

**Addressing Food Insecurity through Corner Stores:
Developing a Foundation for Lewiston, Maine**

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Executive Summary

Many indicators show that food insecurity is a problem in Lewiston. One major avenue through which food insecurity can be addressed is expansion of access to food retailers. Our study consisted of an extensive review of corner store initiatives in low-income urban areas around the nation in order to establish a starting base of research which may be used in the future to help begin a revitalization of corner stores in Lewiston. Although there was not a substantial amount of data available in communities of a comparable size to Lewiston, we found several in-depth studies conducted in larger low-income urban areas where corner store initiatives were successful, and we believe many of these lessons can transfer to the Lewiston area.

Throughout our initial research on food insecurity we continually found that access was one of the major drivers of the issue. Sufficient food access, within the definition of food insecurity, refers to the availability of affordable, nutritionally adequate, and culturally acceptable foods. Lewiston, unlike many other cities, has the stores in place that can deliver these foods to the local population. The three corner stores located in downtown Lewiston our project focused on are Bourque's, Poirier's, and Webb's. All three stores provide local customers with some healthy food options, but these options are generally more expensive and of a lower quality compared to the same options offered at the two local supermarkets.

Corner stores can play a vital role in a community's attempt to fight or prevent food insecurity. Understanding community demand for healthy foods and presenting this demand to store owners proved essential when establishing corner store initiatives in other cities. The initiatives we analyzed addressed the issues of supply through direct capital investment in the stores and through support and networking to incentivize change. Throughout our extensive review of the available resources regarding successful corner store campaigns around the nation we came to the conclusions that corner stores play a vital role in the food distribution web and that improving upon and revitalizing corner stores will help strengthen the communities they are located in.

The research we compiled and analyzed and the conclusions we came to can begin to establish the basic foundation needed to help construct a successful corner store campaign in Lewiston, Maine.

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Introduction

While one might expect that one of the wealthiest countries in the world would be able to adequately feed its population, this is unfortunately not the case in the United States. Food insecurity affects approximately 11% of the American population. For this study, we defined food security as “the availability of and assured access to sufficient food that is nutritionally adequate, culturally acceptable, safe, and which is obtained in socially acceptable ways” (Gorton et al., 2009, 1).

While there are many factors that contribute to the issue of food insecurity throughout the nation, access is consistently recognized as one of the most prominent. Throughout the country, there are 23.5 million Americans that lack access to a supermarket within a mile of their home (PolicyLink & Food Trust, 2010). Low income census tracts have approximately half as many supermarkets as wealthy census tracts (ibid.). Without access to a large supermarket, many Americans are forced to shop at smaller stores closer to home that have higher prices, less variety, and less quality. There are large socioeconomic disparities between low-income and high-income neighborhoods with regards to food access. This overarching disparity is referred to as the grocery gap. Because large supermarkets are unlikely to migrate to low-income neighborhoods, enhancing small local stores within communities is vital for the community as a whole.

Many factors point to downtown Lewiston, Maine as an area where people have trouble getting what they need to eat. Lewiston’s median household income is more than eight thousand dollars lower than the Maine state average, and downtown Lewiston is poorer still (US Census Bureau, n.d.). Within Maine, more than 13% of households are either food insecure or do not have adequate access to nutritious food items (Good Shepard Food Bank, n.d.). While food insecurity is a function of many things, the poverty present in this area is a major indicator of food insecurity. Within the United States, people living on incomes that fall below the poverty line are 3.5 times more likely to have insufficient food compared to those with incomes above the poverty line (Rose, 1999). Due to the prevalence of poverty in Lewiston, there is generally less money available to spend on food. Therefore, those below the poverty line are much more likely to be food insecure. While food insecurity can be defined simply as not having enough food, not having access to enough nutritionally acceptable food is also a form of food insecurity.

Not only are people living in poverty likely to lack the financial ability to afford the higher priced healthy options in supermarkets, but they are also not likely to have access to private transportation to get them to these supermarkets. In smaller urban areas public transportation may not provide an easy and/or adequate alternative to private transportation. Low-income households are six times more likely to not own cars compared to other American households (Vallianatos et al., 2002). One of the ways in which the physical and financial obstacles of food insecurity can be addressed is through the utilization of smaller corner stores. Because public transportation within smaller urban areas is sometimes unreliable or not easily accessible, corner store markets have the benefit of not requiring a motorized means of

transportation for local residents. In these cases, people in urban low-income neighborhoods may rely more commonly on small local corner stores (Gorton et al., 2009). Within lower-income neighborhoods there are generally 30% more corner stores compared to middle-income neighborhoods (PolicyLink & Food Trust, 2010).

Many residents in downtown Lewiston are faced with the common physical and financial obstacles that make shopping difficult, but there is a unique opportunity present in downtown Lewiston. The three small corner markets (Bourque's, Poirier's, and Webb's) provide limited access to fresh and healthy foods, and have the ability to provide a venue through which food security in Lewiston could be dramatically improved. However, there are many challenges in finding ways to make these fresh and healthy foods affordable, including expanding selections of healthy foods and encouraging residents to spend their money on these foods rather than on the much cheaper processed foods.

Throughout our extensive research we came to two conclusion regarding the role that corner stores take on in the prevalence of food insecurity in low-income urban areas: corner stores play a vital role in the food distribution web, and revitalizing corner stores can strengthen the community as a whole by providing local customers and business owners a stage to cooperate and have their voices heard.

We recognize the possibilities present in downtown Lewiston as a powerful opportunity to address the problem of food access on a local scale. While sustained access to a diverse array of healthy foods is likely to be a problem for the lower-income downtown communities, Lewiston has the infrastructure, in the form of small stores, to fix this problem and deliver healthy foods to all residents. By compiling lessons learned elsewhere, we hope to provide a guide for organizations and initiatives that seek to improve food access in Lewiston through the existing corner stores.

Methods

Search Methods

Our study began with basic online searches through Google, Google Scholar and other literature databases. Within these databases we conducted a general search for relevant websites that had literature containing a combination of key phrases such as "food access," "food insecurity," "corner stores," "grocery gap," and "urban low-income communities," among others.

Databases that provided lists of relevant resources on urban initiatives, such as the "Healthy Corner Stores Network" (HCSN) and "The Food Trust" became our starting point for these online searches. There is a link on the HCSN website with a compiled list of relevant literature on corner store issues and initiatives, tools and information on corner store initiatives, WIC implementation, and a list of corner store project consultants. The link to corner store issues and initiatives proved to be valuable in finding academic articles, policies, program summaries, and press releases regarding campaigns and studies conducted around the nation. The variety of

information within these databases was vast, and eventually led us to the majority of the studies we used for our research.

Our community partner, Marion Browning of Healthy Androscoggin, also provided us with a wealth of literature on initiatives that have been implemented around the nation. We searched extensively through this literature, as well as in articles found on the HCSN and “Food Trust” sites. We continued our search by following references within these initial studies, adopting a “snowball” style literature review. This method of searching provided significant depth to our study.

We found that a broad, easily accessible literature on healthy corner store initiatives does not appear to exist. There appeared to be no published information on initiatives in locales of comparable size and quality to Lewiston. Instead, we focused our attention on initiatives in certain large locales. Consequently, we focused the majority of our study on several of these locations (specifically Hartford, New Orleans, and Philadelphia) with the most extensive research or studies conducted. We tried to identify common themes through a discussion of both the problems facing these communities and the means by which these problems were being addressed.

We also conducted searches for the methodology used in assessing the economic impacts of food store access. These searches proceeded in similar fashion to those of the general search methods. Many methodological examples came up in the literature we read as part of our general searches, so little direct searches for methodology were necessary.

Data Analysis Methods

While we searched elsewhere for information on problems of food insecurity and access relating to corner stores, we also tried to establish a background for the necessity of improvements in Lewiston. In order to obtain quantitative evidence of food availability and price disparities between corner stores and supermarkets, we used data collected from a survey conducted by Harris et al. (n.d.) as part of the Lewiston Community Food Assessment. From the available data, comprising 66 surveys performed in Lewiston food stores, we extracted pertinent information about common food items in our three corner stores of focus, as well as two major Lewiston supermarkets, Shaw’s and Hannaford. These food items were chosen on the basis of the availability of price information from each store provided in the data, as well as the assumption that these food items were among the foods which were frequently purchased by typical customers. Special focus was given to foods required as minimum inventory by the Maine WIC Program (Maine Department of Health and Human Services, 2006), as we assumed these foods were representative of “healthy foods” most commonly purchased by downtown residents.

We performed a cross-comparison of price and quality information (when available) for 8 food items stocked by at least some of the stores. When food items were sold in different volume units, we converted them to a common unit whenever possible (items sold in units of certain numbers of fluid oz. were converted to gallons, for example). Quality information was provided

for some produce items on a three point scale. Observers were instructed to categorize the produce as poor, fair, or good quality, and convert this to a numerical scale (M. Browning, personal communication). We converted 1, 2, and 3 back to “poor quality, fair quality, and good quality” respectively for ease of interpretation.

Results

Each of the urban areas we found and focused on for our study identified food access as a barrier to food security in the various communities. A study conducted by Tulane University surveying low-income New Orleans residents found that the people surveyed averaged fourteen visits to local corner stores per month. Because most of these residents lived more than three miles from the closest supermarket and most did not own cars, they relied on corner stores for a large majority of their daily caloric intake (Bodor et al., 2010). Similarly, Hartford has only one major supermarket, making local corner stores the most common source of food for lower-income residents without access to transportation (Hartford Food System, 2008). Residents in Philadelphia also have experienced significant barriers to food access, as Philadelphia was troubled by the second lowest number of supermarkets per capita among major cities in the United States in 2001 (Perry et al., 2001).

In 2004, the Food Trust, a Philadelphia-based nonprofit, and the Healthy Stores Project at the Johns Hopkins Bloomberg School of Public Health formed a national Healthy Corner Stores Network (HCSN) (PHLP, 2009). This network of over 300 organizations and individuals from around the nation allows healthy corner store campaigns to share information about the challenges and opportunities within under-served urban communities. In 2009 network participants were asked to point out priority actions for making corner store campaigns more effective and sustainable. Reoccurring themes that emerged included: the request for more case studies that identified common challenges and best practices, interest in working with a broad range of new partners such as local governments, and the desire to solve the prevalent problems of the distribution of healthy and/or local foods and being able to identify what a corner store business plan would actually look like (ibid).

The first challenge pointed out by HCSN participants, being the lack of accessible information on cases throughout the nation, has been a common problem among our research. There exists a large gap in information regarding initiatives in smaller cities, yet the cities chosen for analyses in this project are valuable because they contain examples of these reoccurring themes from the HCSN survey.

Through an analysis of initiatives in other locations around the country, we identified overarching themes. Specifically, the themes we identified were the realization of demand and the revitalization of the market and community through supply. Revitalization of the corner stores commonly relied upon a combination of capital investment and networking and support.

Demand

Our research identified demand, perceived demand, and the gap between the two as major factors in the lack of healthy foods in corner stores. We repeatedly saw evidence, both qualitative and quantitative, that consumer demand for healthy foods exists but is not met by retailers. Part of the disparity between identified demand and perceived demand comes from a simple lack of communication. The desires of the customers are not being expressed directly to storeowners, which demonstrates the need to provide a venue for which the voices of the local customers can be heard.

Research in New Orleans shows that the perceived demand and actual demand may be quite different. In two pilot research projects conducted by Tulane on communities in New Orleans, as well as in formative research conducted by the Baltimore Healthy Stores Program, small storeowners and managers claimed that the main reason that they did not stock more fruits and vegetables was low customer demand (Haywood & Farley, unpublished data). Yet, the results from the 2007 Tulane survey suggest that the demand for fresh fruits and vegetables was in fact higher than what the owners perceived. Residents surveyed responded to liking tomatoes (73%), green beans (68%), and oranges (66%) “a lot” compared less nutritious options such as hamburgers (59%) and potato chips (58%) (Sokol & Farley, unpublished data).

Supply

As seen throughout the studies conducted in New Orleans and Philadelphia, demand for healthy food is present, but supply is lagging behind. Healthy corner store initiatives throughout the country have addressed the issue of supply through capital investment and/or networking and support. Many stores have the desire to carry healthy and fresh foods but simply lack the capacity to do so. Most corner stores have limited shelf space, making an increase in inventory for healthy foods difficult. A study conducted by Tulane University found that a fourth of all store owners interviewed admitted that they would like to carry more fresh produce, but were constrained by the space and refrigeration units available. Along with the limited space, owners are economically limited by what products provide them with the most profit. All of the owners interviewed in the Tulane University study reported that they made most of their profit on liquor, beer, cigarettes, soda, candy, chips, and cookies (Bodor et al., 2010).

Many times, a small capital investment was all a store needed to dramatically increase its sales. Several examples of styles of capital investment in stores are available in the summaries of store projects in Appendix A, but often these investments included an increase in the number of refrigeration units needed to stock more produce, large windows to draw customers into the store, and small structural and organizational improvements within the store to make it easier for customers to navigate through the store (The Reinvestment Fund & The Food Trust. (n.d.); Bohlen & Hecht, 2003).

Although demand for healthy foods may be present, a major indicator of healthy food sales is how much shelf-space is dedicated to the healthier options. This specific factor of shelf-space was assessed in an experimental study conducted throughout four supermarkets in New Orleans in 1974. The study found that doubling the shelf space length for hard fruits (apples,

oranges, limes), soft fruits (pears, bananas, pineapple, grapes) and cooking vegetables (eggplant, corn, potatoes, and squash) each increased sales by 44%, 49%, and 59%, respectfully (Curchan, 1974). Preferences expressed in the 2007 Tulane University study suggests that the perceived demand for fresh foods by storeowners may be much lower than the actual customer demand. The 2008 Tulane University survey found that corner store purchases mirror the relative mix of foods offered, which proves that customers' purchases are governed by the narrow variety of foods that are offered in corner stores, rather than the variety of food offered in corner stores being governed by what customers demand.

An underlying reason why corner stores do not always stock the healthy products that customers demand lies in the available financial resources, which makes creative initiatives crucial. In establishing a basic framework for stores to follow when attempting to revitalize the stores it is important to highlight ways in which stores can make changes through non-financial networking and support. One example of this type of approach was found in Hartford. The Hartford Healthy Food Retailer Initiative took a less capital-based approach to improving the availability and quality of foods offered in their local corner stores by instead asking corner store owners to switch 5% of their shelf space from junk food to healthier items each year. In return, information and education was provided to participating store owners in the form of consumer survey data describing consumer desires. The Initiative also facilitated networking with wholesalers, and offered the stores the ability to distinguish themselves in the competitive corner store market through door stickers, publicity and advertising, as well as acting as an advocate for the stores to local agencies like the Health Department (Hartford Food System, 2007). Early results of the Hartford Food Retailer Initiative in 2008 showed that stores in the project had shifted 8% of junk food inventories into regular groceries. Although 33% of the stores did not make the necessary inventory changes, more stores were stocking low-fat milk and whole wheat bread, and 75% of the stores had expanded shelf space with some owners even building new stores (Hartford Food System, 2008).

WIC is another incentive for stores to stock a wider variety of healthy foods. A Hartford study was conducted to investigate the health benefits of the revised food package for the Supplemental Program for Women, Infants, and Children (WIC). In October 2009, changes in WIC required certified stores to stock fresh produce, whole grain products and other foods consistent with national dietary recommendations. In order for stores to be WIC authorized they must carry a minimum inventory of food specified by the state. For example, in order for a food store in Maine to accept WIC they must stock a certain amount of milk, cheese, eggs, frozen or concentrated fruit juice, infant formula, infant cereal, regular cereal, peanut butter, carrots, canned tuna, and dried beans, peas, or lentils (Maine Department of Health and Human Services, 2006). The research conducted in Hartford examined differences in healthy food availability between corner stores that accept WIC and those that do not. It also examined the impact of federal changes to the WIC program on healthy options in corner stores. They study conducted four sets of food inventories in 52 corner stores in Hartford from 2009 to 2010 to measure the effects of WIC on inventories (Havens, 2010).

The study found that WIC certified stores stocked a wider variety of foods, a higher proportion of reduced-fat milk, and were more likely to carry whole grain bread than stores that did not accept WIC (Havens, 2010). The study also found that WIC was a good predictor of corner stores carrying healthy foods and that most Hartford stores went beyond what the WIC program required and continued to increase stock (ibid.). The actions taken by WIC approved corner stores in Hartford demonstrates how government requirements can benefit the inventory of healthy foods offered stores.

Table 1: Themes Seen in Initiatives Elsewhere

Case Study	Issues seen	Solutions seen
New Orleans	Perceived demand & actual demand not matching up, small food stores selling only processed foods/foods of poor nutritional quality	Academic study of issues and identification of consumer demands
Philadelphia	Lack of supermarkets, small food stores selling only processed foods/foods of poor nutritional quality	Availability of grants/loans, increased marketing of healthy foods
Hartford	Lack of supermarkets making the numerous small food stores the main source of food for residents, small food stores selling only processed foods/foods of poor nutritional quality	Use of incentives to encourage store owners to introduce healthy foods, increased marketing of healthy foods, introduction of WIC to markets previously not accepting it

Quantitative Analysis of Benefits Performed Elsewhere

Many analysis techniques have been used to look at the positive economic impacts of increased access to food in low-income communities around the nation. The approaches of other programs will be useful in identifying which analysis and implementations can be performed in Lewiston. While there is currently a lack of freely/easily available quantitative data for Lewiston with which similar analyses could be performed, in the future, survey information about stores and available databases on public health, employment, housing information, etc. could be leveraged to produce effective estimates of economic benefits to the Lewiston community from increased access to healthy stores. The several impacts of initiatives considered include: benefits gained from improved public health, job creation, improved attractiveness of real estate, increased community investment, and lower food prices (Chirouze, 2010; The Reinvestment Fund, n.d.). Benefits of corner store initiatives are felt by more than just the owners and patrons,

as the entire community benefits from revitalization of corner stores and the corresponding increase in food access.

Philadelphia, Pennsylvania has perhaps the most in-depth study of any city in the realm of expanding food access via retailers, which is especially true when focusing on economic analysis. Under the auspices of the Fresh Food Financing Initiative, The Reinvestment Fund contracted with an outside consulting firm to perform impact analysis of the effect of new supermarket openings on communities. The report states that many of these findings are likely to be transferable to other communities. If this statement holds true it would be extremely valuable, as the ability to transfer these findings to a community such as Lewiston greatly supports efforts to increase food availability (The Reinvestment Fund, n.d.).

The study found that there were benefits felt by the community through the enhancement of food supply and accessibility. An analysis of real estate values was done through a time-series analysis. Trends in average house values were studied over time, noting the points at which supermarkets opened. A spatial component was taken into account in this case- housing prices at certain stratified distances around homes (The Reinvestment Fund, n.d.).

Impacts on investment were also studied. The researchers theorized that the introduction of new supermarkets would have positive economic impacts on communities outside of their direct impacts. Two supermarkets were directly studied- one in Philadelphia proper and one located in the suburbs outside the city. Using input-output models developed by the consulting firm, impacts on regional economic activity, employment, and wages were all studied. A full set of expenditures were considered- direct expenditures to equip and operate the store, indirect expenditures resulting from other businesses increasing production in order to fill the needs of the new supermarkets, and induced expenditures, resulting from new spending by workers employed by the supermarkets. The model is also able to predict the increases in government tax revenue that are produced by the increased employment and production from the supermarkets (The Reinvestment Fund, n.d.). The price changes produced when large markets are able to supply food more easily are not as well quantified.

Spatial analysis techniques are also used to study correlations between factors. Perry et al. (2001) performed GIS mapping of multiple variables at a time, allowing the correlations between two variables to be seen. For example, income is plotted against diet-related deaths. These methods allow visualization of the locales where health issues are common and income is low. Comparing these maps to maps of supermarket sales can reveal problem areas.

Chirouze et al. (2010) also performed an estimation of the benefits of increased access to healthy foods in Pennsylvania as a result of the FFFI. A basic cost-benefit analysis was performed. The costs are easy to quantify- the total spending performed by the initiative is a fairly solid estimate of the costs of the project. Benefits are more complicated to calculate. The authors consider job creation from newly added, improved, or expanded stores to be a major component of benefits added. They estimate the number of jobs added and the average annual salary of these positions, and multiply these two figures to produce an extremely rough measure for an increase in annual wages paid out. The authors go on to estimate the benefits produced by

improvements to public health- both in reduced medical costs and increased productivity as a result of losing less time to illness or health issues.

The Reinvestment Fund’s studies of economic effects of market introduction to Philadelphia showed large multipliers for spending on markets. In other words, economic benefits were produced that were much larger than the amount spent.

This finding was reproduced, albeit through different means, by Chirouze et al. (2010). While these authors admittedly utilized an exceptionally rough framework for economic analysis, they found a net economic benefit of more than \$2 billion to the Pennsylvania community as a result of \$190 million in spending.

Spatial analysis in Philadelphia showed a strong correlation between areas with low income and high numbers of diet-related deaths and areas with low supermarket sales. Large geographical tracts were also identified with low-income and low supermarket sales, inferring that supermarkets self-select into areas where they can make more money- a very logical finding. This finding shows the need for financial incentives for markets to expand into lower-income areas.

Food Prices Across Lewiston Stores

Results of our cross-comparison of food prices in Lewiston stores are presented below. The first three stores presented, our markets of focus, are small stores in downtown Lewiston, in the neighborhood surrounding Kennedy Park. The last two stores are larger, traditional supermarkets serving much of Lewiston. Shaw’s is located approximately one mile from Kennedy Park, and Hannaford approximately two miles.

Caution must be taken when interpreting this data. Because this data was collected in 2008, exact price information is likely to be no longer valid. Still, the general trends noted in this data (which stores carry which types of food, general price differences) are still likely to be valid (D. Harris, personal communication). We can see that each corner store does not stock at least one item stocked at the supermarkets. Bourque’s is missing lettuce, while Webb’s and Poirier’s are missing both lettuce and whole wheat bread, a food often considered essential in state nutrition guidelines (New York State Department of Health, 2010).

Table 2: Comparison of Food Prices in Lewiston Food Stores

	Webb's	Poirier's	Bourque's	Shaw's	Hannaford
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	Market	Market	Market		
Low Fat Milk	\$4.75/gallon	\$4.79/gallon	\$3.89/gallon	\$3.70/gallon	\$3.70/gallon
Fruit Juice	\$7.90/gallon	\$7.44/gallon	\$3.98/gallon	\$4.58/gallon	\$4.00/gallon
Dried Split Peas	\$0.99/pound	\$1.29/pound	\$0.99/pound	\$1.75/pound	\$0.97/pound
Carrots	\$0.59/pound (fair quality)	\$0.69/pound (poor quality)	\$0.99/pound (fair quality)	\$0.85/pound (good quality)	\$0.89/pound (good quality)
Lettuce	Not Stocked	Not Stocked	Not Stocked	\$1.50/head	\$0.99/pound
Bananas	\$0.59/pound (fair quality)	\$0.69/pound (fair quality)	\$0.69/pound (good quality)	\$0.64/pound (good quality)	\$0.59/pound (good quality)
Chicken Breast	\$2.59/pound	\$3.29/pound	\$2.49/pound	\$2.29/pound	\$1.99/pound
Whole Wheat Bread	Not Stocked	Not Stocked	\$2.38/loaf	\$1.78/pound	\$1.53/pound

General price and quality trends can also be noted. Both large supermarkets only stock produce considered by the observers to be of the highest quality. In comparison, Webb's and Poirier's stock produce of fair or poor quality, and Bourque's stocks one item of good quality and one of fair quality. In terms of prices, only vague conclusions can be drawn. Fruit juice and low fat milk are considerably more expensive at both Webb's and Poirier's than they are at Bourque's, Shaw's, or Hannaford. An individual chicken breast tends to be less expensive at the supermarkets as well. While the produce items we present are of lower or comparable prices at the three corner stores, the quality of this produce is typically lower, making it difficult to draw implications from the data.

Generally, we can see from this data selection that quality of foods are higher at the supermarkets. Making general statements about price is more difficult, but it appears that, on average, Webb's and Poirier's tend to be more expensive than Bourque's, Shaw's, and Hannaford.

As a result of our analysis, we conclude that general availability and quality of healthy foods tends to be lower in the downtown stores than it is in the supermarkets. Nevertheless,

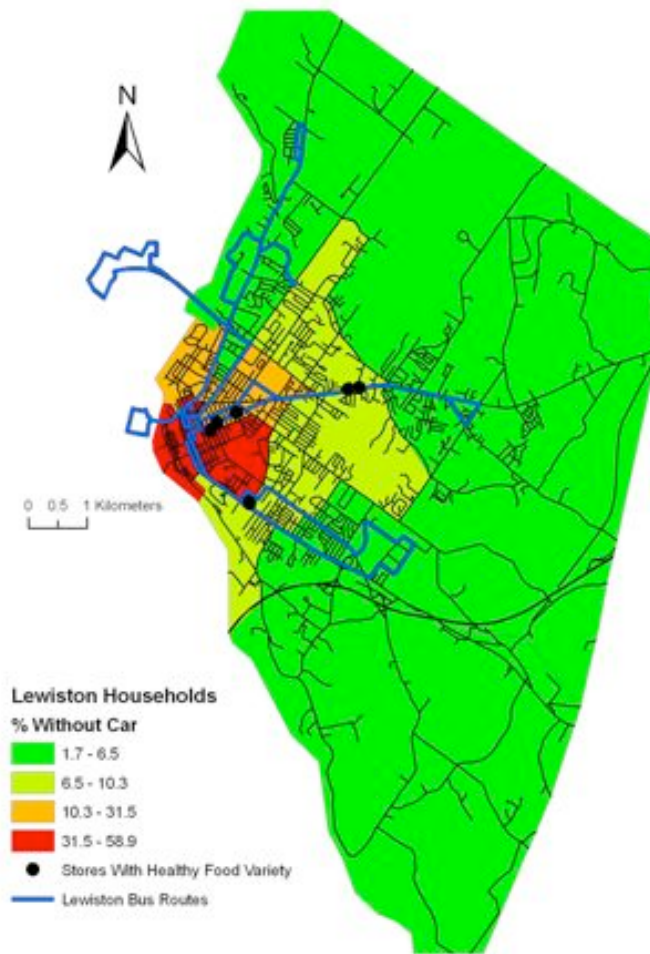
Bourque's appears to be an excellent resource for Lewiston residents, as it stocks a fairly wide variety of foods and does not tend to charge much more than Shaw's or Hannaford.

Lewiston Mapping

As well as using the data collected on prices throughout food stores in Lewiston, we also selected GIS maps produced by Harris et al. (n.d.) that we considered useful for our research. The maps provide us with a basic foundation of need in Lewiston and help us spatially relate these corner stores to the community around them. Similar to the Perry et al. mapping conducted in Philadelphia, the maps produced by Harris et al. show how a certain variable changes spatially, along with additional qualifying information. In the case of the two maps we look at here, the maps show a piece of demographic information along with the location of food stores. While no causation can be inferred from this data, we can see correlation between these two factors.

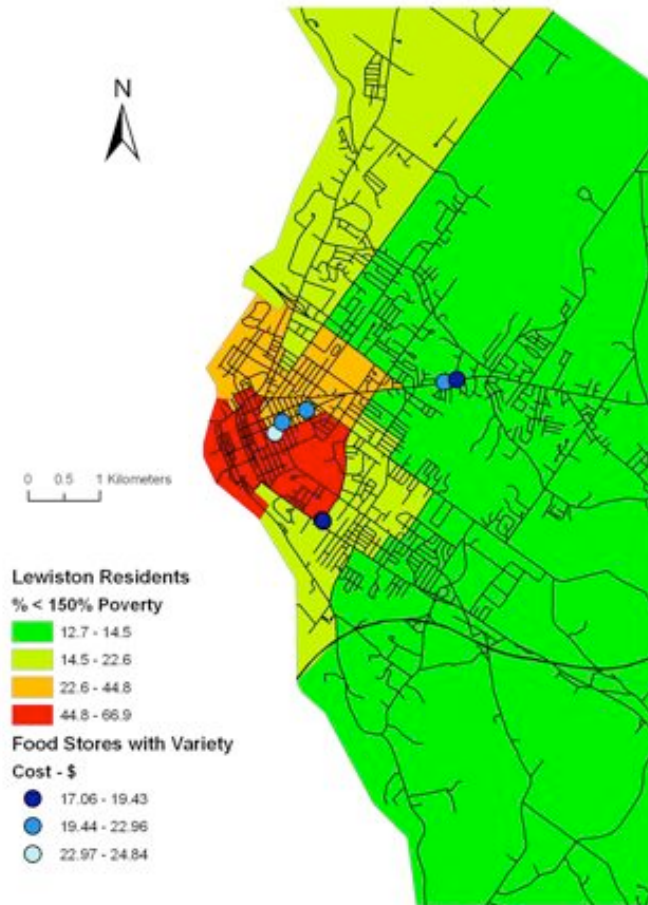
The first map we selected mapped the percentages of households in Lewiston that did not own a car. We chose to use this map as part of our research because the map demonstrates how few people living in downtown Lewiston own cars. The areas with the highest rate of Lewiston households that do not own a car were the areas where the corner stores are located.

Figure 1: Lewiston Households Without a Car & Food Store Locations



The second GIS map that we chose to include in our research showed the demographics of poverty in Lewiston and includes a price comparison between comparable food baskets purchased at the two supermarkets and the three corner stores in Lewiston. This map was chosen because it not only demonstrates that poverty levels are the highest in downtown Lewiston, but also that food baskets were more expensive at the three corner stores compared to the two supermarkets. We interpreted this data to signify that the poorest residents of Lewiston were shopping at the stores that offered the most expensive options.

Figure 2: Lewiston Households With Family Incomes Less than 150% of Poverty Line and Relative Prices of Healthy Food Basket at Lewiston Stores



Discussion

Analysis of the initiatives in New Orleans, Philadelphia, and Hartford, show programs that can increase the viability of corner stores and enhance the health of the communities. In some cases programs relied on financial assistance, such as the grants and loans in Philadelphia and inputs to increase shelf space in New Orleans. In other situations initiatives were based on business planning and social marketing, such as the branding in Philadelphia or the advertising and WIC enhancements in Hartford. Additionally, both corner stores and the community can benefit from increased communication and through an understanding of the customer demand for healthy foods.

Food access and distribution play important roles in the healthiness and the quality of the food consumed in a community. The Tulane University study conducted in New Orleans

demonstrated that increased shelf space dedicated to fresh fruits and vegetables increased their sales of these foods. Availability may be the first step to enhancing community health. Encouraging healthy eating may be as simple as having healthy food choices more readily obtainable in stores. But once this demand is realized inputs are the essential next step to creating the availability of healthy foods of variety in these corner stores.

Our research shows that enhancements in stores can come in the form of capital investments and through networking/support for the stores. Capital investment would create increased infrastructure in the stores, allowing for enhancements in refrigeration, shelf-space, aesthetic improvements, as well as increasing the variety of foods offered.

Networking and support, as seen in the Hartford Healthy Food Retailers Initiative, would allow the stores to benefit from increasing their healthy foods shelf space by offering information and education to participating stores. Support could come in the form of consumer survey data describing consumer desires, networking with wholesalers, and offering the stores the ability to distinguish themselves in the competitive corner store market through door stickers, publicity and advertising, as well as acting as an advocate for the stores to local agencies (ie. the Health Department). As shown in the Havens analysis of WIC usage in Hartford stores, WIC certification could incentivize store owners to carry a larger variety of healthy foods given the WIC guidelines. Though Bourque's is WIC certified, if Webb's and Poirier's were to become WIC certified they would then be required to carry a certain amount of a variety of healthy food options.

The Philadelphia studies show that improving food access can create benefits for the whole community. Store enhancements could help create overall economic and structural improvements to the downtown area by bringing in new businesses and customers. A revitalization of corner store would bring returns within the stores and within the community.

These practices and the issues of food access in these other cities have provided the building blocks for which Lewiston can now work from. As shown access plays an essential role in the fight against food insecurity and corner stores should be one of the first steps in fighting this in Lewiston.

Outcomes and Implications

The themes identified in this report provide a general overview of the approaches taken by initiatives elsewhere to address the lack of food availability currently provided by corner stores. While some of strategies for improving healthy food access in Lewiston stores can be implemented simply with hard work and commitment, capital investment in the stores, identified as one of the fastest roads to revitalization, takes money.

Funding for the Fresh Food Financing Initiative in Pennsylvania, the largest initiative of its kind we have come across, comes from a mix of both government and private financing. Thirty million of the \$120 million gathered comes from state funding, while the \$90 million comes from private investment gathered by the Reinvestment Fund & investment of the \$30

million government appropriation (The Reinvestment Fund, n.d. 2). Similarly, funding for the Hartford Healthy Food Retailer Initiative has come largely from private investment. Examples of organizations which funded the Hartford project can be found in Appendix D.

We believe firmly that the approaches presented here can be exceptionally helpful in beginning the process to revitalize corner stores in Lewiston. Consideration will need to be taken of Lewiston's unique nature, but generally we feel that many of these approaches can hold true. While our report did not focus at all on the Somali population of Lewiston and the several Somali owned stores in downtown Lewiston, any further study should take these stores into account.

Next Steps

In previous sections we discussed what actions should be taken in any attempt to revitalize stores in downtown Lewiston, but securing the support for these actions is imperative if comprehensive initiatives are to be undertaken. Demonstrating the financial benefits and community health benefits of such actions would be a powerful way to support requests for funding.

One way to demonstrate such benefits would be property value analysis determining whether or not the markets are currently a benefit to the properties surrounding them. In the study addressing the economic benefits of supermarkets conducted by The Reinvestment Fund (n.d.), introduction of a supermarket was used to mark a certain time point, and trends in housing prices were evaluated both before and after this point. In Lewiston, we cannot conduct a similar study, as we do not expect a new supermarket to be introduced. Rather, we believe a powerful way to establish the value of stores is to look at the value implicitly attributed to these stores by homeowners. This can be done via a hedonic property value analysis.

A hedonic property value analysis is an economic technique used to determine implicit values placed on qualities of a home by homeowners. By regressing the price of the home as a factor of a set of structural, spatial, neighborhood, and environmental variables, relative weights of various factors as a component of a home's price can be found (Freeman, 2003). In this specific case, we would use GIS to geocode the location of all the homes studied, and calculate the distances to the individual stores. We would then incorporate these distances as an independent variable in the regression, in an attempt to find the implicit value placed on the stores.

This analysis would be difficult to perform for several reasons. First, a hedonic analysis depends on the quality of the data available. While there is little doubt that housing value of sufficient quality exists, this data is often costly and difficult to obtain. Moreover, it is likely that the majority of the housing in the downtown area is multifamily or apartment style housing, a situation considered less often by applications of the hedonic model. Nevertheless, successful studies have been conducted that consider apartment complexes (e.g. Frew & Jud, 2003), so we believe this method is feasible.

We would expect to see an implicit benefit placed on all the food stores. However, we would also expect that this benefit would be measurably higher for proximity to Shaw's or Hannaford. This would indicate that consumers place a higher value on supermarkets than on the corner stores downtown. Simply showing that consumers do value the presence of local markets might be enough to convince organizations to fund revitalization efforts. It stands to reason that if consumers place an implicit value on the presence of a market, quality improvements in the market would increase this implicit value. This would be further supported by results showing supermarkets, stores we have already established provide better service to the community than small markets, to be more valued than corner stores. If this was the case, the implication would be that revitalization of markets would boost housing prices in the surrounding region, producing a net economic benefit to the community.

Once the material support necessary to start a corner store project in downtown Lewiston is secured, additional data should be gathered in order to ensure its success. While the lessons we have gathered will be useful in designing an initiative, we recognize that differences in regional effects may be present, and gathering specific information on Lewiston will help highlight these.

First, an extensive survey of downtown corner store patrons would be beneficial in pinpointing consumer demands. Allowing financiers and store owners alike to see what is most desired from the local markets will spotlight the exact needs of the community and send a powerful message for community involvement and improvements to take place. Additionally, direct engagement of the store owners will be essential in determining the viability of such a project. For a revitalization to succeed, our research has shown a necessity of having store owners committed to the goal of selling healthy foods (e.g. School St. Market, Appendix A) (Bohlen & Hecht, 2003).

If a healthy corner store pilot project is begun in downtown Lewiston, we feel strongly it should begin with Webb's Market. We recognize that we have not conducted in-depth analysis of the Lewiston stores and that interviews and discussion with the store owners may make one store preferable to another. However, given the lessons learned elsewhere and our qualitative impressions of the stores, Webb's seems to be the most logical candidate for improvement, followed by Poirier's.

We believe that Bourque's Market is already a significant asset to the community. We can find support for this in both the store survey data available and by a qualitative evaluation of the stores. Unlike Webb's and Poirier's, Bourque's accepts WIC. Bourque's also is more aesthetically appealing (in the opinion of these authors) than either Webb's or Poirier's, both on the inside and outside. On the other hand, Webb's appeared to have poorer refrigeration capacity than either Poirier's or Bourque's, and has a drab exterior that looks well suited to simple aesthetic improvements to draw consumers in.

Finally, we recommend that study in this area be an ongoing process. This report summarizes, to the best of our ability, information available on corner store initiatives nationwide at this time. However, corner store initiatives across the nation are in their infancy, and new information is likely to become available with increasing frequency. Hopefully,

resources regarding initiatives in locales more similar in size and quality to Lewiston will become available.

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Appendix A: Examples of Revitalization Projects Elsewhere

This appendix provides direct, case study examples of revitalization projects and other applicable information (studies of successful markets, etc) found elsewhere. All information in this section is copied verbatim from other sources, and simply presented here for ease of review. Bibliographic information is provided after each case study.

Ha Ha's Market, Philadelphia, Pennsylvania

The 900 sq. foot Ha Ha's Market, located in the Logan section of Philadelphia, carries fresh produce, fresh fish, and spices. The store was established in November of 1989 by the Has, a Korean immigrant family.



The FFFI was able to provide Ha Ha's Market with \$25,000 in grant funding and \$30,000 in loan funding. The money has enabled the Has to renovate their refrigeration units; repair the HVAC equipment; purchase a much-needed new ice machine; replace the windows in the store; and expand their store, increasing the fresh food options available. Sales at Ha Ha's Market have tripled since these improvements were made.

Source: The Reinvestment Fund, & The Food Trust. (n.d.). Pennsylvania Fresh Food Financing Initiative (Brief) [Brochure]. Retrieved from <http://www.thefoodtrust.org/pdf/FFFI%20Brief.pdf>

School St. Market, Oakland, California

School Market in Oakland's Fruitvale district is typical in many ways of the thousands of corner stores that populate low-income urban neighborhoods across the Bay Area. However, School Market has moved beyond other corner stores by becoming an important source of fresh produce and other nutritious foods for its customers.

Located on busy School Street in a residential neighborhood, School Market is the sole commercial establishment in the surrounding 12-block area. The nearest supermarket is half a mile away, situated on the other side of the I-580 freeway. While the neighborhood — a mixture of multi-unit buildings and single-family homes — is predominantly African- American, its concentrations of Southeast Asians, Latinos and whites reflect Fruitvale's tremendous ethnic diversity. The median annual household income for the Fruitvale district is \$25,866; 19.7 percent of its residents receive some form of public assistance.

Store Profile

School Market has been owned and operated for the past 19 years by Tom Ahmed and his family. The market, 1,300 square feet in size, is open seven days a week from 7 a.m. to 9 p.m. Like most small urban markets, School Market had long depended on sales of alcohol (primarily beer and wine), convenience foods, and cigarettes as its major income generators. Snack foods had been the market's top-selling food items. While drug dealers congregated on the sidewalk in front of the market in the mid and late 1990s, community pressure and increased police presence have almost completely eliminated this source of friction between the market and its neighbors. The store's location on a well-traveled street and its status as the only market in the neighborhood combine to make it economically viable.

The Project

California Food Policy Advocates (CFPA) approached School Market in September 2000 and asked if the store would be interested in selling fresh produce and expanding their sales of dairy and other nutritious foods. This project, funded by Food For All, grew out of a 1998 study by CFPA and Bay Area Community Services (BACS) on food access issues faced by Fruitvale seniors.

The study was prompted by reports from BACS' meals-on-wheels drivers that the delivered hot meal was, for some seniors, their only nutritious food of the day. Working with Fruitvale community groups, BACS and CFPA identified four strategies for improving the food access of seniors:

- Expanding and improving public transportation to nearby supermarkets.
- Initiating a shopping service that would match a homebound senior with a volunteer shopper.
- Improving Fruitvale's system of 10 food pantries and soup kitchens.
- Starting a fresh produce market, or enhancing an existing market by helping it to sell produce and other fresh foods.

After the first three strategies were implemented during 1999 and 2000, CFPA began the market

enhancement project in August of 2000. The project first identified eight corner stores in Fruitvale with good locations, sufficient floor space, and an interest in boosting their sales of fresh food. After interviewing the stores' owners, CFPA selected School Market for the pilot project. The selection was based primarily on Tom Ahmed's interest in the project's potential to increase sales and to improve his store's image in the neighborhood.

CFPA offered School Market technical assistance, training, and equipment. Perhaps the most important of these items, the mentoring, was provided by Nathan Cheng, a remarkably talented and socially committed Berkeley, California, resident who had opened and was operating a successful, free-standing produce market in a low-to-middle income area of Berkeley. In return, Mr. Ahmed agreed to learn the produce business in order to sustain significant fresh food sales after the CFPA training period was over. In addition, Mr. Ahmed volunteered to pay nearly \$3,000 of his own for additional equipment improvements that would facilitate the sales of fresh food.

Mr. Cheng worked with Mr. Ahmed to make more efficient use of floor space and backroom storage areas in order to display fresh foods more prominently. By first moving flats of soft drinks and other beverages to a reorganized storage room, they made room for a large open area at the front of the store. Mr. Chen then purchased and installed a used, but attractive, 12-foot produce display case in the newly opened front sales area. Finally, he worked with Mr. Ahmed to reorganize his grocery and dairy displays, placing them directly opposite the produce area.

Displays Before



Displays After



After the produce display was installed, Mr. Cheng assisted Mr. Ahmed in redesigning the outside of the store. The store's front and sides were repainted, long-boarded windows were replaced with secure Plexiglas, and the store also benefited from additional natural light. These changes alerted the neighbors that the store was doing something new. Mr. Cheng then trained Mr. Ahmed and key family members in buying, pricing, and selling fresh produce. The training included work at both the Oakland produce market and at School Market. Mr. Cheng bought all the produce for the first few weeks and then gradually increased the roles of Mr. Ahmed and his family; this training was facilitated by Mr. Cheng's existing relationships with wholesale sellers. Mr. Cheng priced all produce in the store for the first weeks, until the family was sufficiently trained. Retail prices were generally set at an average 50 percent markup from wholesale, with weekly specials at lower prices. Once sales of produce began, Mr. Cheng trained the family to promptly cull produce that had passed its peak look and taste.

Exterior Before



Exterior After



The market needed significant promotion, since many potential produce customers shopped at the nearest Safeway and Albertson's supermarkets. Mr. Cheng designed weekly promotional flyers in English and Spanish, which were distributed door-to-door in a 15-block area, as well as at a neighborhood church and community meetings. The flyers listed produce specials for the week and gave general information on the store. School Market held an open house in November 2000, after the store had been selling produce for three weeks, and distributed free bags of fruit to over 300 individuals. Produce-related prizes were also raffled out, and information was distributed on nutrition and other health issues.

In another community outreach effort, CFPA arranged for the Alameda County Public Health Department's nutrition education staff to design a fresh produce buying and preparation activity for children in the after-school program at nearby Fruitvale Elementary School. A staff nutritionist brings 8-10 children to School Market, where they buy vegetables and fruits to prepare for an afternoon meal or snack. As an outgrowth of this activity, the school arranged for an attractive, fresh produce mural to be painted by its students on the front of the store. The school and store have forged a strong, mutually beneficial relationship that has helped to embed the store in the neighborhood, overcoming a past in which the store was viewed as a venue for drug dealing and other undesirable activity. And, of course, the new community role that the store has undertaken has served as effective advertising with which the store can expand its sales of healthy food.

Results

In the first month of the training period, School Market increased produce gross sales from under \$50 per week — typically from a few bags of potatoes — to more than \$500. By the end of the second month of training, the market averaged \$600-700 in produce sales per week. The store sold more than 25 different fruits and vegetables, including some requested by new customers. The biggest sellers included bananas, apples, lettuce, tomatoes, peppers, avocados, greens, onions, and lemons. During the same time period, milk sales increased five-fold.

School Market's initial success has been sustained since the training period ended, and Mr. Cheng's role was reduced to a two-hour "check-in" each week. Produce sales have remained constant, in the range of \$600-\$700/week even in the winter "down" period for fresh produce. Dairy sales have also maintained their higher levels. Mr. Ahmed and his family have now taken

over the complete operation and are able to manage this new effort effectively.

More recently, Mr. Cheng and CFPA have collaborated to help with a complete makeover of a second corner store, Jalos Market, in a different section of Oakland's Fruitvale neighborhood. Much the same sequence of events took place there that had occurred in connection with the conversion of School Market into a small grocery featuring nutritious produce and other healthy food. Jalos is now self-sustaining, with periodic visits from Mr. Cheng, offering an assortment of nutritious food to its neighborhood. In addition, there is a good chance that the Alameda County Department of Health will engage Mr. Cheng to convert additional corner stores in other low-income neighborhoods throughout the county over the course of the next several years.

Costs

The cost of the School Market fresh produce project was \$22,520. This amount included staff technical assistance and support (\$16,000), the refrigerated display rack (\$4,000), façade improvements and signage (\$1,075), start-up inventory (\$845), and marketing (\$600).

Critical Factors for Success

The success of the School Market project is primarily attributable to five factors:

- Mr. Cheng made an invaluable contribution to the success of the project. He provided technical assistance and training, having had extensive hands-on experience in produce markets, and this experience was a huge asset in the project's success. The consultant and the store- owner forged a strong, effective working relationship, which has continued through the weekly follow-up sessions.
- The owner of the market was interested in increasing fresh produce sales, and store's staff was able to learn the produce business.
- The market had existing space that was not being used efficiently and that allowed room for produce and other fresh food displays.
- The store was able to market new produce offerings because it had a strong existing base of customers who had patronized the store in addition to shopping at larger supermarkets.
- The surrounding neighborhood has sufficient population density to guarantee an adequate supply of potential customers within walking distance.

Source: Bolen, E., & Hecht, K. (2003, January). Neighborhood Groceries: New Access to Healthy Food in Low-Income Communities. Retrieved from California Food Policy Advocates website: <http://www.cfpa.net/Grocery.PDF>

Nathan's Produce, Berkeley, California

Nathan's Produce was a successful fresh produce store in a low/middle-income area of West Berkeley that operated from 1995 to 2001. The store provided fresh nutritious foods to neighborhood residents and was an excellent source of jobs and mentoring for local high school students.

Nathan's Produce was located next to one of many liquor stores on Sacramento Avenue, a busy thoroughfare with few retail outlets other than liquor stores. While two popular restaurants — a breakfast café and an Indian restaurant — were across the street, local residents had to travel seven blocks to an upscale Andronico's supermarket or two miles to the nearest Safeway for groceries. There are more than 18,000 households within a one-mile radius of the store site. The neighborhood, like much of West Berkeley, was for years predominantly African-American, but now is more ethnically diverse and has a significant senior population. Approximately one-quarter of the store's customers used food stamps.

Store Profile

Nathan's Produce was a small, 800 square-foot store, stocking a variety of fresh produce plus dairy products, baked goods, bulk foods, canned goods, rice, and other grains. The produce selections in the store included some organic products.

The Project

Nathan Cheng grew up in Chicago in a low-income, single parent household. After high school, he held a number of jobs until he found success in restaurant management. After years in the restaurant business, Mr. Cheng decided to do something more for his community. Seeing a need for fresh produce and quality groceries in his Berkeley neighborhood and a need for jobs and mentoring among local high school students, Mr. Cheng decided to address both issues by opening a produce store that would employ students.

Like many small businesses, the biggest barrier facing Nathan's Produce's was access to startup capital. Mr. Cheng wrote a business plan but failed to secure either a private or government loan. Eventually, he used his own credit cards as his start-up capital; shortly after the business opened, several customers provided him with lower interest loans that were used to pay off the credit cards.

Another challenge was purchasing relatively smaller volumes of fresh produce from wholesalers who are organized for high-volume sales and are not prepared to give low wholesale prices to small buyers. At first, Mr. Cheng arrived at the produce markets in the very early morning hours to compete more favorably with the larger buyers. In time, he developed good working relationships with several wholesale distributors who set aside produce for him at reasonable prices.

Mr. Cheng initially hired and trained five high school students from the neighborhood to work part-time in the store. Their jobs were tied to maintaining good grades in school. Mr. Cheng

became not only a boss, but also a mentor. He helped the students/employees with school and offered encouragement, while teaching them about fresh produce and healthy eating habits. Nathan's Produce was known for excellent customer service, with customers greeted by name, fruit and vegetable samples available, and quick responses to customer requests for produce and other items that were not in stock. The store used Berkeley's Pedal Express bicycle delivery service to take groceries to shut-in individuals, with the store picking up half the delivery cost. Nathan's Produce also became the first grocery store in Berkeley to accept BREAD (Berkeley Region Exchange and Development), the local barter currency.

Results

In six years, Mr. Cheng built his business to an average of 110 transactions per day, serving a regular customer base of 400-500 neighborhood households. The quality of the food was high, and the prices were reasonable. However, in early 2001, rising rents in the neighborhood threatened the store's economic viability. At the same time, Mr. Cheng purchased and started to manage a restaurant across the street from the produce store, and his family began to grow. Given these new developments, something had to give, and Nathan's Produce was closed.

Costs

\$70,000 for start-up and six years of operations.

Critical Factors for Success

Nathan's Produce succeeded as a result of six primary factors:

- **Personal commitment and dedication.** The owner's drive and determination to make a difference in his neighborhood enabled him to overcome two significant operational barriers: under-capitalization and the lack of complementary nearby stores-for over five years.
- **Customer service.** Like all small business owners, Mr. Cheng understood that a personal connection with his customers was essential.
- **Good quality food.** Mr. Cheng understood that breaking the stereotype of a small market with poor produce quality and selection was vital to attracting and keeping customers.
- **Neighborhood connections.** The owner's residence in the neighborhood and commitment to hiring and supporting neighborhood teenagers tied the store strongly to its customer base.
- **Business knowledge.** Mr. Cheng's sense of "mission" was matched by his excellent understanding of how to create and support a small business. In particular, his experience in the highly competitive restaurant business was beneficial for the produce market's economic success.
- **Location.** Nathan's Produce was located at a busy intersection (although the lack of parking space prevented Nathan's from capturing much benefit from all the passing traffic). There was also no real competition for groceries within a significant distance.

Source: Bolen, E., & Hecht, K. (2003, January). Neighborhood Groceries: New Access to Healthy Food in Low-Income Communities. Retrieved from California Food Policy Advocates website: <http://www.cfpa.net/Grocery.PDF>

Appendix B: Useful Contact Information

Hartford Healthy Food Retailer Initiative

(860) 296-9325 phone

www.hartfordfood.org

191 Franklin Avenue, Hartford, CT 06114

List of participating stores: <http://www.hartfordfood.org/programs/Stores.htm>

The Food Trust

Consulting Information: Dr. Allison Karpyn, akarpyn@thefoodtrust.org, 215-575-0444 x119.
<http://www.thefoodtrust.org/php/consulting/index.php>

Fresh Food Financing Initiative Contact: charries@thefoodtrust.org

Healthy Corner Stores Network

HCSN Participant Profiles and Contact Info: <http://healthycornerstores.org/profiles/>

HCSN Consultant Recommendations: <http://healthycornerstores.org/consultants/>

Appendix C: Maps & Figures Prepared by Harris et al.

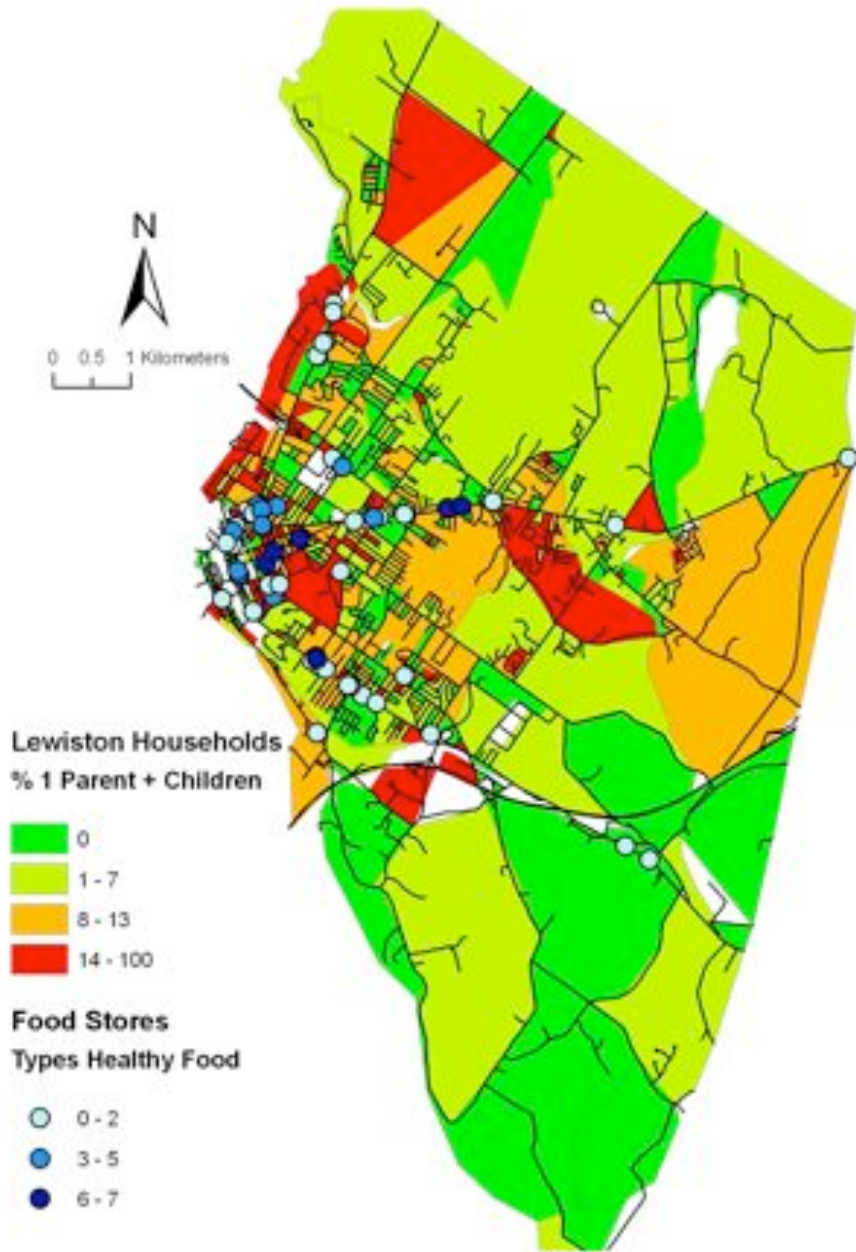


Figure 1: This map of Lewiston shows the food stores symbolized by the number of healthy food categories sold in each store and the % of households that are single-parent households with minor children. Note that the stores with a good variety of healthy food are not necessarily near the areas with many single-parent households.

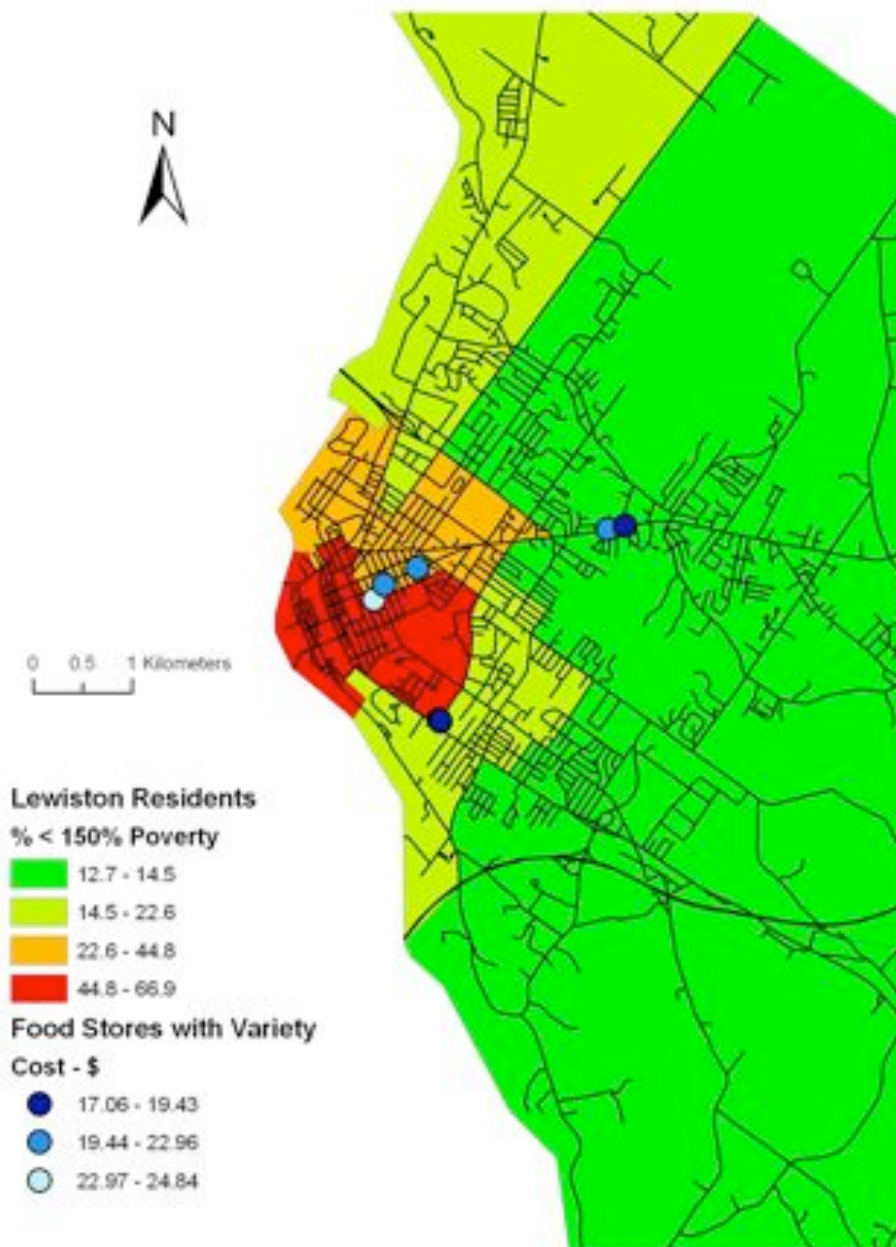


Figure 2: This map of Lewiston's downtown shows the food stores that carry at least 6 of the 7 categories of healthy food symbolized by the cost of a standard food basket at each store and the % of residents with family incomes less than 150% of the federal poverty level. Note that the least expensive stores are not necessarily near the areas where low income residents live.

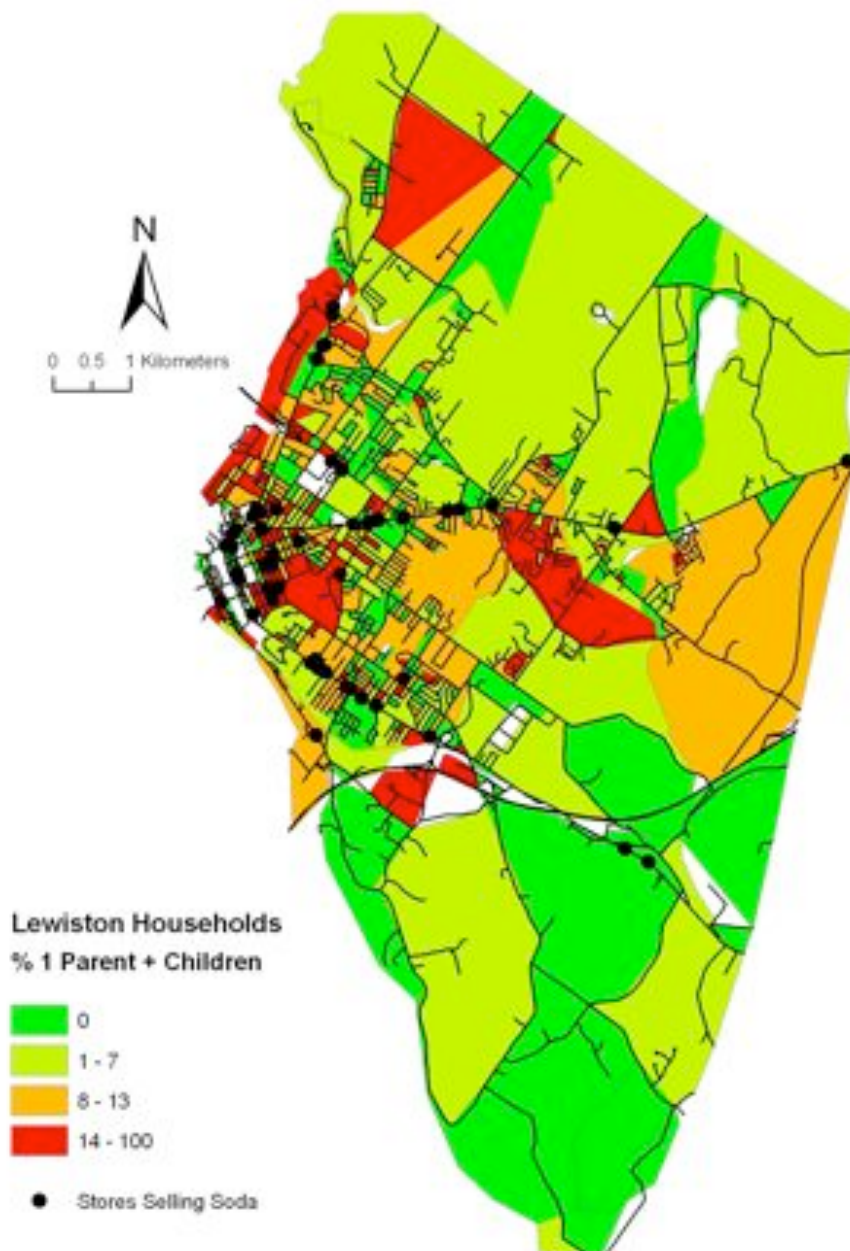


Figure 3: This map of Lewiston shows the food stores selling soda and the % of households that are single-parent households with minor children. Note that many single-parent households live in areas surrounded by stores selling soda.

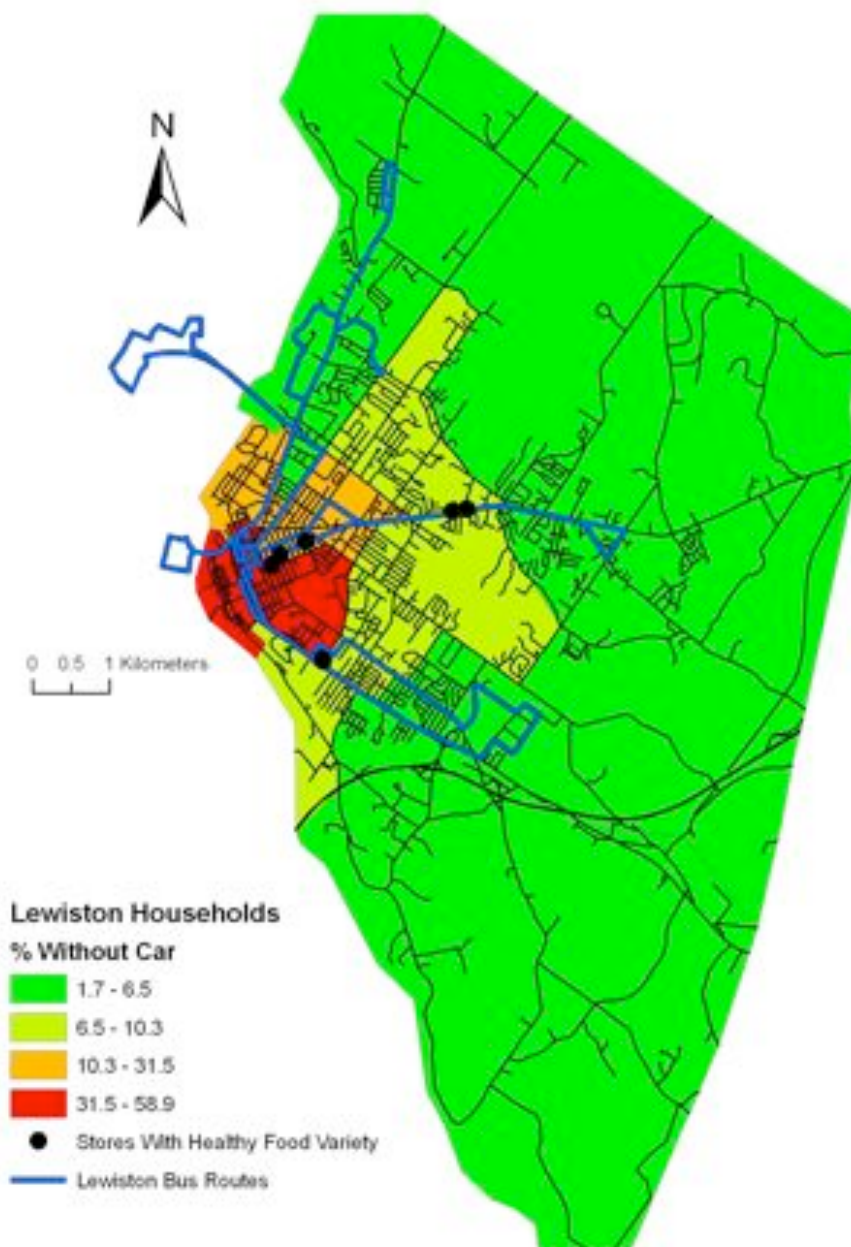


Figure 6: This map of Lewiston shows the bus routes and the % of households without a car. Note that the bus routes serve the areas where many households without a car live.

Appendix D: List of Funding Organizations for Initiatives

Hartford

The Aetna Foundation, J. Walton Bissell Foundation, Connecticut Health Foundation, Donaghue Medical Research Foundation, Frances Fund, Hartford Foundation for Public Giving, Lawson Valentine Foundation, Lincoln Financial Foundation, Kraft Foods, Phoenix Foundation, and Presbyterian Hunger Program.