with farmers to source local food (Deblieck et al., 2010; Merrigan and Bailey, 2008). Beyond schools, Healthcare Without Harm (HWH), a coalition of hospitals and healthcare facilities is working to integrate local food into healthcare food procurement through their Healthy Food Pledge program. HWH pledge signers make a commitment to “work with local farmers, community-based organizations and food suppliers to increase the availability of locally-sourced food” in their on-site dining facilities and patient food (Healthy Food Pledge, 2011, p. 3). Sourcing local food provides the opportunity for hospitals to not only improve foodservice quality but also promote healthful consumption choices for staff and patients, while providing a viable market for local farmers (Sachs and Feenstra, 2008). Finally, correctional facilities have begun to move into local food sourcing. For example, a recent pilot project at the Washington State Department of Corrections (WDOC) has solicited local farms to supply fruits and vegetables to be used in dining halls. In addition to providing fruits and vegetables, farms were asked to participate in biannual educational sessions for inmates, co-organized by WDOC and the Washington State Department of Agriculture. The goal of this program is to “educate inmates about food production and healthy eating” (Kovacs, 2010, p. 1). Other institutional food purchasers like corporate campuses and the national park system are also sourcing more local foods. Café 150, located on Google’s Silicon Valley campus and one example of Google’s commitment to local purchasing, is named for its local procurement strategy – ingredients come from within 150 miles of the restaurant (Wu, 2006). A recent report by the Institute at the Golden Gate highlighted the opportunity for national parks to leverage their purchasing power to



be leaders in the sustainable food movement. Concessionaries in the national parks are being encouraged to increase local food sourcing as part of a broader movement towards serving healthier and more sustainably produced food (Mills, 2010). Needless to say, the local food movement may have started with a few farmers markets and CSAs but has been growing beyond the reach of direct markets – to institutions across the country. This move is making local food, and its perceived attributes, accessible to a wider population than ever before.

### ***Local food: A values driven movement***

The growth and progress of local foods in both direct and institutional markets can be attributed in part to the socially embedded values in these products (Winter, 2003). The recent trend of values-based labeling illustrates the potential impact they can make in the marketplace. Labels like certified humane, family farmed, and bird friendly are examples of what Barham (2002) describes as a redefinition of *quality* (italics in original article, p. 353). Quality attributes have moved beyond physical characteristics to ethical, cultural, and personal values. These attributes are now “intrinsically linked to the supposed ‘localness’ of production” (Murdoch et al., 2000, p. 115). Local food supply chains, typically shorter than traditional food supply chains, allow consumers to make value-judgments based on direct communication with producers or through values-based labels (Marsden et al., 2000).

The basis for these values is derived from the fact that local food is often equated with or situated within the sustainable agriculture movement, and therefore thought to share its attributes. For example, Feenstra says local food systems are “rooted in particular places, aim to be economically viable for farmers and consumers, use ecologically sound production and distribution practices, and enhance social equity and democracy for all members of the community” (1997, p. 28). Sustainable agriculture is sometimes thought to also be place-based

(Campbell, 2004), further muddling the definitions and differences there might be between sustainable and local. Positioned as an alternative to a globalized, conventional food system, sustainable agriculture is considered to use methods that work within the boundaries of finite natural resources, is place specific, holistic, and dynamic (Horrigan et al., 2002). Compared to the more traditional, large-scale food systems, which sometimes favor short-term economic goals over social and environmental ethics; sustainable agriculture is also thought to incorporate social and economic equity by taking into account the complex network of relationships between those working in the food system, as well as considering ecological sustainability (Allen et al., 1991). A frequently used definition is that “agriculture is sustainable when it is ecologically sound, economically viable, socially just, culturally appropriate, and based on a holistic scientific approach” (Sethuraman and Naidu, 2008, p. v).

Local food is most commonly associated with the first two descriptors of sustainable agriculture: environmentally sound and supports local economies. A study by Allen and Hinrichs (2007) assessed ten local food campaigns across the United States and identified six themes: aesthetics, community, economics, environment, equity and health. Within the campaign objectives economic themes prevailed, accounting for 73% of occurrences. Community, environmental, and health themes occurred much less frequently. Promotional materials related to these campaigns differed slightly in that aesthetic and environmental themes occurred almost as much as economics. Based on this study, the parallels between sustainable agriculture and local food were evident. While these are popular rationales used for the promotion of local food purchasing, it is important to note that just as there is no universal definition for local food, the values attributed to local food are also not without critics and are often used without foundational research literature. Locally produced products do not inherently support efforts of social equity,

environmental stewardship, or fair labor practices (Bellows and Hamm, 2000; Born and Purcell, 2006; Hinrichs and Allen, 2008; Sayfang, 2006).

### *Local Food and Embedded Economic Values*

A study of the U.S. grocery industry found that one of the primary reasons consumers were interested in local food was driven by a concern for, and desire to support their local economy (Guptill and Wilkins, 2002). It is argued that local food purchases keep money circulating through local economies rather than exporting that value to other states or countries (Henneberry et al., 2008). It is thought that local spending can also result in an increase of local jobs, further stirring economic growth (Norberg-Hodge et al., 2002). Conner et al. (2008b) illustrated the potential economic impacts in the state of Michigan if residents consumed the recommended levels of fruits and vegetables using locally grown produce when available. They found that satisfying approximately 15% of this increased need would add approximately \$200 million to farmers' pockets, and nearly 1,800 off and on-farm jobs necessary to produce 37,000 additional acres of produce would be created (ibid).

An additional benefit of direct food marketing noted by scholars is the meaningful difference in the share of the dollar earned by farmers when selling through shorter, more localized supply chains compared with traditional food supply chains (Vogt and Kaiser, 2008). These shorter supply chains give farmers the ability to capture a greater percentage of the food dollar than in a longer supply chain (Renting et al., 2003). Farmers are often redefining their relationship with consumers through these shorter supply chains, adding value to products by providing product information of interest to consumers (Guptill and Wilkins, 2002). In addition, it is perceived that local food supply chains enable an avenue for consumers to [vote] against the consolidated agribusiness systems. Hinrichs states, "local food has recently emerged as a banner

under which people attempt to counteract trends of economic concentration, social disempowerment, and environmental degradation in the food and agricultural landscape” (2003, p. 33). Echoing this sentiment, McMichael says food “embodies the links between nature, human survival and health, culture and livelihood...a focus of contention and resistance to a corporate takeover of life itself” (2000, p. 32). Local food systems offer an alternative to the seemingly unsustainable and impersonal globalized food markets (O'Hara and Stagl, 2001).

### *Local Food and Embedded Environmental Values*

The environmental values associated with local food tend to focus on the notion of food miles and sustainable production methods. Food miles have become commonplace in agrifood studies and are used to describe the distance between where food is grown and where it is purchased (Pirog and Benjamin, 2003). Local food is believed to reduce fossil fuel use and pollution by virtue of the shorter distance between producers and consumers (Coley et al., 2009; Hand, 2010; Sayfang, 2006). A food miles study in the United Kingdom assessed the carbon emissions of operating a large-scale vegetable box system compared to a local farm shop. Results showed that that the large-scale system did produce more food miles than the local farm shop, but the author also noted that food miles are not the most accurate description of environmental impact, as it is important to also consider the carbon emissions per unit of product in the supply chain (Coley et al., 2009). Other literature notes that food miles cannot always be used as a determinant of environmental sustainability. For example, in dry, southwestern states it might be possible to purchase locally grown food that has traveled few ‘food miles’ but the amount of water needed to grow the food counteracts any benefits received by reduced fuel usage (Born and Purcell, 2006).

In addition to shorter food miles, some advocates associate local food with agricultural production methods that use less chemical intensive or are less detrimental to soil; focusing less on maximizing yield and more on sustainability (Thompson et al., 2008). Building on this, Renting states that closing the gap between consumers and food production, through shorter supply chains, encourages a “reembedding of farming towards more sustainable modes of production” (2003, p. 398). However, while having fewer acres or numbers of livestock might enable more environmentally responsible production practices, it is not an inherent quality to smaller scale or local operations (Hinrichs, 2003) and is not necessarily an inherent quality of ‘local.’ For example, local food in California could equate to consuming food from large-scale, conventional agricultural operations - geographically local but may or may not be environmentally unsustainable (Born and Purcell, 2006).

***Alternative agrifood networks: delivering products outside the traditional supply chain***

Alternative food network (AFN), sometimes referred to as alternative agrifood network, is the term used to describe the network of actors engaged in the process of getting attribute-embedded food from producers to consumers (Izumi et al., 2009; Murdoch et al., 2000; Renting et al., 2003). Unlike a traditional supply chain, AFNs source food products that are differentiated, by certain attributes or value-added features, from conventional products and have the ability to provide these products with their perceived attributes intact (Goodman and Goodman, 2007). Examples include organic, fair trade, and local food. Working outside conventional modes, AFNs are typically shorter supply chains that facilitate greater transparency and communication with the final consumer, thereby enabling embedded values to be more accurately conveyed to the end user (Marsden et al., 2000).

In their discussion of food chain clusters, Hendrickson and Heffernan (2002) provide the following rationale for smaller, alternative food systems providing viable and sustainable market opportunities for farmers. They argue that although the globalized food system has been able to efficiently mass-produce and deliver a food supply that is accessible worldwide (Conner, 2004; Morgan and Morley, 2002), it is typically unable to accommodate emerging food trends (Hendrickson and Heffernan, 2002). The system is largely inflexible due to scale, and not able to easily access and integrate products with value-based attributes through existing infrastructure. Moreover, consumers are increasingly looking for alternative means of attaining transparency and trust, as confidence in a globalized food system weakens (O'Hara and Stagl, 2001). Furthermore, there is a desire for ethical traceability, which “adapts the idea of food traceability to record and communicate the ethical aspects of a food’s production history” (Coff, 2010, p. 32). Transparency at every stage, from production to consumption, is not a typical characteristic of traditional supply chains, so advertising and labels are the only means of establishing any relationship or instilling confidence in consumers. Lastly, as traditional supply chains profit through economic efficiencies, environmental and social issues arise. As these issues become more apparent through, for example, food safety scares and labor strikes, AFNs, with their comparatively shorter supply chains, and arguably more socially and environmentally sustainable practices, provide consumers with knowledge about production practices. This knowledge can give consumers confidence that their food was not produced through exploitative means.

In addition to fostering direct linkages and information sharing, these burgeoning networks are perceived to produce economic benefits to farming communities (Marsden et al., 2000). “Local food supply chains suggest that there may be fertile middle ground, where local

producers and businesses can convey valuable information to consumers and achieve a scale of production sufficient to enter larger markets” (Hand, 2010).

Institutional markets are one example of this ‘fertile middle ground.’ In 2009, Americans spent approximately \$574 million dollars on food consumed away from home, which represented 48% of the total food expenditures in the United States. Besides restaurants of various types, this includes schools, colleges, and hospital cafeterias (USDA, 2010). These markets are not only monetarily significant, but also have a substantial impact on the general health of the population. However, commonly expressed challenges of local food procurement for institutional food buyers include: the cost of the product, labor for preparation, food safety concerns, multiple vendors, payment, and obtaining a sufficient supply to meet their needs (Gregoire and Arendt, 2005). AFNs are only recently beginning to make their way into institutional markets as most successful examples of AFNs currently have been implemented on a comparatively small scale. However, organic and fair trade provide two examples of AFNs that have been scaled up to larger markets (Jaffee and Howard, 2010). A common criticism of organic and fair trade products is that while distribution methods have been scaled up – and even added certification processes – some of the original embedded values have been weakened (ibid). Renard (2005) describes how scaling up has affected fair trade, noting that what was once a producer-centric movement has had a regulatory reorganization. This has led to producers actually losing their power, as a focus on increasing sales volume creates distance between the fair trade label and one of its original purposes. Local food distribution faces a similar challenge as it expands in scale and diversifies in markets. It will need to find a supply chain framework that embeds the movement’s values and/or potentially lose some of its founding values. A values-based supply

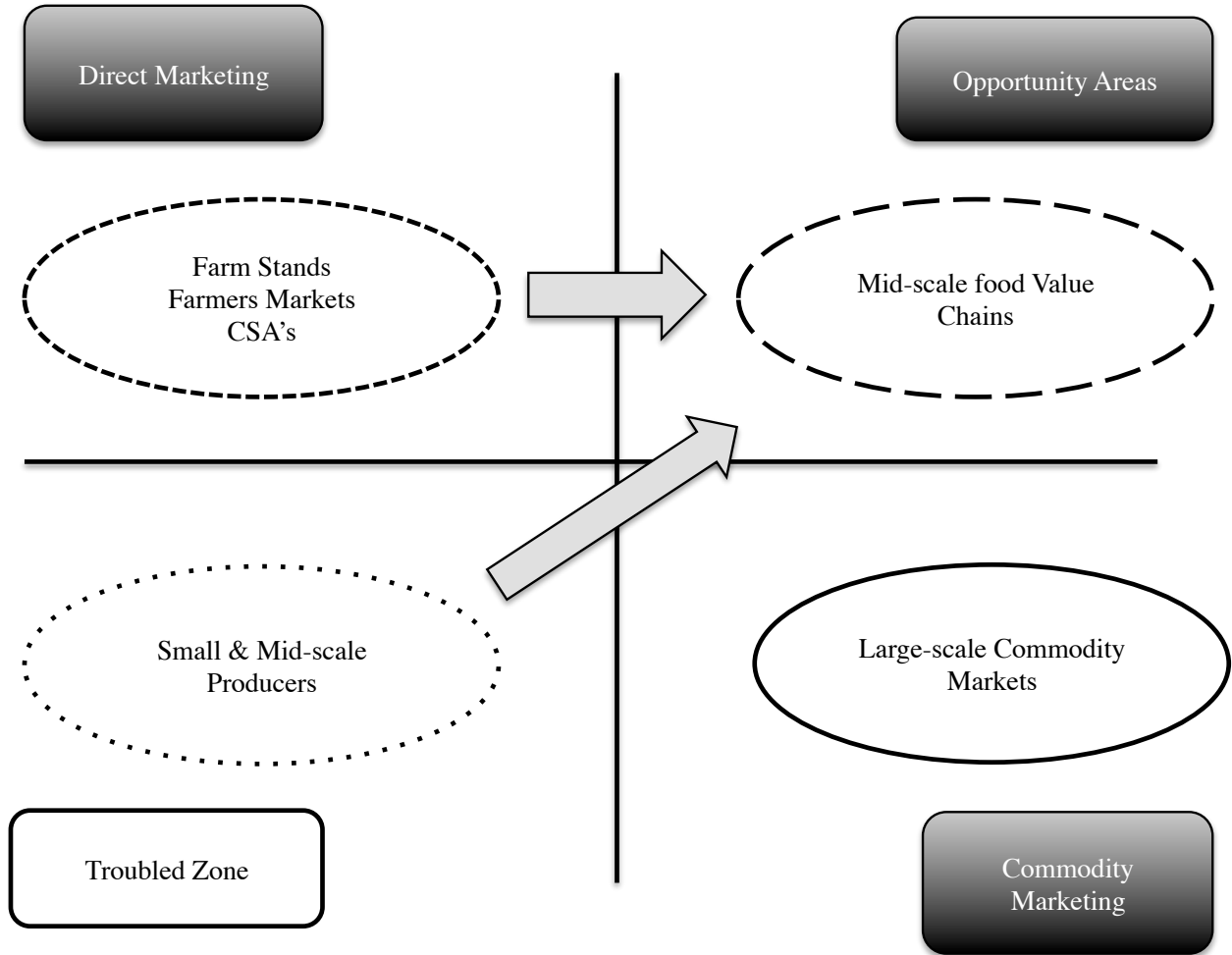
chain (VBSC) offers a framework that has the potential to bring local food to institutional markets and concurrently retain the values connected with it.

***Values based supply chain: a method of scaling values-based food chains***

Stevenson and Pirog (2008) have suggested the concept of a values-based supply chain as one way to respond to the decline of mid-scale farms in the US. This decline is due in part to the current polarized agricultural economy. At one end of the spectrum there are small and mid-scale farms and food enterprises while at the other end there are large, consolidated agribusinesses. Mid-scale farms are particularly vulnerable because they are often too large to utilize direct markets, but too small to compete against large agricultural firms on the global food market (Guptill and Wilkins, 2002; Stevenson and Pirog, 2008). Therein lies the market opportunity for mid-scale farmers (see Figure 1-1). However, according to Stevenson and Pirog (2008), these mid-scale farmers are currently lacking a functional supply chain to help these farmers reach institutional markets.



**Figure 1-1: This graphic illustrates the marketing opportunity for mid-scale agribusinesses. Adapted from (Stevenson, 2010, p. 2)**



The “disappearing middle” (ibid.) makes up the largest share of working farms in the U.S. (USDA, 2007), but that is shifting as it becomes more difficult to compete in an increasingly globalized food system. The impact of the loss of these farms would be felt beyond rural regions as the U.S. stands to lose wildlife habitat, accessible open spaces, cropland and pastureland that help reduce flooding, as well as the opportunity to purchase foods with quality and value-based attributes (Stevenson and Pirog, 2008).

VBSCs, sometimes referred to as value chains, may offer an avenue through which to help the ‘disappearing middle.’ Based on supply chain management strategies that focus on highly collaborative business partnerships, agrifood value chains are long-term networks of partnering food enterprises working together to maximize value for all partners and end customers of a particular product or service. These value chains differentiate themselves from traditional supply chains through producer-supplier relationships built on high levels of inter-organizational trust and communication (ibid). They capitalize on their supply chain partner’s complementary skills, and can quickly adapt to changes in consumer demand. In contrast, Kumar (1996) argues that vertically integrated operations are not flexible enough to accommodate quick marketplace changes, in addition to the relationships embedded in more traditional supply chains being too adversarial to make this happen.

A value chain framework aligns well with mid-scale farms because these farms are uniquely situated—they are in a place that allows them to be flexible enough to adopt new food trends and production practices while being able to produce the volumes necessary to meet the needs of institutional markets (Kirschenmann, 2004). Value chains are based on strategic alliances between supply chain partners depend on information sharing, or “information visibility” (Handfield and Nichols, 2002), which enables optimization of supply chain efficiencies. In addition, high levels of information sharing allow value chains to identify problems and respond quicker than competitors (Dyer, 2000). Governance structure is also important in value chains. Kumar (1996, p. 127) notes that most value chains have unbalanced power, however the important aspect is that the less powerful partners in the chain perceive the decisions made by the more powerful partner to be fair or just. Value chains can be most successful when there is not only a shared vision but also some form of shared governance and

decision-making. The underlying principle of value chains is “co-existence and co-prosperity” (Dyer, 2000).

Examples of value chains being put into practice in agrifood systems are fairly limited. One study explored four models for mid-scale food value chains, looking at two producer owned cooperatives, one grain LLC, and a non-profit organization that works with fruit and vegetable producers. The businesses shared similar characteristics, including a commitment to strategic supply chain business partnerships (Stevenson, 2009). Table 1-2 lists the additional features shared by these food supply chains.

**Table 1-2: Study by Stevenson (2009) determined some of the shared characteristics of agrifood value chains**

<i>Characteristics of Values-based food supply chains</i>
<p>Environmentally regenerative farming and ranching systems</p> <p>Differentiated, higher-quality, higher-value food products</p> <p>Values-based, market oriented business partnerships</p> <p>Economic sustainability through supply control coupled with fair, stable, and transparent pricing mechanisms</p> <p>Commitment to diversified farm and ranch structures, rural communities and future farmers and ranchers</p>

Logistical coordination was a key element to the success of these supply chains.

“Successful value chains require increasingly sophisticated logistical systems as they grow larger and more complex”(ibid, p. 4). Transportation, distribution, and even accounting involved clear and effective communication between partners throughout the supply chains. Sustainable pricing models were based on supply management and stable pricing as well as cost of production pricing. Most products were sold as “identity maintained, differentiated and higher value” (ibid, p. 5), while using commodity markets only as back up for selling excess product. Establishing an

organizational framework was a constantly evolving process as organization leadership changes, technology increases, and companies grew.

Bloom and Hinrichs (2010) assessed food distribution networks that were transitioning to more regionalized food sourcing, highlighting the difficulties of implementing principles of a VBVC. They focused on four key elements, (1) differentiating value-added products, (2) committing to the welfare of all participants, (3) creating strategic partnerships, and (4) the role of trust and shared governance. The study determined that based on a value chain model, food networks that used existing infrastructure faced challenges in coordinating supply and demand, developing partnerships, and establishing fair pricing (ibid). This research underscores the need for continued evaluation of the agrifood value chain model being put into practice.

### ***Farm-to-Institution: making the case for value chains***

Farm-to-institution programs provide the ideal setting in which to implement a VBSC. It is a noteworthy market because it is a model that has the potential to impact current societal priorities in the U.S. Public health concerns about diet related diseases, the unsustainable reliance on non-renewable fuel sources, as well as the desire to rebuild the mid-scale farm economy are issues that could be impacted by farm-to-institution programs (Vogt and Kaiser, 2008). Farm-to-school is one example of farm-to-institution that, in addition to addressing the previously mentioned concerns, offers new methods to teach children about agricultural production and making healthy food choices. Coupled with an educational component, farm-to-school can even change the reputation of school food – meals that were once known for items like mushy green beans and canned peaches become meals with fresh and crisp steamed green beans, and whole, fuzzy peaches (Villianatos et al., 2004; Vogt and Kaiser, 2008). Working with local producers, some schools have even been able to get fresher food than would have been available through

their traditional food supply chain (Tropp and Olowolayemo, 2000). What's more, farm-to-school programs provide the opportunity to give low-income students access to fresh fruits and vegetables they might not otherwise have because local stores lack those products (Hendrickson et al., 2006).

The benefits of farm-to-school extend to the farmers, as these programs can be a potentially significant source of income, and in effect support the broader national cause of farm preservation (Villianatos et al., 2004). Farm-to-school programs hold the potential to strengthen regional food networks as they create marketing opportunities for local farmers. Building strong relationships and supply chain partnerships that can adapt to the changing needs as these programs grow will be the key to successful farm-to-school programs (Markley et al., 2010).

Addressing the scalability of farm-to-school programs is very important, as there are a number of logistical and organizational issues that arise as the volume of local food demanded increases. It is also important to focus on how local food attributes are retained on a larger scale. A VBSC provides an opportunity for farm-to-school to be a viable market for mid-scale farmers while simultaneously preserving the values in local food. The questions of scalability and long-term viability are incredibly relevant as the local food movement continues to grow beyond direct markets.

## **RESEARCH QUESTIONS**

This case study began with a set of research questions aimed at exploring the supply chain characteristics and challenges, with a particular focus on the farmer's motivations, relationships and acquired benefits from working with other actors in the local food sourcing supply chain. Initially there was a specific emphasis on exploring the financial benefit received by farmers participating in this supply chain. The study that developed not only attempts to address the

original research questions, but also brought up additional interesting congruencies and contradictions meriting further investigation. The following questions provided the information needed to inform grounded theory analysis:

- **What farms are currently selling products to this school district?**
  - Farm characteristics
  - How has supplying to local schools helped or hindered their operations?
  - What challenges must be overcome in order to increase local food purchasing at schools?
  
- **What products are being sold to schools?**
  - Which items have demand that outweighs supply?
  - Is this a good outlet for surplus or grade-B products?
  
- **How does the relationship with a local food distributor affect the ability to supply products to local schools?**
  - What are the benefits and challenges of this relationship?
  - Is this keeping local money circulating through the economy?
  
- **Is there potential for growth within the farm-to-school market?**
  - Is there a need for a local food distributor to make this market more accessible to farmers?
  - Do farmers see supplying K-12 schools as a viable and sustainable market that is worth their time and effort?

## **RESEARCH SITE**

This research examined the food supply chain and local food purchasing strategy of one of the largest metropolitan school districts in the United States. Composed of over 500 schools, the school district examined in this study ranks among the top ten school districts in the nation. In addition, over 80% of students in the district were eligible for free or reduced meals. A single contracted food service company managed meal planning and food services for nearly 70% of the schools. This research therefore provides unique insight into the ability of larger school districts and large, privatized food service operators to scale-up local food purchasing. This

particular research site also presents an opportunity to assess the feasibility of implementing an agrifood value chain on a large scale.

## CHAPTER 2: METHODS

### *Study Method*

A qualitative case study approach was utilized for this research; allowing study participants to share experiences in their own words and as a result “allows investigators to retain the holistic and meaningful characteristics of real life events” (Yin, 2009, p. 11). The resulting data tells a story through naturalistic inquiry and can be a useful source for analysis using grounded theory (Patton, 2002). Additionally, qualitative methods can effectively describe social processes, providing insight from participants with varying perspectives about why and how things changed (Rubin and Rubin, 2005) while also providing a chronological flow, enabling the researcher to connect events with their consequences (Miles and Huberman, 1994). The researcher takes on a reflexive role during qualitative research. Complete objectivity is not possible, and therefore awareness of how involvement in a study can inform research and maintain empathetic neutrality is essential (Nightingale and Cromby, 1999; Patton, 2002).

The interview guide approach (Patton, 2002) was used for data collection. A series of semi-structured interviews occurred between April and November 2010. The interviews were structured in accordance with MSUs guidelines for research on human subjects (Michigan State University Institutional Review Board - approved 4/1/10, no. 10-270). Five distinct interview guides were drafted for the interview process: farmer, distributor, food service, school district, and non-profit organization. Topical interviews allow the researcher to “work out a coherent explanation by piecing together what different people have said, while recognizing that each person might have his or her own construction of events” (Rubin and Rubin, 2005, p. 11). This method was appropriate because understanding this supply chain from the perspectives of the various actors was one of the initial research goals that would inform further study. The



interview guides created a framework to ensure that the same general topics are discussed in each interview while allowing for flexibility to explore themes further as they come up in conversation (Patton, 2002). While many of the questions remained consistent across scripts, there were also slight variations based on the actor's supply chain position.

### ***Sampling***

Research participants were selected using the snowball sampling method. This method is a form of purposeful sampling that begins by asking a few well-situated study participants' questions that inform who else should be included in the study (ibid). This approach was appropriate given the case study circumstances because involved individuals were difficult to locate without informational leads provided by others involved in the supply chain. The structure and nature of the supply chain was not public knowledge, thereby necessitating this type of sampling. Two key informants were initially identified and snowball sampling led to a total of sixteen participants interviewed. Five other potential participants were contacted, but they chose not to participate in the study. A list of supply chain participants can be seen below in Table 2-3. Certain data are referred to more generically because after interviews took place it was determined that some of the interviewees were not participating in this specific school district's supply chain. However, data from those interviews did contribute to the literature in a general sense, because the interviewees were discussing local food procurement in other schools. For confidentiality, pseudonyms are used to identify the research participants.

**Table 2-3: Sample Information**

<i>Interviews (n=16)</i>
Food Service Company Representative (2)
Regional Food Distributor
State 1 Farmers (6)
State 1 Grower/Packer/Shipper
State 2 Farmer
State 1 Wholesale Distributor
State 2 Wholesale Distributor
State 2 Broadline Distributor
Non-profit Organization Representative
School District Representative

The individuals interviewed were participating in the school district's local food sourcing supply chain, or facilitating the supply chain's development, as was the case with the non-profit actor. The snowball sampling strategy allowed for the collection of diverse perspectives from a variety of actors at distinct links in the local sourcing supply chain.

Open-ended interview questions pertained to the characterization of the supply chain and perceptions of local food purchasing. Responses to this type of questioning allowed me to understand the respondent's worldview without imposing any preconceived ideas about that view. Detail-oriented questions and elaboration probes were often used during conversation to gather more detail about subject matter that warranted further exploration (Patton, 2002). After the first three farmer interviews I modified the interview guide in order to reorganize questions to accommodate a better conversation flow, as well as to add questions that were not in the original guide but were deemed necessary after the first few interviews.

Qualitative interviews were conducted face-to-face by the primary author and averaged approximately forty minutes each (see appendix for interview guides). Most took place in the participant's home or business office. Follow up face-to-face interviews with four of the farmers

occurred in June 2010 and averaged approximately twenty minutes each. Follow up interviews for other interviewees were conducted via phone or email.

### ***Data Analysis***

Interviews were audio-recorded.<sup>1</sup> The audio-recorded interviews were then transcribed verbatim. Data analysis was performed using Atlas.ti 6.2, a qualitative data analysis software package. The data were first coded by interview question in order to characterize the actors in this supply chain and map the supply chain structure. In the second stage of analysis, data were coded for dominant themes (Rubin and Rubin, 2005), groups of similar concepts were identified; leading to the emergence of a theoretical framework. Bitsch notes that qualitative inquiry has been recognized as an important research approach for the agri-business sector, stating that grounded theory “can add a valuable perspective to agribusiness and agricultural economics research” (2005, p. 77).

The typology that emerged from this process was based on the concept of a values based supply chain. Relevant literature provided the information to characterize a values based supply chain and a contrasting traditional supply chain (Stevenson and Pirog, 2008). These supply chain attributes provided the framework that was used for analysis. Analyst triangulation (Patton, 2002) was applied to provide credibility to the framework and analytical conclusions. A graduate student who was external to the research project evaluated the coding scheme. Upon evaluation completion, comments and critiques were used to provide clarity in the framework. Theoretical sensitivity (Strauss and Corbin, 1990) was continuously applied throughout the analytical process. An overview of the framework employed is shown in Table 2-4.

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<sup>1</sup> One interviewee chose not to be recorded. For this interview, detailed notes were taken and there were follow up questions via email.

**Table 2-4: Typology of traditional supply chain and values based supply chain (Stevenson & Pirog, 2008)**

	<b>TRADITIONAL SUPPLY CHAIN</b>	<b>VALUE BASED SUPPLY CHAIN</b>
<b>DEFINITION</b>	Network of businesses through which products move	Long-term networks of partnering business enterprises working together to maximize shared benefits. Relationships are expressly based in an articulated set of values
<b>RELATIONSHIPS</b>	Relationships are competitive and can even become adversarial	Operate as strategic partnerships that are held together by mutual obligations and opportunities not legal force. Win-win.
<b>TRUST</b>	Levels of inter-organizational mistrust due to the competitive and ephemeral nature of the relationship	Trust is built upon the fairness, stability, and predictability of agreements along strategic partners
<b>INFORMATION SHARING AND TRANSPARENCY</b>	Characterized by forward flow of goods and backward flow of information	Develop effective shared information and shared governance systems.
<b>PURCHASING CRITERIA</b>	Company seeks to buy as cheap and sell as expensively as their partners and markets will bear	Quality, values, relationships
<b>BENEFITS/PROFITS</b>	Benefits of selling final product are not shared across chain, food processors usually receiving higher share	Commitments are made to the welfare of all strategic partners in the chain. Fair profit margins, fair wages, and business agreements of appropriate duration

Using the typology that was developed we can discuss what this framework might look like in practice as well as illuminate some of the challenges that could be faced if this model is to be implemented in a large-scale institutional setting.

In addition to interviews, related written materials (primarily online resources) were gathered and used for analysis. Newspaper and magazine articles relevant to this supply chain

were used for document analysis. School cafeteria menus, request-for-bid applications, and purchasing data were also used to gather supplementary school food procurement information. A parent-focused training session regarding recent changes to school menus sponsored by the non-profit organization was also attended. These secondary data sources offered an unobtrusive method (Given, 2008; Patton, 2002) of data collection that provided background and reflects socially constructed themes about research topics. These additional materials and experiences provided further insight into the character and function of the school district's local food procurement supply chain.

## CHAPTER 3: RESULTS AND DISCUSSION

### INTRODUCTION

This chapter begins with a characterization of the local food supply chain and its actors. Descriptions of the farmers, distributors, food service provider, school district, and a non-profit organization will be provided. The next section will explain the local food attributes perceived by each member of the supply chain. In order to understand the functionality of a value chain in this scenario it is important to be acquainted with the attributes, or values, perceived by those participating in local food procurement. The subsequent sections explore the value chain framework as it applies to this school district's supply chain. Results begin by describing supply chain relationships as they compare to strategic partnerships in a value chain. Next, a discussion of information sharing among supply chain partners illustrates the challenges of facilitating information flow and achieving full transparency. Trust and purchasing decisions are then examined, after which the role of non-profit organizations in this supply chain will be discussed. The chapter concludes with an overview of some of the complexity and contradictions with the perceptions of local food attributes, how they are being marketed in this supply chain, and realistically what is happening.

It is important to note that the school district or food service provider did not have a stated goal of using a values based supply chain for local food procurement. Rather, this framework emerged from the data through grounded theory and was used for analysis. Therefore, the results of this study are not a critique of the success or failure of the value chain framework, but instead an illustration of the difficulties that could arise when implementing value chain principles in an existing traditional supply chain.

## Supply Chain Structure

Prior to beginning this case study, the structure of the school district's food procurement supply chain was unknown and unstudied. Since the original intent of this study was to evaluate the financial impact of the "local food program" on local farmers, there were no assumptions made about the character of the supply chain. Its structure was not clear until completion of all interviews. There are two supply chains utilized by this school district for local food procurement: one for fresh produce and one for frozen produce. Figures 3-2 and 3-3 illustrate the network of actors involved in these supply chains. Both illustrate local food procurement as a program integrated into the existing food supply chain, rather than operating through an alternative food network (Goodman and Goodman, 2007) as happens with some smaller school districts. The size of this school district and the sheer volume of food needed to meet daily meal requirements necessitated procuring local food using the existing food distribution infrastructure.

Figure 3-2: 2009-2010 local/fresh produce supply chain

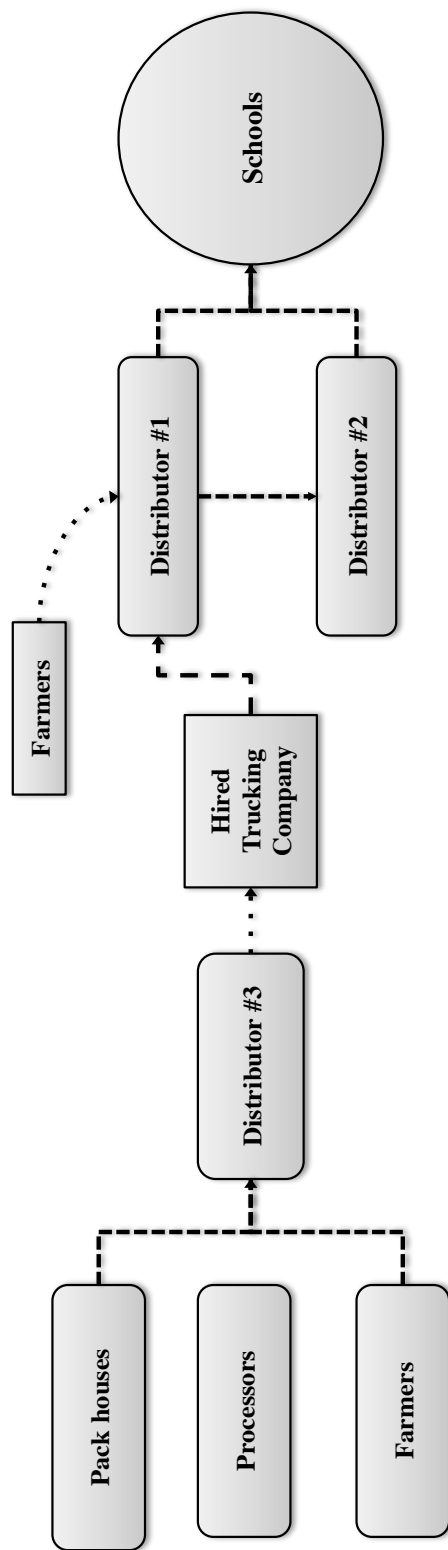
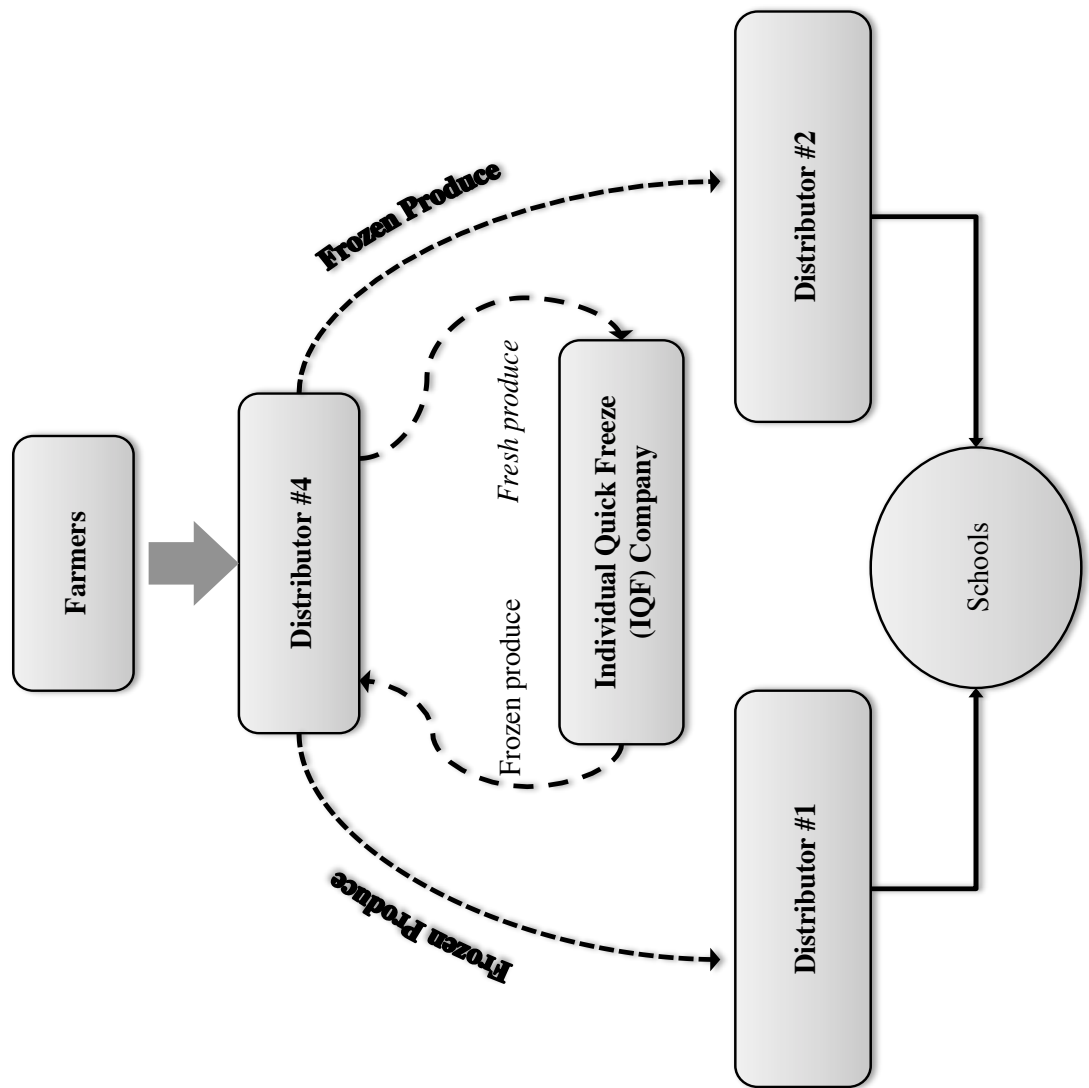




Figure 3-3: 2009-2010 local/frozen produce supply chain



The local food procurement program in this school district was developed through a process that began between 2005 and 2006. It took a few years for circumstances to align and the necessary supply chain actors to be in place for local procurement to occur. At the time of this case study, the food service provider and school district were preparing for another school year that would again include local purchasing as well as stated intentions to expand the program. The following supply chain actors were pivotal to the success of the local food procurement program.

### **Supply Chain Actors**

#### *Farmers and Perspectives on the School Market*

Table 3-5 summarizes the characteristics of the farmers interviewed for this case study. This information provides a snapshot in time of the local food procurement program. At the time of this research it was in the early stages of development so the nature of this supply chain and the level of involvement by these participants may have changed subsequently. The eight farmers interviewed were located in two states, and were all within 380 miles of the school district. Farm acreage ranged from a quarter-acre of hoop house grown vegetables to two thousand acres of mixed fruits and vegetables. All farms were family owned businesses, and only one farm was supplemented by off-farm income. Every farm had a diversified portfolio of farm products and markets. For each operation, school food purchases made up a small percentage of total farm sales.

All the farmers said the price received from the school was comparable to wholesale market price. While noting that retail was often their highest value market, they were satisfied with the school food market and considered it a worthwhile effort. For example, farmers said:

“Economically it’s a viable market I believe. It does take time and effort...I think right I’m being reimbursed for that. And it’s a secure market, which I like.”  
(Farmer # 5)

“I mean retail is in a class by itself. We’re getting retail prices...I would say that the pricing through the distributors is...very comparable when everything - when you consider the varying costs that we have into that [and] I would say it’s very comparable to other wholesale opportunities.” (Farmer # 3)

Amongst the farmer’s interviewed there was an overwhelming sense that the level of compensation and security of the school market made it an attractive market option. This resulted in a largely positive attitude toward the school food market by the local farmers involved in the program. Izumi (2010, p. 6) found that farmers were “hopeful that their current persistence in pursuing school food service markets would result in economic benefits.” Farmers in this case study shared a similar belief.

In fact, some farmers even expressed a willingness to adjust their farming practices to accommodate school food needs. For example, Farmer #4 mentioned that he would consider thinning fruit less in the spring, consequently producing smaller fruit that would be better suited for schools. This willingness to modify farming practices to suit school food needs further illustrates the desirability of the school market. A recent study found that the school market provided an outlet for surplus or second-class agricultural products (Izumi et al., 2010). In this case, the year this study took place happened to be a period of time when there was surplus product – so schools were a good outlet – but one farmer noted that the smaller size apples were not considered second-class. Although they were well suited for the school market, there were alternative markets for them to be sold, even beyond processing. This brings to light the importance of the school’s valuation of local products. There should not be an inherent assumption that the school market will be used to unload excess product. In order to be competitive with other markets the prices they are willing to pay must be at least comparable with what the wholesale market can offer.

Despite the appeal of the school market, four of the farmers underscored the critical importance of a supply chain distributor who could serve as an intermediary to pick up and deliver product to schools. On the whole, the farmers interviewed did not have the time or labor to make school deliveries themselves, especially if the schools were beyond their normal radius of distribution – which for these farmers was at most 150 miles. The farmers did some direct delivery to schools but only if they fit into the distribution routes to other markets. A few of the farmers, from the smaller farms, indicated an interest in maintaining at least some direct contact with schools, primarily to ensure a flow of information about changing school needs. The farmers desired to know details like which produce varieties were working, which were not, and how they could plan future improvement. In some cases, the distributor served as an information conduit – shuttling information between the school district and the farmer - but they were not a consistent conveyor of information up and down the supply chain.

**Table 3-5: Summary of Farm Characteristics**

<b>Farmer</b>	<b>Distance to School District (Range)</b>	<b>Acres Farmed (Range)</b>	<b>GAP Certification</b>	<b>Markets</b>	<b>Product</b>	<b>Number of Employees (# Varies by season)</b>
1	200-300	1000-2000	Yes	Grocery stores, food service, wholesale, distributors	Apples, asparagus, field corn, sweet corn, peaches, squash, sweet and tart cherries, zucchini	Not specified
2	Under 100	1000-2000	Yes	Processing, distributors, wholesale	Bell peppers, cabbage, corn, cucumbers, hot peppers, potatoes, pumpkins, squash, sweet corn	5 to 20
3	300-400	300-400	Some products	Distributors, on-site Farm market, farmers markets, grocery stores, you-pick	Apples, apricots, asparagus, sweet and tart cherries, peaches, rhubarb, strawberries	10 to 25
4	200-300	1000-2000	No	Distributors, farmers markets, grocery stores	Asparagus, blueberries, peaches, cucumbers, strawberries, sweet and tart cherries, Christmas trees	16 to 65

Table 3-5 (cont'd)

Farmer	Distance to School District (Range)	Acres Farmed (Range)	GAP Certification	Markets	Product	Number of Employees  (# Varies by season)
5	200-300	200-300	No	Distributors, farmers markets, processing, wholesale	Apples, bell peppers, cherries, cucumbers, eggplant, green bean, peaches, specialty peppers, sweet corn, tomatoes	12 to 40
6	200-300	100-200	No	Farm stand, distributors, processing	Asparagus, cucumbers, raspberries, strawberries, string beans, sweet corn, field corn, soybeans, garden vegetables	10 to 80
7	300-400	100-200	No	Farmers markets, grocery stores, distributors, restaurants	Cucumbers, lettuce, tomatoes, oats, wheat	3
8	300-400	100-200	No	CSA, distributors, farmers markets, grocery stores	Asparagus, raspberries, strawberries, squash, beef, lamb, pork, rainbow trout	3 to 8

## Challenges of working with schools

Though the overall feeling towards the school market was optimistic, farmers also outlined a number of challenges to working with larger school districts. One was the ability to meet the volume and product size specifications, which differed slightly from larger wholesale markets. For example, schools usually require smaller sized fruits – such as apples and peaches – which farmers do not typically sort and pack. One farmer discussed an issue that arose when he started selling large quantities of apples to schools:

“...Take a humongous school district like them where they maybe take a semi load a week - [I] mean that's great but you have to have that size apple and that volume to be able to produce for those big districts. I started looking at a large city close to here and the volume that they potentially could take - it woulda really made it tight for me to get that size apple. Because you have to have something to do with the other size apples... you have to have stores to be able to purchase the bigger apples or what have you. So if you don't have that outlet of the distributors for the retail stores you're not going to service the schools how they need to be serviced and that's one thing I was working at - where I have certain clients that want the bigger apples [and] other clients that want this size apple. I mean it's putting a puzzle together is what you're doing. You just don't bring a half bushel of apple to a school and say here you go they're all different sizes - that's not what they're looking for, they're looking for what they have been accustomed to in the industry.” (Farmer #5)

Farmer #5 went on to explain that the special packaging needs and volumes required by large school districts are not insurmountable challenges, but one that must be considered when making long term plans with the school market. If the school district does become a large portion of total farm sales it is necessary to consider its effect on the farm's other markets. Farmer #1 also discussed this issue saying, “With them only allowing one certain size we've got to make sure there's enough supply in that specific size, so yeah we definitely do plan for that. It would be nice to be able to use different sizes to go along with that. If we don't have adequate volume in that particular size.”

Perishability coupled with the asynchronous seasonality between the school year and peak harvest season was another challenge mentioned by farmers. Demand from schools is highest in the fall, winter, and spring, which led one of the farmers interviewed to consider modifying or adding to their operations to have product available throughout the school year. The farmer talked about working to get products minimally processed (frozen) so they could be sold to school cafeterias year-round.

The other major challenge raised by farmers was the logistical challenge of working through multiple distributors. In some cases this led to delayed payments with farmers expressing the desire for more timely payments. The farmers were unclear what part of the supply chain was causing the payment delay, which raised concerns. So while the farmers recognized the need for distributors, it was clear they would prefer a more streamlined payment process.

### *Distributors*

Four distributors were interviewed, two of which worked directly with the school district's food service provider. The school district made up a large proportion of total sales for both of these mid-scale, family-owned distribution businesses. Distributer #1 described themselves as "a small Sysco" and had a long history in the produce business, centered on providing quality products through hands-on supplier relationships. Similar to the findings of Bloom and Hinrichs (2010) in the urban context, this distributor had seen growth in demand for locally produced food in recent years. Requests for local produce from the food service provider were following a trend that had been already growing within this company. Distributor #1 added that during many parts of the year he was already working with local growers but it was not necessarily identified as such.



Distributor #2, which also had a long history in the produce industry, originally specialized in providing local produce for small grocery stores in the greater metropolitan region surrounding the school district. Distributor #2's operations eventually grew enough to take on larger accounts, like the food service provider in this study. Just prior to the start of this study, Distributor #2 became the broadline distributor for the food service provider, providing both food and non-food items to the schools.

Distributor #3 was a newly established company specialized in sourcing local and regional food products for retail and institutional markets. Distributor #3 supplied products to K-12 schools, colleges and universities, restaurants, and grocery stores. This small local distributor's stated mission was to provide local farmers with information about the specific needs of institutional buyers like pack sizes and packaging requirements – and serve as a conduit to markets that would otherwise go untapped by local producers. “What we've tried to accomplish here”, said Distributor #3, “is have a large impact on a small farm or even on a large farm if they're able to meet the market standards that food service buyers are accustomed with.” In some ways the network established by Distributor #3 could be perceived as an alternative food network (Izumi et al., 2009; Murdoch et al., 2000; Renting et al., 2003). It was shorter than a typical food supply chain and espoused the importance of transparency and the social value of local purchasing.

Distributor #4, which was also a locally owned family business, carved out the unique position of providing frozen local products to the school district's food service provider. The distributor purchased local produce directly from farmers at harvest time and used individual quick freezing (IQF) to preserve the product at peak quality. The frozen products were then sold to Distributors #1 and #2, who in turn delivered them for use in school meals. Developed through

cooperative efforts and conversations between the food service provider and Distributor #4, the frozen local program was fairly new at the time the interviews were conducted.

### *School District, Food Service Provider and Perspectives on Sourcing Local Food*

A private food service provider, who had been working with the district for over a decade, provided meals to nearly 70% of schools in the district. The idea of using and promoting local produce in school meals had been evolving for approximately three years prior to this study. The school district, which had been evaluating their menus, decided to proactively improve their meal quality, in light of anticipated changes in federal nutrition standards. The new standards were in response to studies like the School Nutrition Dietary Assessment and Institute of Medicine that called for increasing fruits and vegetables in school meals (Stallings et al., 2010; Story, 2009). The school district representative described the menu changes as a “good, better, best” scenario. The schools had been using many canned products, which were considered good, but felt the frozen local offering could be a better, more nutritious option. They were looking to triage with highest level being fresh product (local if possible), followed by frozen (local if possible).

The enhanced interest in integrating more fresh produce into school meals initiated conversations with the food service provider concerning sourcing feasibility. If integration of more fresh produce was to be a viable option, issues of seasonality and distant sourcing from year-round production states like California and Florida had to be addressed. With a growing interest in sourcing locally, the school district inquired about the possibility of using local foods on their menus as a way to enhance their upcoming menu changes.

“So then we said to ourselves well gosh you know the local movement is really big so let’s start to think about how we could go local. And how we could get some of the local produce incorporated into the menu.”

(School district representative)

During the same time period, there were parallel discussions about local food sourcing at the food service provider's parent company. With a growing focus on sustainability, the company was promoting local food purchasing, even more specifically, efforts that would support 'agriculture in the middle.' Their 'agriculture in the middle' program focused on purchasing products grown by mid-scale farmers within a 150-mile radius of the end-use destination (Compass Group, 2011). The parent company's corporate local food purchasing strategy had been communicated to the food service provider around the same time that the school district began conversations about local food sourcing for cafeterias. For example:

“So the [company] is working real closely with various operations, their various business units to support procurement from local farmers.”

“It's really focused in on supporting the farmer in the middle. And then we also use it interchangeably with know your farmer, know your food, although that's a different federal initiative, but we kind of think about it in those terms as putting a face on the food.” (Food service provider representative #2)

Due to the dovetailing interest to improve school meal nutrition and source local produce on the part of the school district and the food service provider - a local food pilot project began in 2007. At first, the local food program was restricted to approximately thirty schools. It was a relatively small project involving only a few products sourced locally, but it played an integral role in the advancement of local food procurement in the district. Some of the first products were zucchini, green beans, and apples. The food service provider worked through the traditional food supply chain to source these products, asking Distributor #1 and Distributor #2 to purchase the aforementioned short list of produce items through local farmers. The pilot was initially successful, however, late summer hailstorms led to price spikes that drove costs up to price points that were much higher than anticipated. Under normal circumstances the prices of some

products would have been too high, but the food service provider had committed to local sourcing for this project so they followed through with their purchases.

The following year the food service provider was introduced to Distributor #3 through a non-profit organization. This distributor's agricultural connections proved to be invaluable in the local procurement program. A contract with Distributor #3 for locally grown apples allowed for the expansion of the local sourcing program to all schools in the district. Launching local food procurement with fruit items like apples is not uncommon in schools because it is a product that is commonly already on their menus and is easily handled at no added cost. Labor or management time is not increased with this new product, as it is merely a product substitution. When the agreement with Distributor #3 occurred (2009 growing season) it turned out to be an opportune time because there was a near record-breaking crop of locally grown apples. Ideal weather conditions had increased yields resulting in excess apples on the market. The apple market glut reduced market prices and stimulated apple growers to sell their products through whatever avenues possible. This situation provided a mutually beneficial opportunity for the farms and the school. On the one end, farmers could sell their products at a higher price than the next best alternative that year. On the other end, the food service provider could obtain local produce at a cost that fit within their tight budget constraints. Unlike the 30-school pilot project, which dealt with weather related challenges resulting in higher than usual prices, the uniqueness of the apple market that year provided the opportunity for the food service provider to obtain the benefits of working with local, climate sensitive markets. Both of these instances were significant learning experiences for the food service provider as they illustrate the difference between using national domestic produce markets that provide year-round accessibility of a variety of products and working with more local or regional farmers.

During the same time period, the food service provider had been working with Distributor #4 to access frozen local produce. Distributor #4 had local IQF products available to supplement the local fresh items that were on the menu. Just prior to this, the school district had received a grant allowing them to purchase new vegetable steamers for some cafeteria kitchens; proving pivotal to the success of the frozen local program. The food service provider mentioned how valuable this was, saying:

“So what we did though was we said no we need to promote this and the cooks need to understand how to cook them. Because even though it’s going to come in to work, the vegetables - the frozen vegetables - are best when they’re steamed...they shouldn’t sit.”

“...That’s not extra work but it’s one of those things that if you’re going to make the investment you need to think about well we’ve got better quality vegetables, how do we make sure that kids recognize that? So you can’t overcook them or you shouldn’t over salt them. You’ve got great quality but if they’re not well cooked or too much salt [kids won’t eat them].”

(Food service provider, representative #2)

Story (2009) noted how important these types of actions are in successfully integrating changes like these into the school food environment. Bringing locally grown products into school cafeterias is not always enough to create behavior change. It often needs to be accompanied by education, which is what this food service provider and school district were attempting to provide. By the end of this school year featuring local food procurement, the district had made approximately \$2 million dollars in fresh and frozen local food purchases.

### Challenges of Sourcing Local Food

Although successful in some regards, there were a great number of challenges facing local food procurement, many of which have been cited in other institutional local food procurement research (Gregoire and Arendt, 2005; Murray, 2005). A critical issue identified by the food service provider was the volume and quality of product necessary to supply this district.

Schools in the district did not have individualized menus so whenever an item was used it needed to be sourced in volumes that would meet the needs of all schools in the district. As such, if local farms could not provide enough of a product it would have to be sourced elsewhere. For example:

“If the local product can’t be acquired - if the quality is not there, people aren’t going to - people meaning the lunchroom manager and the kids and so on - are not going to be very patient because there are alternatives. And especially we all know that - or have learned - food should be perfect. And I’m not saying that it should, but if you’ve always thought that it should look absolutely perfect so if it’s not people won’t want it. So I think having a consistent quality and supply so people have the confidence that it’s going to be there is really, really important.”  
(Food Service Provider, Representative #2)

Achieving the volume and consistency that institutional purchasers desire can be a tremendous challenge for one mid-scale local farm or farming community. It requires strategic planning, aggregation, and distribution. In addition, local sourcing faces seasonality challenges. In some respects, the frozen local program was able to alleviate the seasonal. Unfortunately, those items were only being served once or twice a week due to their elevated cost. The food service provider did mention recent discussions they had around summer feeding programs, but at that time local food had not been integrated into summer meal plans. Distributor #2 also mentioned seasonality challenges, however, they pertained to the issue of retaining employees. Some employees at the company were seasonal as there was a decreased summer demand from the large school account.

Another common challenge brought up by the school district and the food service provider was the USDA commodity program. For example:

“You know I think the one thing that is something we’re still kind of struggling - I don’t want to say struggling with - but kind of is something that we have to contend with is we’re really fortunate of course to get USDA government commodities and we need those commodities because they’re invaluable to our program...and a lot of what we get through the commodity program are

vegetables and fruits - so what's happened now is we're not serving the local every day because we have [commodity] products that...of course [we] want to use and must use in our program too." (School district representative)

The food service provider and the school district recommended cash in lieu of commodities as a solution to this issue. Sourcing local products would be easier, in their opinion, if they could use cash instead of commodity dollars and not have to constantly balance the use of commodity dollars while trying to also fit in local products. She added:

"I mean I hate to always have to talk about money but when it really comes down to it you know the program - the national school lunch program - we could always use more money. There's never enough to go around. And again it goes back to good, better, best - we know we want to serve fresh fruits or vegetables - and it doesn't always have to be fresh - to the students but if I only have so much money you have to start making tough decisions. And it becomes okay if I want to serve - let's say I made a commitment to frozen vegetables, I'm just saying this - and I am losing money in my program and the frozen ones are cheaper that I can buy from our local distributor, not the local grower...that becomes the tough question." (School District Representative)

The commodity purchasing program was obviously not preventing local food procurement in this district, but was without a doubt encouraging traditional procurement policies that slowed the growth of the local program. The difficulties of balancing nutrition, commodity programs, and budgets were obvious, and as mentioned by Ralston et al. (2008) this made the decision making process with regard to any menu changes very challenging.

### *Supporting Non-Profit Organizations*

Two local non-profits were associated with local food procurement in this school district. Non-profit #1 (did not participate in an interview) helped facilitate discussions between the food service provider, Distributor #3, and local farmers. Meanwhile, Non-profit #2 was regionally focused on promoting a healthy school environment, which included engaging in discussions about healthy meals, develop opportunities for physical activity, and providing education around environmental sustainability. Discussions about farm-to-school were a natural fit for this

organization because its programmatic themes impacted many of their interest areas (local food, environment, healthy meals). They began conversations about local purchasing with the food service provider prior to the local food pilot project, however they were not involved in planning the pilot. The preceding discussions between the non-profit and the food service provider may have been a contributing factor to the subsequent decision to increase local food purchasing. However, based on differing timelines offered by supply chain actors it is difficult to be certain. In addition to being involved in early conversations about local food procurement, Non-profit #2 also provided educational support about school food – including any menu changes like local procurement - to parents and students through workshops, cooking events, and other outreach activities.

### **Local Food Definitions and Values**

Interviews with actors along this supply chain yielded varying perspectives on local food definitions and attributes. As in other studies, actors in this supply chain defined ‘local’ through geographical distance (Martinez et al., 2010; Wilkins et al., 1996; Wilkins et al., 2002). However, the distance fluctuated by supply chain actor. Farmers tended to perceive a ‘local’ proximity to be within 20 to 50 miles of their farm. On the other end of the supply chain, the food service provider perceived ‘local’ to be more of a regional term (Tregear et al., 2007). To them, locally produced food could come from farms 150 to 250 miles from the school district. Despite a stated definition of local boundaries, some of the farms that supplied produce to the food service provider were located further than 250 miles from the school district (See Table 3-5).

The impressions of local in this food supply chain were in line with some of the commonly seen concepts and values associated with local food. Notably, attributes of local food



were diverse even amongst actors in the same stage of the supply chain (for details see Table 3-6). The following attributes were presumed by supply chain actors to be correlated with local food, many of which are closely aligned with attributes of local food campaigns in the U.S. (Allen and Hinrichs, 2007). Supply chain actors not included in Table 3-6 did not discuss any of the listed local food attributes during interviews.

**Table 3-6: Local food attributes as perceived by supply chain actors**

	Support the local economy	Better for the environment	Students learn where food comes from	Teach healthy food choices	Fresher, healthy, flavorful	More variety	Other
Food Service Provider #1	Shaded	Shaded					
Food Service Provider #2	Shaded	Shaded	Shaded	Shaded	Shaded		
School District Representative	Shaded		Shaded			Shaded	
Non-Profit Representative		Shaded		Shaded	Shaded		Transform food system
Distributor #1	Shaded	Shaded					Providing opportunities to more businesses
Distributor #2	Shaded			Shaded	Shaded		Sustainable way of strengthening communities
Distributor #3	Shaded		Shaded				
Distributor #4	Shaded	Shaded				Shaded	Maintain open spaces
Farmer #2							Lower costs associated with supplying locally
Farmer #3		Shaded			Shaded		More profitable
Farmer #4			Shaded	Shaded	Shaded		
Farmer #5	Shaded						
Farmer #6				Shaded	Shaded		
Farmer #8				Shaded	Shaded		

One food service provider representative advocated local food purchasing because it supported the local economy, provided kids with the opportunity to try different varieties of fruits and vegetables, and produced environmental benefits derived from traveling less distance.

For example:

“It helps the local economy. I live here, I don’t live in California, I don’t live in Texas, I don’t live in Florida. It is a different story in the winter when there just isn’t any other option at this point.”

“I also don’t want stuff traveling thousands of miles and putting more fluorocarbons in the air to get here, it’s ridiculous when it is available here.”  
(Food service provider, representative #1)

The other individual from the food service provider shared these values but also noted the importance of kids learning where their food comes from and teaching them to make healthy food choices. She said, “I see kids having a much better sense of what is it and where does it come from. Because I think more and more the marketplace is demanding that. And the more this becomes mainstream, more kids will – it’s not a foreign thing.” The school district representative echoed this sentiment. The non-profit representative added that farm-to-school programs provide the opportunity to think about the whole food system, which is producing “a lot of unhealthy, cheap food.” She felt local procurement provided an opportunity to transform the food system. All three of these supply chain actors made comments that were essentially about changing the school food environment (Finkelstein et al., 2008). Local food provided pathways to not only provide healthier food options but also corresponding educational activities that could help children learn to make healthy food choices.

The four distributors also perceived differing local food attributes. Distributor #1 believed local food was a means of supporting local economies and a healthier environment. Meanwhile, Distributor #2 perceived value in the healthy and fresh attributes associated with

local food, noting the potential impact schools could have on children's eating habits through incorporation of these foods into school meals. Distributor #2 felt that in a sense, schools could provide marketing for fresh fruits and vegetables. This was imperative as these products compete against high calorie, high sugar foods that dominate the advertising realm, and are becoming more aggressive in targeting children as their consumers.

“If that child grows up eating General Mills cereal in school, when they go to the grocery store that's where their hand is going. So it's advertising for them...and that's the group that's gonna be buying next. That's the group that's whining at the register or going down the aisle to impress upon their parents what to get. So when you influence them - if you can exert any kind of influence in that school market that's the biggest influence I think.” (Distributor #2)

In addition, Distributor #2 spoke about how purchasing locally was another way to diversify business opportunities by providing an opening for new farmers to get involved. She assumed this type of diversification was one of the goals of the food service provider. This was a value Distributor #2 spoke passionately about because the distribution company shared the same goal. Distributor #3 noted the educational value for students and also spoke about the local economic benefits. Distributor #3 said there were even observable positive changes to the farms that he was working with resulting from access to new markets. For example:

“I mean we've seen kids come back home to the farms to help out mom and dad. We've seen farms lease additional acreages to produce more. We've seen greater diversity in what's being grown. We've seen additional wells getting dug, greenhouses go up, and all of that in a combined effect shows that local food distribution is having an economic role in the process. And so that's what you gotta have. And it certainly brings back a lot of dollars to the growers that wouldn't have got that otherwise.”(Distributor #3)

Distributor #4 felt local foods were more fresh and flavorful, supported the local economy, helped maintain open spaces, as well as utilizing agricultural production methods that were better for the environment as compared to products sourced from farms located further away.

Distributor #4 promoted to customers that local farms used more sustainable farming practices,

but the understanding of ‘sustainable’ appeared to be relatively superficial. This idea corresponds with Renting’s (2003) notion that shorter supply chains encourage the use of more sustainable production techniques. The environmental value for almost all actors in this supply chain was grounded in the notion that buying from local farms creates a smaller carbon footprint because of decreased transportation. This illustrates the misperception that food traveling less food miles is *inherently* better for the environment than food sourced from further distances (Born and Purcell, 2006; Saunders et al., 2006).

The farmers also had varying ideas about embedded local food attributes. For them, local food was about supporting local economies, the environment, kids eating healthier food, or even the simple fact that it made economic sense to supply to local markets. Farmer #2 mentioned that he could not compete in markets that were further away because his fuel costs would be too high, which is why he primarily sold to local markets. For example:

“Well from a marketing perspective it’s just another selling point, locally produced stuff...the freight costs are lower... it’s good for everyone involved. Do we turn down a customer that lives or that you know resides farther away because they’re not local? No. We don’t do that. But again, they’re less likely to come from far away to source our stuff because there’s so much other - the further away you get the more competition there is.” (Farmer #2)

These rationales (listed in Table 3-6) are the dominant attributes the participants associated with local food. This example illustrates that embedded attributes are not homogeneous or agreed upon even within a supply chain. This diversity of opinion over the value of local food procurement is important as local food is increasingly integrated into longer, more traditional supply chains to reach larger markets. While some of these values are shared by supply chain actors this was not necessarily due to intra-organizational communication or the value chain concept of sharing common values and a common vision (Stevenson and Pirog, 2008). In some cases local food attributes in this supply chain are deeply rooted and very

personal, while in others they seemed rather shallow. In direct local food markets, these value-judgments are generally based on communication with producers or values-based labeling (Marsden et al., 2000), but in this supply chain attributes were linked to the food merely by the notion that it was locally sourced. As noted in other studies, there was a uncritical acceptance that local food had inherent differentiating characteristics (Bellows and Hamm, 2000; Born and Purcell, 2006). In addition, one attribute that is commonly missing from local food campaigns and was hardly mentioned in any of the interviews was the notion of social equity (Hinrichs and Allen, 2008). Social equity discussions were limited to fair prices and providing a livelihood for farmers, but nothing beyond that. This perhaps represents an opportunity for institutional purchasers to use their buying power to bring discussions of local food and social equity to the forefront. If their expectations of local food incorporated criteria around social justice issues it could turn conversations into actions that could improve not only farmer's wellbeing, but all actors employed in the food chain.

Regardless of the differing attributes, what was most evident is that there was not an openly shared set of core values throughout the supply chain. For example, one of the distributors said this about the food service provider's motivations for local procurement:

“...Someone marketed the idea to [the food service provider] and [they] took it and ran with it. And it may be for marketing purposes, it may be on a humanitarian level that maybe - I don't know what all of [their] motivation is...”  
(Distributor #2)

Are sharing values in larger supply chain like this logistically possible? Is it necessary?

If the sharing of values and a vision is part of a value chain framework how could this supply chain facilitate that kind of information flow? Answers to these questions are important for maintaining the integrity of local food (Conner et al., 2008a), especially as it is scaled up to meet needs of large supply chains such as this.

## **Applying the Value Chain Framework**

The value chain framework proved to be a more complex analytical method than first anticipated. Value chain concepts have distinctive qualities but when putting them into practice they often intertwine and overlap. For instance, information sharing, transparency, collaboration, and trust all contribute to building relationships. Whether or not a relationship is termed “good” or “bad” depends on the degree to which these concepts are applied. For example, one actor in a supply chain might feel that highly collaborative partnerships create longstanding relationships. However, collaborative actions depend on information sharing. Achieving any level of information sharing requires at least a baseline of established trust between supply chain partners. Therefore, evaluating the collaboration between partners requires examining how all of these concepts play out in a supply chain. This creates difficulty in defining and understanding these ideas as they are applied to a specific supply chain. The following results attempt to articulate some of these complexities.

### *Is this supply chain supporting agriculture of the middle?*

A value chain framework is aimed at supporting mid-scale farming operations (Stevenson and Pirog, 2008). Farms participating in this supply chain were varying sizes, the largest being 2000 acres. ‘Agriculture of the middle’ has been described as farms between 100 and 900 acres (Kirschenmann, 2003). The USDA does not specifically define mid-scale farms by acreage, but instead defines “small family farms” as those with gross sales less than \$250,000 and “large-scale family farms” as those with gross sales of \$250,000 or more (Hoppe and Banker, 2010). When compared with these measures most of the farms that supplied produce to the school district would fall within the ‘agriculture of the middle’ definition; however some would also fall

under the category of large-scale family farms as defined by the USDA. So although one of the food service provider representatives explicitly mentioned local food programs supporting agriculture of the middle it was not clear how that was defined in this supply chain. The food service provider's parent company defined 'agriculture of the middle' as within 150 miles of the consumer. This supply chain was reaching beyond that to a more regional network of farms. When using a value chain framework it might be important to establish a shared vision for what is meant by 'agriculture of the middle' if the end goal is to provide support to this type of farm.

### *Relationships*

Strategic partnerships are inherent in virtually all business relations but become a more collaborative effort in value chains. Collaboration goes beyond "normal commercial relationships" to becoming a "relational exchange" (Matopoulos et al., 2007, p. 178). Value chain partnerships are not defined by legal obligation or adversarial relationships but rather trust in partners' abilities to uphold mutual obligations, as well as shared governance (Stevenson and Pirog, 2008).

Relationships in this school food supply chain appear to be fairly one-sided. The food service provider maintains governance, which would be acceptable in a value chain if all members of the supply chain agreed that governance strategies were fair. The distributors felt their principal role was to supply what the food service provider needed. One stated, "as a distributor what we do is dictated by the client." It was not their role to impart values or agendas, but rather to supply the product asked of them by the food service provider. On a few occasions distributors mentioned the influential purchasing power the food service provider held. The food service provider was a substantial account – one that was incredibly important to the distributors – therefore keeping them satisfied was essential to the distributor's success. The distributor-food



service provider relationship in this supply chain appears contrary to the concept of collaborative and shared decision making in a value chain. Instead of sharing their vision and values in local food procurement, the food service provider maintains the status quo of specifying a certain product – in this case it was local food – expecting that request to be fulfilled.

Relationships between the distributors and farmers also appeared to be one-sided in nature. After the food service provider requested local products the farmers were contacted and told the packing and sorting methods acceptable for the schools. For some of the farmers this required new packaging procedures because the desired products were often smaller than wholesale or retail requirements. For example, apples and peaches needed to be tray packed in a smaller than standard size, which meant investing in new packaging. One farmer commented that the school transaction emerged so quickly that time provided to research least expensive packaging options was minimal, noting that if the relationship continued into the following year they would invest more time in researching those options. Since there was virtually no relationship and communication linkage between the food service provider and the farmers it is unlikely the food service provider was aware of situations like this:

“...Because the requirements for fruit sizes and that [they] are different than some of the other fresh markets want, so we had to order specialized packaging and specialized materials, and that was pretty costly for our first time around. I’ve been working since then to try and get a little less expensive packaging. They don’t return it so that’s kind of a - it’s not an issue but it’s a cost that’s involved.”  
(Farmer #4)

Commitment to the welfare of all participants is also an attribute of value chain relationships. Even though the food service provider and school district espoused a commitment to local purchasing, this did not translate to long-term relationships between farmers and distributors. The relationships and commitments between Distributor #1 and Distributor #2 and the food service provider were long standing, but connections between the local farmers and

those distributors were unpredictable. The length of the relationship was typically price dependent. Once a local product became higher priced than a non-local product the relationship would be temporarily put on hold or terminated completely. For example:

“Now for outrageous stuff all bets are off. It happens as the crops happen so if he comes back and says apples are ten dollars more a case this year - chances are I’m not going to buy them. I’d have to go on the market and typically Washington is always less expensive. They’re also the first into the marketplace typically in the season.” (Food service provider)

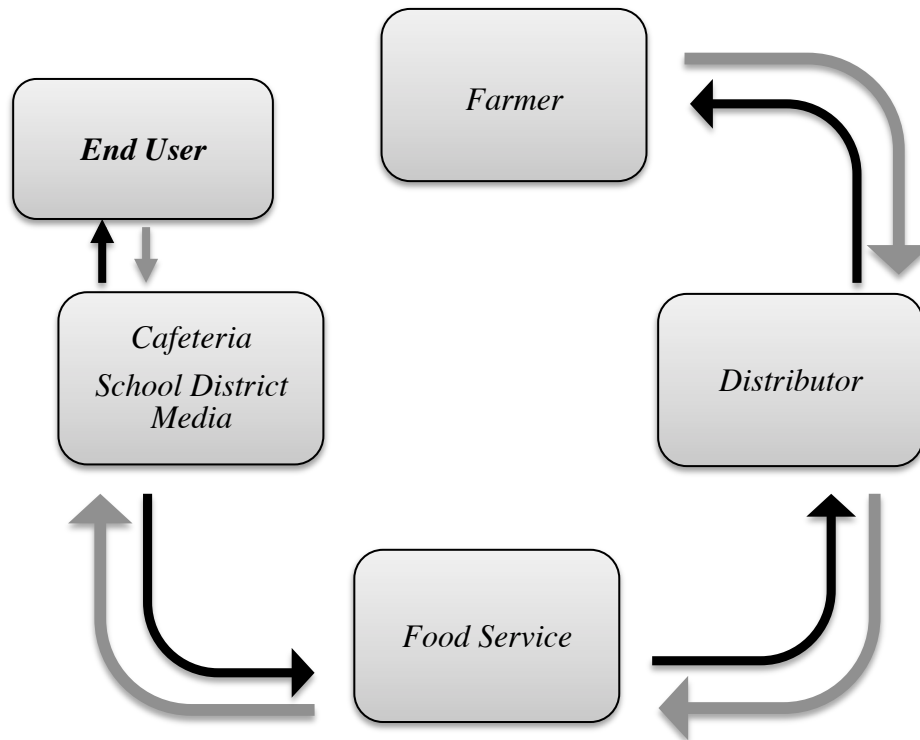
It is understandable that schools must work within strict budgetary constraints and may not have considerable room for purchases that exceed prices they are accustomed to, but the existing ephemerality of the relationship strains supply chain relationships and contradicts the farmer’s beliefs that schools could serve as stable and reliable markets. Since this school district had access to large, domestic produce markets farmers were easily interchangeable. The tenuous nature of this type of environment does not foster resilient relationships; but in fact makes it difficult for farmers to plan for and commit to growing their school market business.

### *Information flow and Transparency*

Shared information systems are one of the foundations of value chains. Sharing information, even sensitive economic data, fosters supply chain transparency that can respond to change quickly and be more productive (Stevenson and Pirog, 2008). This ability to increase responsiveness and productivity makes this information incredibly valuable. Similar to strategic partnering, a certain level of information sharing is necessary for all business transactions but value chains conceptualize this on a deeper level than a traditional supply chain. This school food supply chain had varying levels of information flow between actors. Differing from shorter, alternative food chains, information travels through numerous connections in this supply chain. Each linkage between the supply chain actors provides an opportunity for fluid movement of

information or a breakdown in communication. Figure 3-5 provides an example of information flow in a value chain with linkages similar to the supply chain in this study. As the arrows in this figure indicate, there is a two-way flow of information from producer to consumer. This type of active communication allows for sharing of values as well as the ability to adapt quickly to changes in the supply chain. In the next section, a detailed discussion about the character of information flow in this supply chain is undertaken.

**Figure 3-4: Flow of information in a value chain**



Information sharing between distributors and farmers

Information flow between farmers and distributors varied depending on which distributor the farmers were interacting with. Two of the farmers had a direct relationship with Distributor

#1. There appeared to be a reciprocal flow of information about product availability, school food service product specs, and price negotiation. Communication occurred on a regular basis and even included farm visits by the distributor. This is the type of relationship more often seen in short food supply chains (Renting et al., 2003). Both the distributor and the farmers involved in these transactions seemed very pleased with the results, possibly due in part to open information sharing.

Distributor #2 was not working directly with farmers. They sourced produce from either Distributor #1 or a nearby large international produce terminal. Any specific farm related information or local attributes was provided by product labels, communicated by Distributor #1, or through produce brokers at the terminal market. The terminal market supplied globally and locally sourced fresh fruits and vegetables as well as specialty food items. The distributor was able to request local products from brokers but felt those conversations were trivial because anything at the market was perceived to be local. For example:

“What we just emphasize in that sense is - with our supplier on the produce market - is that we’re looking for local but you know it’s kind of a goofy conversation because [if it is on the market] it’s gonna be local.” (Distributor #2)

Furthermore, Distributor #2 discussed the close relationship shared with these brokers. Distributor #2 spoke about the ability of these suppliers at the international produce terminal to adapt to their changing volume demands as they sometimes purchased local products from alternative vendors (like Distributor #3). Verbal agreements between Distributor #2 and terminal market suppliers provided the assurance that as soon as the local products sourced from the other distributors were no longer available they would return the terminal. This kind of information sharing, communication flow, mutual trust, and commitment reflect value chain concepts existing between Distributor #2 and

suppliers at the terminal market, which operated externally to the local procurement supply chain.

Distributor #3 had a less transparent and open relationship with farmers. Information regarding pricing and school food service product specifications; including size, packaging and food safety, was shared with farmers. However, information primarily moved from distributor to farmer, and not vice versa. When a product was needed Distributor #3 would notify the farmer a day or two in advance and send a contracted transportation company to pick up products and deliver them to Distributor #1. The only place where information was a discussion instead of a direct order was in pricing. There was some price negotiation offered, which the farmers appreciated.

Distributor #4 described their relationships with farmers as proprietary and chose not to discuss that topic during the interview.

#### Information sharing between distributors and the food service provider

The information flow between distributors and the food service provider varied as well. The food service provider communicated sorting and packaging requirements, food safety requirements (GAP and HACCP), and their request for local produce to the distributors. However, there was virtually no information flow about the farmers shared with the food service provider. Distributor #1 and Distributor #3 had direct contact with the farmers and therefore knew which locally sourced products were going to the schools and which farm they came from. Distributor #2 had good communication with Distributor #1, as well as a traceability system in place that allowed them to find the source of any product when necessary. None of this information was being relayed to or requested by the food service provider. The food service

provider attributed this to a lack of time, which caused a reliance on distributors or other intermediaries to keep track of process information, but not necessarily pass it on. In response to a question about how many local farmers the school district gets products from the food service provider said, "...No idea. Maybe five or six, might be ten. Might be twenty. Again, [Non-profit #1] is almost acting like an aggregator for us right now because we don't have the people or the time to go out and actually meet with farmers and do all those things." In addition, the food service provider was also unaware of any issues at the farm level. For example, the difficulty in meeting volume needs or challenges of achieving GAP requirements were not shared with the food service provider. Such information remained at the farm level or at best between the distributors and farmers.

#### Information sharing in cafeterias

The food service provider provided some information at the customer level about local purchasing. Cafeteria level efforts included signage about local farmers supplying produce, as well as icons on monthly menus designating when local products would be served. Sharing information with the students about local food was important, however the only information shared on a regular basis was the fact that products were local. In some cases, information about which farms the food came from was also included. The other attributes of local mentioned by the supply chain actors (Table 3-6) did not seem to be communicated to students – at least not in cafeterias. For example:

"...The other component of this is kind of the educational components for the students. You know we do some marketing around the local products within our schools so that students know when we have the apples from [State 1] these are apples from [State 1] - you know what I mean? To start to bring in and start the education conversation about hey you know some of this food is coming from this particular farmer even. So there's some work around spending a little bit more

time in our marketing campaign around that particular aspect too.”  
(School District Representative)

Although farm related information was shared in the cafeteria both the food service provider and the school district representative noted that it was not clear whether or not the students were interested in the information. The School District Representative said, “I mean I don’t - to be honest with you I don’t know that they’ve made the connection yet that, hey these are local vegetables grown in [nearby state] or [nearby state]...I’m not sure that they’ve totally made that connection yet.” So although they were engaging in changes to the school food environment they were seeing little change in the students. Local food procurement was a new cafeteria campaign so it is possible that over time students would begin to make these connections.

In addition to cafeteria marketing, the local food procurement program received a good deal of publicity in newspaper and website articles. This outreach highlighted local food as a means of transforming school meals and providing healthy food for students. Many of the articles focused primarily on the approximately \$2 million spent on local produce and noted the significance of supporting the local economy. From a publicity perspective, discussions of local food, attributes, and the specifics about local farms supplying the products remained at a superficial level.

In this local food procurement supply chain there was a breakdown of information sharing among numerous partner linkages. Information sharing occurs with transaction costs. Communication translates to monetary value, and in a supply chain operating on low margins and tight budgets it can be challenging to justify more time or labor being used for something like information sharing. It is also critical to determine what level of information should be shared – in this case farmers faced challenges meeting volume and packaging requirements and

more information may have improved the business transaction. These challenges could have become a conversation between supply chain actors instead of direct orders, and perhaps could have resulted in a compromise that made transactions smoother for all involved.

One issue that can arise when high levels of information are being shared in the supply chain is the potential for distributors to lose their competitive advantage. Distributors facilitate and maintain transactions between food service and farmers. They are able to maintain control because they have the relationships with farmers, and maintaining those relationships is the service they provide to food services. Hypothetically, at the highest levels of information sharing in an agrifood value chain the food service provider would not only know which farmers were supplying product but also have awareness of financial data involved in the process – including cost and pricing structures. This puts the distributor at risk because at the point where this type of information is fully disclosed there would be nothing to stop the food service provider from working directly with farmers, thereby eliminating the role of the distributor. It is unlikely that this would happen in large institutional settings such as this, but there could be perceived risk by the distributor, making it difficult to establish strategic partnerships. One potential way to alleviate some roadblocks to information sharing in a value chain could be information-sharing technology.

### *Lack of Transparency*

Although several of the supply chain actors stated the importance of transparency and felt this supply chain attained that goal, to the outsider looking in it appeared that there were a number of places in the flow of information broke down and transparency was lost. As previously mentioned, there were educational materials developed for cafeterias about the farmers who were selling local produce to the schools. However, there was discordance between



these materials and the reality of the supply chain. For instance, one of the farmer profiles featured a farmer who was having difficulty working in this supply chain. Farmer #3 spoke during our interview about challenges with getting product to the school district through Distributor #3. For example:

“So by the time we got all done I think in November sometime I said okay, I looked at what I had - I said okay I’ll get involved in that and then one thing after another just led to much less movement...in December [Distributor #3] finally said oh they’re gonna take some, get some ready. So I had some packed up and then all of a sudden - oh now they say it’s Christmas break and they’re not gonna take ‘em...and that ended up being kind of a problem because I finally - through a lot of arm twisting - moved that half load of apples out after they’d been packed three or four months, which is never ideal. Never heard about any problems with them. And now we’re working again on - supposedly [Distributor #3 has] been telling me for a month again they’re gonna want all the 138 sized apples we have just keep ‘em, save ‘em, pack ‘em. I don’t know what the constraints are, the main thing I keep hearing is they have very limited space - this particular customer, distributor that he’s selling to - so [they’re] tight on space and so whatever’s big on the menu is all they have room for, and it hasn’t been apples since fall. And supposedly they want these apples but can’t take ‘em. So we’ve got the same thing going again. We’ve got apples in there again that have been packed for way to long - should never have apples packed that long.”

It is unclear whether or not the school district or food service provider knew about the issues further up the supply chain. In this case, the farmer remained patient because of the established relationship with Distributor #3, and because he believed in the overall goal espoused by the distributor – to supply local and regional food products to institutions. However, the situation was less than ideal, as it had taken significant time and labor to sort and pack apples which sat in storage due to changes in produce sourcing decisions.

Another clear disruption in the flow of information surfaced in discussions about food safety. The food service provider required farmers to be Good Agricultural Practices (GAP) certified. They said this was a requirement because of the responsibility for feeding a large population of children. For this food service provider, GAP certification provided assurance that

food was safe. For example:

“We’re dealing with such an at risk population I can’t have farmers selling me product that hasn’t been handled correctly. You know [if] they’ve got cows in the same field as they’re growing the squash or something - and we don’t know what can happen when that kind of stuff happens. They need to make sure that it is GAP certified, which prevents that from happening. Or has to be processed or – god forbid I get product that makes kids sick. We’re serving about 240,000 lunches every day, that’s a lot of opportunity to get sick.”  
(Food Service Provider, Representative #1)

This information was understood by all of the distributors; however, there was an instance where Distributor #3 supplied local products to the food service provider that was not GAP certified. In two cases, farmers who were not GAP certified, due to cost and time constraints, sold products to Distributor #3 that went to the school district. It is important to not confuse the issue of transparency with the subject of food safety. This does not demonstrate intent to ship unsafe products to the schools, but rather that somewhere in the supply chain information was not transmitted and/or there was ‘slippage’ in the system. The food service provider was under the impression that they were receiving products from GAP certified farms – when in fact that was not always the case. There seemed to be little information visibility (Handfield and Nichols, 2002). Furthermore, there was a limited understanding of safe handling practices on farms – as GAP was thought to be the only way of providing safe food products.

GAP was a contentious topic during farmer interviews and they all shared thoughts about the certification process. GAP certification was market driven for those who had it – it had been required by one or more of their buyers. One of the farmers had been certified for a few years while others were newly certified, and only for specific crops. For the larger farms GAP certification was merely troublesome paperwork but was tolerated as a means to an end. Without acquiring certification some of their buyers would terminate business relationships. The smaller farms, however, faced significant challenges in getting certified, which included the time it takes

to fill out onerous paperwork as well as the high cost of having an inspector come to the farm. Farmer #4 was not entirely clear why GAP was becoming a requirement for some purchasers, stating that using safe handling practices was an obvious decision for farmers because if products were not safe people would not continue to buy them. For example:

“...every farmer I know eats all the products he raises. He’s gonna be the first one getting sick. It’s bureaucracy, political, whatever, the big mass growers had the problems with the spinach and the peanuts and the lettuce and whatever, and that’s where this all stems from. The sue-happy economy world we’re in, everybody wants to blame somebody. That’s where it all comes from. It creates a lot of political dollar waste I think....policing it. There’s not a program to police it, and so there’s a lot of variables there too.” (Farmer #4)

Miscommunication and/or lack of understanding regarding GAP certification on both the supplier and buyer sides of this supply chain are another example of transparency issues.

Discussions between supply chain actors about barriers to certification or typical safe handling practices on farms could lead to more collaboration about the best way to handle food safety issues that arise.

Another problem with transparency and information sharing between the distributor and the food service provider was the issue of establishing a local purchasing baseline. Distributor #1 shared that they had already been working with some local growers prior to the school district’s local food procurement program. By nature of the produce business, it made economic sense to purchase local items when they were in season. Therefore, some local purchasing had already been occurring. This information was not shared between the distributors and food service provider, and/or not explored. Was the food service provider aware of this prior to asking for local produce? Did this play any role in planning their local sourcing? If the distributors were already working with some local farmers this program could in effect be more of a rebranding of local rather than a new local sourcing strategy. While it is probable that there was increased

local purchasing, it is not clear how much additional purchasing beyond the baseline occurred. There also seemed to be a misperception about the abilities of the distributors regarding local food procurement. Initially, the food service provider was under the impression that a third party distributor was necessary for local procurement. It was assumed that the current distributors did not have time to build new relationships. For example:

“Because as I understand it’s really tough for the wholesalers to go out and beat the bushes. And do that education, and support and say that you know farmer Jim who grows for - if he’s growing for the farmers market and has some extra acreage and could grow for our market and it could be a viable thing. Our wholesalers - they’re not in the business of providing that education, those resources...being a business mentor to shift from this business to this business.” (Food Service Provider, Representative #2)

However, the direct relationship between Distributor #1 and two of the farmers contradicts this, reflecting a lack of clear communication between supply chain partners.

The subject of pricing came up quite often during interviews, which is relevant to the value chain framework as ‘fair pricing’ is a central tenet. As in most supply chains, fair pricing was equated with the fair market value of a product or “what the market will bear.” Generally, all actors in this supply chain were content with the price of products. However, fair pricing in a value chain involves a high degree of transparency with regards to sensitive economic information. This involves not only fair margins for farmers and distributors but also “fair and livable wages for workers employed by value chain partners, including fringe benefits and promotion opportunities” (Stevenson and Pirog, 2008, p. 131). When compared to the value chain ‘fair pricing’ in this supply chain had a limited adoption of “fair”.

In order to establish prices in this supply chain, farmers often had a developed cost of production analysis and then researched current market prices, compared wholesale and retail prices in their pricing strategy. For example:

“I go to USDA - like right now asparagus pricing I’ll go to the commodities markets and look what it’s going for. And hey, why aren’t we there? I mean that’s the starting point. Then you can get into negotiation with the buyers and see where they gotta go with it.” (Farmer #4)

Distributor #3 said:

“I use the [local] terminal market pricing structure as my baseline to negotiate with. And then I know that if I buy at the fair market value directly from the farm I know that my margin will be competitive with other distributors that are out there. So that way if I purchase using the terminal market structure I know that a company like Sysco or Gordon’s or US Foods - if they have a similar item then it’s going to be priced very similar to where I’m at.”

For the food service provider, willingness to pay depended on a delicate balance between school meal budgets and nutrition:

“So when the menu planning is done we have you know here’s the input - here’s what all the things cost - and so we know that we, the software balances out the cost, for arguments sake it’s like linear programming. If you spend a little bit more on this thing you know that you have to spend a little less on this and then at the same time tweak it to balance the nutrition. So we know that we have less than a dollar to spend on the meal, we know that we need two [options for] protein, we know that we need - or serving of meat/meat alternatives, two servings of fruit and or vegetables, etc. So we know that we’ve got so much to spend on each of those things and then the total.” (Food Service Provider, Representative #2)

Even though there seemed to be a strategized approach for setting prices, and in some cases negotiations between supplier and buyer, in the end the price received typically hovered around average market prices, which may or may not have reflected the true cost structure. The question that remains is whether or not wholesale prices or “fair market value” actually covers the cost for fair and livable wages for workers in this supply chain. Determining this would require a higher degree of information sharing between these supply chain actors that might necessitate more time and also a higher level of trust. Once farmers establish fair pricing it must be negotiated and agreed upon by buyers, in this case the distributors and the food service provider. The distributor must also factor their margins into the final cost of the products.

Which products the food service provider is able to purchase is highly dependent on price so the question remaining is would these products be affordable for the food service provider if prices were indeed 'fair'. The notion of fair relates to the social sustainability of supply chains and would be critical to the successful implementation of a value chain. It was evident that the true cost of these products, as well as how the food service provider determined acceptable prices was not known or shared within the supply chain.

This case demonstrates the importance of the distributor in facilitating information flow. Distributors play a central role in the functionality of value chains in longer agrifood supply chains. When a food service provider does not have the time and/or labor necessary to acquire and distribute products distributors serve in that capacity. Building strategic collaborative partnerships is part of a value chain framework (Matopoulos et al., 2007), and distributors provide the linkages that would facilitate these partnerships. Distributors must have good relationships with farmers and the food service provider and the majority of information sharing occurs at the point of the distributor. Information flow or breakdown occurs here thereby making distributors the gatekeepers of trust and transparency.

### *Trust in Supply Chain Partnerships*

Trust is crucial in value chains. It facilitates information sharing, one of the fundamental elements that differentiates these supply chain partnerships from traditional supply chains. However, it is important that this is a "process-based trust" (Dyer, 2000). Process-based trust is built on organizational procedures rather than personal relationships. "It is a trust in the fairness, stability, and predictability of the procedures and agreements among strategic partners; and that policies are consistent and stable over time, and do not change with new management or personnel" (Stevenson and Pirog, 2008).

Trust was a value chain characteristic that seemed abundant within this supply chain. The food service supplier put great faith in distributors, trusting that they will deliver GAP certified, local produce to schools in the district. This trust was grounded only in verbal agreements. Perhaps this is because the food service provider was aware of their purchasing power and therefore knew that the distributors would do their best to meet the demands requested of them? Relationships between distributors and farmers also rarely involved written contracts. One of the farmers said:

“There was no contract, [no] written contract. We kind of priced stuff out oh about a month, two months ahead of time. So it was a good relationship and.... all the orders we had were planned probably about six weeks ahead of time.”  
(Farmer # 2)

Agreements were made based on previously existing relationships and reputations. On the basis of their existing relationships, the farmers also put a great deal of trust in distributors to follow through with their commitments. Distributor #3 discussed the value of supply chain actors relying on each other in these relationships:

“And it does take a great degree of relationship building on both sides. Farmers gotta know that they can rely on someone like us to be able to move out product if they have it in volume and food service buyers need to know and understand that they can rely on us to bring them the quality, the variety, the pack sizes that they’re accustomed to buying.”

With only verbal contracts in place, distributors trusted farmers to deliver safe and locally grown products. GAP certification was one of the few elements in writing. If a distributor wanted to see the certification they could, however none of them mentioned specifically requesting this information from farmers.

Trust was inherent when it came to purchase agreements; however, there seemed to be misplaced trust in the supply chain information flow. Supply chain actors put great trust in the flow of information as all of them said this was a transparent supply chain. However, as

discussed previously, information was not always moving seamlessly through this supply chain.

The trust in this supply chain was not a process based trust. It was grounded in personal relationships and depended on a delicate balance of personalities. There were key figures in each step of the supply chain that made local procurement possible. The non-profit representative shared insight about how the local purchasing program developed, noting how important it was to have support and enthusiasm from both the school district and food service provider.

Meanwhile, the food service provider acted as a change agent in this movement, pushing the local food agenda forward once the school district supported it. If any of the key figures in this supply chain were to leave or choose not to support these efforts the program could fall apart.

#### *Purchasing Decisions for the School Market*

The most important factors in deciding to sell or buy local products in this supply chain were always based on price and perceived food safety. Although the school district and food service provider supported the values of local food they were continuously restricted to working within school meal budgets, which sometimes made it difficult to purchase locally grown food.

“I would like to see us where we’re buying everything that possibly can be processed, grown, produced locally as long as the price makes sense.”  
(Food Service Provider, Representative #1)

“So within our nutrition standards we talk about fresh and frozen vegetables and we have a statement in there that there’s preference to locally grown where economically feasible. So when I put the bid out for managed services those standards were in there with the recognition that that was of importance to us. And if they can fit it in to a competitive cost structure and make that work we would like that to happen.” (School District Representative)

"So I think having a consistent quality and supply so people have the confidence that it’s going to be there is really, really important. And then also of course the price in order to get that. If it costs double there’s just no way. There’s just no way we can do it.” (Food Service Provider, Representative #2)

In addition to price, GAP certification was a strict fulfillment requirement. In fact,



if GAP certification could not be met then the food service provider would not purchase those items. Food safety always trumped perceived attributes associated with local food purchasing.

Where price and GAP certification are consistently used as decision-making factors then implementation of a value chain becomes more complex. Buying products based on price and at as cheap a price as possible is characteristic of a traditional supply chain. Notably in this case, the price-based decision is highly influenced by elements of school meal funding. In this district there is a high percentage of students eligible for free and reduced lunches, therefore, much of the funding for meals is derived from federal meal reimbursements. The decision to purchase items based on price is consequently affected less by the local procurement priorities of the school food service provider or school district, and more directly influenced by limited funding. In addition, without the capacity for high levels of information sharing about safe handling practices at the farm level, GAP certification is the best way for the food service provider to manage risk at present time. If a value chain is to be implemented under current budgetary frameworks and food safety requirements these decision-making factors need to be taken into consideration.

### **Role of Non-profit Organizations**

Two non-profits were engaged in the local food procurement supply chain but served in different capacities. The first engaged local farmers in conversations about working with the food service provider. This was noted as a critical intermediary role for the food service provider because they did not have time to facilitate these types of relationships. The second non-profit organization's role served more externally to this

supply chain. However, under different circumstances this type of organization may have played an integral role. In this case the personality and influence of the food service provider was able to drive the local food program forward. Regardless of where the idea originated, their interest in local food procurement was pivotal to getting this program off the ground. In the absence of an in-house champion like this food service provider, an external, non-profit organization might play a larger role in facilitating local food procurement.

## **Conclusion**

### *Local Food Procurement: Perceptions, Promotion, and Reality*

The actors in the food service supply chain analyzed, assigned a variety of values and multiple attributes to local food purchasing. Depending on the supply chain actor, 'local' was associated with various thematic areas: local economic benefits, environmental stewardship, education, product quality, and health. Despite the actor's impression of enhanced quality of local, the assigned attributes to local food moving through the supply chain were rarely measured or verified. For instance, local food was commonly cited as better for the environment, based on the vague notion of reduced carbon emissions on account of lower food miles. However, just because a potato has traveled seventy-five miles instead of 1,500 miles does not guarantee that fewer natural resources were used to produce and transport them (Desrochers and Shimizu, 2008; Saunders et al., 2006). While purchasing local food may have been better for the environment than procurement of produce from distance farms, the fact remains that the actors in this supply chain did not have a system through which to truly measure the perceived and publicized benefits of their local purchasing program.

Many of the findings in this study are consistent with similar studies regarding local food purchasing in institutions. The primary barriers are seasonality, distributional infrastructure, and school budgetary constraints (Izumi et al., 2006; Villianatos et al., 2004). However, one of the findings less common in the literature is the disconnected information flow at the distributor link of the supply chain. This was illustrated on numerous occasions and points to an important aspect in understanding the functionality of value chains in this context. Stevenson and Pirog (2008) forward the concept of a values based supply chain as an ideal supply chain framework that could help scale alternative and values-based food systems. The results of this research illustrate the remaining challenges and the complexity of a retaining value-based supply chains as alternative networks are scaled to meet the demands of large institutional purchasers.

One of the most difficult challenges facing collaborative supply chain relationships are facilitating information flow both up and down the supply chain and developing trust between supply chain actors. Good communication facilitates a fluid transfer of information, but can be difficult to maintain in long food supply chains. This research found that more often than not, disconnect in information flow occurred at the distributor link in the supply chain. As such, this research suggests that to produce scaled local food supply chains without transparency loss will require greater efforts on the part of the distributor to facilitate bilateral information flow.

Shared vision, values, and concern for the welfare of all supply chain participants are relatively foreign concepts to traditional food supply chains, therefore implementing a value chain will require an evaluation of traditional business practices. After which it can be determined which practices might need modification in order to meet the criteria of a

value chain. Using a value chain framework within the construct of a traditional supply is not impossible, but in a supply chain such as this incremental change and adaptive business practices will be critical in making it successful.

## CHAPTER 4: CONCLUSION

### REFLECTIONS ON RESEARCH RESULTS

This research has been an exploration of scaling up local food procurement in a large metropolitan public school district. As stated at the outset of this paper, it was not the food service provider's stated intent to create a procurement program based on value chain principles. The intended goal of this local food procurement program was to bring locally sourced fruits and vegetables into school cafeterias – it is important to note that the goal was achieved. Their large scale purchasing efforts should certainly be applauded as they have overcome obstacles that other school districts still struggle with when beginning local food procurement. As a result, this provides a good example of how local food sourcing can coexist with existing distributional infrastructure. The goal of this research, then, was to assess the degree to which a local food supply chain was able to retain a value-based supply chain dynamic as it scaled up to meet institutional demand.

Through qualitative surveys and analysis of 16 supply chain actors, it appears as if the food service provider has created a supply chain that integrates some of the key components of a value-based supply chain. Firstly, the food service provider's enthusiasm and support for this program translated into development of strong relationships and commitment between some of the supply chain partners. Secondly, each supply chain actor perceives there to be socially embedded values in their local food procurement program; if those attributes were shared more openly through the network it could create more of value-based supply chain dynamic. However, this supply chain appeared to face its greatest challenges in information flow. Achieving or maintaining transparency in supply chains as the scale and number of actors grows can be difficult.

One important conclusion from this research is the critical role distributors play in developing a value chain. In one with many actors they become the gatekeepers to information, trust, and transparency. Their cooperation and understanding about value chain concepts are critical to successfully implementing this framework. As seen in this case, information flow often either ceased or was miscommunicated at the distributor linkage, even with respect to important issues like third party food safety certification. Instituting the value chain concepts of shared values and vision along with information visibility may minimize situations like these. The number of actors does seem to affect the likelihood of sharing values and vision – in that the more actors there are the less likely it is for sharing to occur. In a situation like this there were in fact consistent ‘local food’ values among supply chain partners but it was coincidental. Therefore, the transaction cost associated with achieving this particular value chain characteristic could be relatively small if a distributor served as the intermediary facilitating communication.

Another conclusion from this study is that the school market – due to budgetary constraints and food safety requirements – will probably face more challenges than some other institutional buyers when implementing value chain principles. Price – especially in school districts with a high percentage of students receiving free and reduced meals – and food safety certifications always trump the socially embedded attribute of local, and therefore even if there was shared support for local food attributes those are always at risk of being relegated to secondary concerns. This does not make achieving a value chain framework impossible, but are somewhat specific to the school market so they will need to be taken into consideration, as the framework is adapted to this type of situation.

In addition to budget and food safety considerations another inference gathered from this study were inconsistencies in the local food perceptions and actual impact of local food

procurement. When comparing the differing perspectives of supply chain actors it was evident that there was a difference between how local food was perceived, how it was marketed, and the on-the-ground reality. Local food was perceived to encompass a variety of attributes, for example supporting local farmers and the local economy, being better for the environment, or teaching students to make healthier food choices. But it should be noted that these attributes were only understood on a superficial level and by differing actors in the supply chain. Critical analysis, research, and/or even anecdotal evidence were not provided to support these beliefs. Regardless of the numerous perceived attributes, local food was marketed in the cafeteria and in the media primarily as a means to support local farmers. Local food purchasing was occurring, but the extent to which it had impacted local farmers or economies, was relatively better for the environment compared to foods traveling longer distances, or changing student's eating habits was unknown. Furthermore, publicity around the local food procurement program centered on issues that were only understood at a fairly shallow level.

While some of these findings are specific to this school district's local food procurement program there are some results that could be generalized to similar contexts. Many large school districts face similar budgetary constraints and food procurement challenges. They could glean information from this situation to aid in setting up their own local procurement programs. This district presents a model for local food procurement that could be adapted to similar sized districts. For instance, it was important for local food procurement to move incrementally, beginning with a pilot project that facilitated the development of new supply chain relationships. Additionally, conclusions regarding the implementation of value chain principles can certainly be extrapolated to other school districts that wish to build local food procurement using value based supply chains. A final thought for other school districts or institutions wishing to use value

chains to scale up local food procurement is the potential for creating hybrid supply chains that utilize both traditional supply chain and value chain characteristics. The supply chain in this study faced challenges that put limits on implementation of a value chain framework. However, a hybrid supply chain is in development. For instance, there is a degree of trust between supply chain partners. The values chain framework could serve as a target for large-scale local food procurement, and achieving some of the principles could potentially shift what we think of as a 'traditional' supply chain in new and maybe permanent, more sustainable directions.

Interestingly, this research brought to light not only the characterization of value chains but also aspects of traditional supply chains and how both function in our current agricultural economy. If a value chain framework is beneficial to all supply chain actors why is a traditional supply chain structure still be used? Why haven't all agrifood supply chains transitioned to a more transparent system based on shared values, vision, and equity among partners? In a traditional supply chain customers pay for the physical product they receive - which should essentially reflect the costs associated with producing it. In a value chain customers pay for non-market based attributes that form a foundations for long lasting relationships. So one primary difference between the two systems is what the customer is willing to pay for. And we have become accustomed to paying for what a traditional supply chains provide. Understanding the purpose of value chains, and the willingness to pay for more than the cost of producing a product – for attributes like relationships, trust, collaboration, and embedded values – could require a significant paradigm shift in consumer preferences. A value chain framework might not be ideal for all industries, but it seems like a good fit for mid-scale agrifood systems, thereby making it important that we continue research in this area. In order to understand the applicability of value chains in this context it will be important to understand why the current system has not already



made a shift in that direction. There is much more to learn about the complexities of agrifood supply chains, if and how value chains might be applied, and on what scale might value chains be most appropriately used.

### ***Future Research***

This research exposed some important themes that arise when a value chain framework is applied to large-scale institutional food supply chains. Further research could continue to explore these concepts in other institutional local food procurement programs in efforts to unearth the usefulness in maintaining original attributes associated with the local food movement while simultaneously creating mutually beneficial business relationships that can aid in regenerating mid-scale farming operations. Coupled with further understandings of value chain concepts in practice, it would also be of value to continue studying local food procurement in large school districts, particularly those with high rates of free and reduced meals. At the production end of the supply chain, it would be beneficial to explore the constraints farmers face in scaling up operations to meet the volume demands of large purchasers like the school district in this study.

This case also illustrates the need for further study regarding how best to encourage distributors in food supply chains to take on the role as an information conduit in value chains. The risk posed to distributors who chose to serve in this role could be mediated but we must first understand their perceptions of value chains and the most ideal way to implement them. Lastly, more information about how perceived local food attributes are realized is needed. Continued studies regarding how local food is actually benefiting the environment and local communities would provide integrity for the local food movement. All of the aforementioned research would

help scholars, practitioners, and policymakers better understand the continuing challenges but growing knowledge and opportunities in developing more sustainable food economies.

## APPENDICES

## APPENDIX A: FARMER INTERVIEW GUIDE

### Farm Characteristics

1. How long have you been farming?
2. How many acres does this farm have? How many under cultivation?
3. How many acres owned vs. acres leased?
4. Is the farm third party certified? Organic, biodynamic?
5. I want to talk about the farm infrastructure for a moment.... were all of the buildings that are on the farm now always here or did you build some?
6. What kind of equipment is on the farm? (Tractors, implements, etc.)
  - a. Is it all owned or is some leased/custom hired?
7. What crops do you farm? And how much land/crop is there?
8. Tell me about your strategy for picking what and how much you will grow of certain crops.
9. How do you balance tradeoffs between greater number (risk management, providing more one stop shopping for buyers) vs. fewer (efficiency)

### Human capital, Business Structure, and Marketing

10. Do you or another family member have off-farm income?
11. How many employees do you have? Do you have seasonal employees? How many hours/week do you work?
12. Are you a member of a cooperative?
13. Where do you sell products? What market channels? Has this changed over time?
14. Do you do any direct marketing? CSA, farmer's market, etc
15. Do you use season extension?
16. Do you do any value-added processing?

### Institutional Purchasing

17. What institutions do you sell to? Schools, colleges, hospitals, etc.

18. What are the most common products sold to those institutions?

*With regard to schools:*

19. When did you start selling to school districts? How did it start? Did the school district approach you?

20. Do you sell direct or through distributors/broadliner/? Both? Why or why not

21. How many schools are you selling to?

22. What made you interested in selling to schools?

23. Are there policies at the school, district, local, state or federal level which support or undermine selling to schools?

24. Are you GAP and/or HACCP certified? Or some other third party food safety certifier? If you are not, have you still been able to sell to schools?

25. Have you added or changed any farm infrastructure to accommodate selling to institutions?

26. Do you plan to sell to more schools? What limits you from selling to more schools?

27. Are you able to consistently meet demand from the schools?

28. Are you able to provide products to schools year-round? What and when?

29. Do you sell processed products, e.g. apple juice, dried fruit to schools?

30. How is the price for your product determined when selling to schools?

31. How does this compare to pricing for other market channels you sell through?

32. Are you selling at or below the standard wholesale price? Are you selling at, above, or below the retail price?

33. Are you making enough of a profit to continue selling to schools?

34. Are schools a reliable and stable market?

35. Do you deliver your product washed, pre-cut, packaged or processed in any way and if so, do you charge extra for that service?

36. Has anyone from the school visited the farm? If so how often and why?

37. Have changes been made to your farm as a result of your relationship with schools?

#### Distribution

38. What kinds of factors have shaped your relationship with distributors?

39. Have you had to make any changes in order to comply with school's/distributors food safety requirements?

- a. Liability insurance
- b. GAP
- c. Other

40. If meeting food safety requirements, how long did it take to comply? If not, is there a plan to comply

#### Other

41. What are the primary benefits of selling to schools? ---maybe put in school section

42. What are the drawbacks of selling to schools?

43. What are the barriers/challenges you see for selling to schools?

44. What solutions/strategies do you recommend to overcome these challenges and/or increase farmers' profitability?

45. What were/are the requirements of farmers to participate in this market (product quality, grading, packaging, and other specs; volume; certifications; etc.)?

46. How important is it for you to sell your product to the local market?

47. To what degree have you been able to increase you income by selling to schools?

48. How does selling to schools compares with other markets in terms of expenses and profitability?

49. How does the channel you sell through to the institution (i.e. distributor, direct, etc) affect your profits?

## APPENDIX B: DISTRIBUTOR INTERVIEW GUIDE

1. Can you share some history about how your business got started?
2. Who are your clients? Restaurants, schools, other institutions?
3. Which products do you sell most of and to which clients?
4. How much locally grown produce are you supplying?(total pounds, \$)
5. Where do your products come from? Are some of them from out of state?
6. How did your relationships with institutional clients begin? Did you reach out to them or were you contacted?
7. How did the relationship with the farmers you are working with begin?
8. How does the process work? Does the client (school, hospital, prison, etc) ask for a product then you make contact with a grower? Do you deliver directly from the farm to the client?
9. What are the most popular products for schools?
10. Are there specifications growers have to meet in order to provide product to schools? What are those specifications?
  - a. *Packaging*
  - b. *GAP*
  - c. *Size of fruit*
11. How did your relationship with the food service provider begin? Was there a bidding process?
12. Can you describe how the process works?
13. What products are they purchasing?
14. How is the price determined with the farmers? Do you know their cost of production for each product? Does that play a role in determining price?
15. Do you have a timeline for payments? If so, how does that work?
16. Does working through additional distributors affect that timeline?
17. How are your products labeled? Does the farm name stay with the product until it reaches the end user?

18. How do you determine what your profit margin will be?
19. To what extent can you do forward contracting with farmers?
20. What are the benefits to working with a large public school district?
21. What are the challenges?
22. Would you be interested in a meeting that brings together the food service provider and farmers to negotiate price?
23. How do you see local procurement fitting into your business in the future?



## APPENDIX C: FOOD SERVICE INTERVIEW GUIDE

1. How many students are served meals in your school?
2. When did you begin using locally grown produce?
3. What fresh, local products have you been using?
4. What was the transition like when you started receiving this produce?
5. Did food preparation time increase when you began receiving fresh product?
6. Are you also receiving product from the frozen local program? What was it like when that program started?
7. How much produce is now derived from the frozen local program?
8. What is the reaction of the school children to the fresh, local produce?
9. What products do you use most often? What would you like to use more of?
10. What are the primary benefits of using locally grown products?
11. What are the obstacles/challenges of using locally grown products?

## APPENDIX D: SCHOOL DISTRICT INTERVIEW GUIDE

1. Can you tell me a little bit about your role here?
2. How many students are served meals in your schools? Which meals?
3. Can you tell me about your relationship with the food service provider?
  - a. Do you work closely with them?
  - b. Do you coordinate with them on menu planning?
4. When did the idea of serving local produce first come about? Who started those conversations?
5. What did it take to get local food on the menus?
  - People involved – was there anyone not on board with the idea?
6. What benefits do you see to serving local food in the schools?
7. When did those conversations about local food turn into action?
  - a. When did you first begin using locally grown produce?
  - b. What were the first local products?
8. What fresh, local products have you been using now?
9. Are any served a la carte or are all of them in the meals?
10. When local is served on one day – it is served in all of the schools?
11. What was the transition like when you started receiving fresh produce?
  - a. Logistically in the kitchens?
  - b. How much storage do you have in your kitchens? Freezer space?
    - i. Is that a limiting factor as to how much local fresh you can get?
12. Did food preparation time increase when you began receiving fresh product?
13. Do you receive DOD products?
  - a. How does that work?
14. Are you also receiving product from the frozen local program? What was it like when that program started?
15. How much produce is now derived from the frozen local program?
16. Are the products labeled as local when they come to the schools?
  - a. How do you know it is local – what is the traceability?
  - b. How much traceability do you want? Need? How do you know it's local?

- i. Do you visit farms?
  - c. What is your idea of transparency? How much do you need in this supply chain? Does it differ from the standard supply chain you normally work through for procurement?
- 17. Do you have food safety requirements that have to be met?
  - a. If so, how do you know those are being followed?
- 18. What is the reaction of the school children to the fresh, local produce?
  - a. How about the frozen?
- 19. How has food service staff reacted?
  - a. Did it require any additional training for them to use the local products?
- 20. What products do you use most often? What would you like to use more of?
- 21. Is local food promoted at the cafeteria level?
  - a. District level?
  - b. How?
- 20. How do you make it work with the same budgetary constraints as other schools?
  - a. What is the price differential between local and non local?
- 22. What are the obstacles/challenges of using locally grown products?
- 23. What would be a deal breaker when it comes to purchasing local food?
- 24. What would be the most ideal situation for you to purchase local food? What would that supply chain look like?
- 25. How do you see local procurement fitting into your school meal program in the next five years? Ten years?

## APPENDIX E: NON-PROFIT ORGANIZATION INTERVIEW GUIDE

1. Can you start by telling me a little bit about your role? How long have you been there? What was your initiative to get involved?
2. What is the relationship between the food service provider, the school district, and this organization?
3. So you work with all schools in the district? Elementary and high school? Logistically how does that happen?
4. Tell me about the new nutritional standards? Motivation for changes?
5. Can you share a little bit about how local purchasing became integrated into what the food service provider and school district are doing?
  - a. Timeline?
  - b. Who was involved?
  - c. Were you involved in the recent bid that was sent out?
6. What role does local food play in your organization's goals?
7. What have been some of the challenges with the menu changes?
8. Has it made meals more expensive?
9. How does the school district make it menu changes like this work with the same budgetary constraints as other schools?
  - a. Logistically has it been a lot of significant changes – food prep, purchasing, etc?
10. Do you promote local food or is the focus more on fresh and healthy?
11. Why purchase local?
12. Do you think healthy/fresh and local go hand in hand?
13. What are some other challenges of purchasing locally grown food?
14. Do you think smaller more regionally focused distributors are necessary to make this happen or do you think current distributors can make this work?
15. What has been the reaction in the cafeterias from the students?
16. From the food service directors?
17. Are there any policies in place at the state or federal level that make changing menus challenging?

- a. That makes purchasing local challenging?
18. What would you recommend to overcome those challenges?
  19. Everyone talks about transparency in this supply chain. From your perspective, how important to you is it to have transparency throughout the supply chain?
  20. How do you envision local food procurement in this school district in the long term?

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