AN ASSESSMENT OF THE NORTH END FOOD ENVIRONMENT
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acknowledgements</td>
<td>4</td>
</tr>
<tr>
<td>Abstract</td>
<td>5</td>
</tr>
<tr>
<td>1. The North End in Context</td>
<td>7</td>
</tr>
<tr>
<td>2. Public Health, Place, and the North End</td>
<td>11</td>
</tr>
<tr>
<td>3. Methodology</td>
<td>15</td>
</tr>
<tr>
<td>4. Results</td>
<td>21</td>
</tr>
<tr>
<td>5. A Discussion of the Results</td>
<td>27</td>
</tr>
<tr>
<td>6. Next Steps</td>
<td>31</td>
</tr>
<tr>
<td>Appendices</td>
<td></td>
</tr>
<tr>
<td>A. The North End Neighborhood, Springfield, MA</td>
<td>42</td>
</tr>
<tr>
<td>B. North End Non-Prepared Food Vendors Surveyed</td>
<td>43</td>
</tr>
<tr>
<td>C. Qualitative Survey</td>
<td>44</td>
</tr>
<tr>
<td>D. Individual Measurement Scores and Alternate Scores by Food Vendor</td>
<td>46</td>
</tr>
<tr>
<td>E. Hollywood Food Needs Assessment Survey Tool</td>
<td>47</td>
</tr>
<tr>
<td>F. The Wind Blow--Icebreaker and Food Environment Awareness Tool</td>
<td>48</td>
</tr>
<tr>
<td>G. Proposed Community Meeting Agenda</td>
<td>49</td>
</tr>
<tr>
<td>H. Sources</td>
<td>51</td>
</tr>
</tbody>
</table>
ACKNOWLEDGEMENTS

We appreciate the contributions of each person involved with the North End Outreach Network, the New North Citizen’s Council, the Spanish American Union, the Campus Committee, T.O.L.D., and the New North Citizen’s Council Youth After School Program, the Brightwood Clinic community health medical residents. Each person’s generosity, time, and knowledge has greatly enriched this project.

We would like to recognize the valuable contributions of the following individuals: Milta Franco, Jeff Scavron, Joaquin Rodriguez, Vanessa Pabon, Eric Maldonado, Ilma Paixao, Nancy McArdle, and Susan Eaton.

We are indebted to our professors Dolores Acevedo-Garcia and Caesar McDowell and our teaching assistant Sandra Padilla for supporting us throughout this project.
ABSTRACT

BACKGROUND

Recently the North End created the North End Well-Being Services (NEWS) to coordinate existing services and to address the void in accessible health and well-being activities for North End residents. Since 2000, through the Springfield Practicum, the Department of Urban Studies and Planning (DUSP) at The Massachusetts Institute of Technology (MIT) has addressed community issues in the North End in collaboration with the North End Campus Committee.

Consistent with the North End’s renewed focus on public health, this year the Springfield Practicum focused on starting an enquiry about the relationship between neighborhood environment and residents’ health. Our efforts focused on understanding the food environment, i.e. the availability of healthy food in the neighborhood.

METHODOLOGY

We used a census of food stores, a validated survey tool (NEMS-S), and qualitative data to provide a baseline picture of the food environment in the North End (i.e. healthy food map and baseline scores).

RESULTS

The findings suggest that there is very limited availability of healthy food options in the North End. Out of a maximum possible NEMS-S score of 50 for healthy food availability, quality and pricing, the maximum score found in the North End was 13. The vast majority of stores had NEMS-S scores under 10.

CONCLUSION

Drawing upon community initiatives around food justice in other areas, we used the findings of our research as a starting point for suggesting strategies that the North End could use to raise community awareness about the food environment, and to engage both citizens and store owners in improving the neighborhood food environment.
1. THE NORTH END IN CONTEXT
THE NORTH END

The North End is one of 17 neighborhoods in Springfield, Massachusetts, the third largest urban center in Massachusetts. The North End is also one of the most socioeconomic disadvantaged neighborhoods in Massachusetts. Springfield is one of many urban areas nationwide in which Latinos experience the most disadvantaged neighborhood environments, including high poverty and unemployment rates. There are many health problems facing the community, including high rates of HIV/AIDS, intravenous drug use, asthma, lead poisoning, obesity and diabetes. Presumably these health problems are rooted not only in individual behaviors, but also in the so-called social determinants of health, including neighborhood conditions such as environmental hazards, an inadequate housing stock, limited opportunities for positive health behaviors (e.g. a built environment that may not be conducive to physical activity and limited availability of healthy food outlets). For more detail on the North End see Appendix A.

In the early 1990’s residents and community agencies came together and decided to focus on health as the framework for organizing in their community. Using the World Health Organization definition of health—a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity—the community began working to address education, housing and economic development as issues that impact health. In 1996, five community-based organizations came together and formed The North End Outreach Network (NEON) to improve the health and well being of the community. NEON was designed to find ways to encourage all people in the North End to engage in community life through organizing and connection to services. Recently the North End created the North End Well-Being Services (NEWS) to coordinate existing services to North End residents and to address the void in accessible health and well-being activities for North End residents. The North End Campus Committee (NECC) oversees the work of both NEON and NEWS. The campus committee includes all of the agencies that are involved in work within the North End. Among the members are the city’s planning and school departments, Bay State Health, New North Citizens Council, the Spanish American Union and others.
IN COLLABORATION WITH MIT

Since 2000, the Department of Urban Studies and Planning (DUSP) at the Massachusetts Institute of Technology (MIT) has addressed community issues in collaboration with the North End Campus Committee. DUSP and various leaders within the North End of Springfield have a strong history of collaborating to create and implement initiatives that address current community issues and opportunities facing the residents. Each year, DUSP conducts the Springfield Studio Practicum in the North End. The Campus Committee has overseen the work of the previous Springfield Studios. One outgrowth of this work was recognition of the importance of improving health outcomes for community residents by understanding and improving the neighborhood environment (physical, social and behavioral).

A FOCUS ON PUBLIC HEALTH AND PLACE

The Fall 2008 Springfield Studio investigated the possibility of implementing a multi-year plan that encourages and supports future projects in the North End that focus on issues of public health. Over a three-year period, the Springfield Studio would work with NEON, NEWS and NECC to:

1. Gather and summarize views from the community about the health issues they face, and about how the living conditions in their neighborhood influence health.
2. Inventory of neighborhood changes in the last 10 years and researching how those changes may be affecting the health of people in the community through changes in the built and social environment. Such changes may include a rise in the immigrant population, persistent economic downturn resulting from de-industrialization, recent economic development brought about by the presence of Bay State and other companies, and recent changes in zoning regulations.
3. Use community surveillance and mapping methods to describe and measure the main aspects of the neighborhood’s built and social environment that may influence health, e.g. the type and quality of the housing stock and school buildings, walkability and availability of green space/playgrounds, and food environment.
4. Reflect on the implications of the neighborhood environment-health connections for the work of urban planners, and for possible cross training and collaborations with other disciplines such as public health.
   • Design short-term actions that local community can take to affect the negative impact of the neighborhood environment on health outcomes.
2. PUBLIC HEALTH, PLACE, AND THE NORTH END
In 2008, as DUSP and the North End begin a new phase of inquiry around the topic of public health and place, it is helpful to outline the critical topics and points of opportunity for strengthening both community health and neighborhood environment. Over the past several years, MIT and the North End of Springfield have enjoyed a partnership that has addressed various community issues, realities, and concerns, including the housing market and the reintroduction of Thomas Street through Genera Street. We have identified a variety of possible approaches and efforts to improve the health of the North End’s residents by improving features of the neighborhood environment that can potentially influence health.

Health is not solely determined by an individual’s discrete decisions regarding health behaviors such as diet and exercise or by access to health care. Rather, quality of health is also influenced by a complex range of physical/social environmental conditions at the neighborhood level (Kawachi and Berkman 2003). Good health and quality physical/social environments for healthy living are privileges that not all of us share equally. While some people live in neighborhoods that have well ventilated homes, sufficient street lighting, clean and safe streets, nearby public parks and recreation trails, outdoor playgrounds, community gardens, and farmers markets and supermarkets that sell fresh produce, others live in neighborhoods that have poor housing stock with chronic troubles, unsafe streets, an absence of public space, and an abundance of liquor and convenience stores (Briggs 2005).

Health and planning academics and professionals have developed various metrics that address the connections between physical and social neighborhood environments and quality of health. Such metrics include:

- **Walkability indices.** An assessment of the relative ease at which one can walk to necessary locations and activities from one’s home;
- **Food environment measures.** A comparison of the access to nutritious versus non-nutritious foods from one’s home;
- **Environmental indices.** A measurement of the prevalence of pollutants from a point-source (i.e. power plant or factory) or moving source (i.e. traffic emissions);
- **Transportation equity.** An evaluation of access to public transit and the amount of transportation infrastructure projects that pass through and interrupt a neighborhood;
- **Neighborhood safety and exercise patterns.** An assessment of the connection between perceptions of safety and access to space networks and their effects on physical activity.

Due to the scope of the topic of neighborhood environment and health, and the opportunity for multiples areas of enquiry and intervention, we have proposed a three-year commitment, on behalf of both MIT and the North End, to focus on how the neighborhood environment may influence the residents’ health. During this semester we have focused on characterizing the
food environment in the North End in order to assess the availability of healthy foods in the neighborhood. Our initial observations suggested that the North End suffers from an inability to access fresh, nutritious food. Of primary concern is the fact that the North End appears to be a “food desert.” A food desert is a term used to identify areas without adequate access to fresh, nutritious foods. Lacking any major food outlet or fresh food source and with an abundance of convenience and liquor stores, the North End may qualify as a food desert. Input from Bay State medical residents suggested that unhealthy BMI, obesity/overweight, and related chronic health issues such as diabetes, are major health problems in the North End.

HEALTH AND THE FOOD ENVIRONMENT

Obesity is recognized as one of the most pressing public health challenges of our time. According to the Harvard School of Public Health, in 2004 Massachusetts availability of healthy foods and a higher density of unhealthy food outlets (Babey, Diamant, Hastert, Goldstein, Harvey, Banthia, Flournoy, Rubin, and Treuhaft 2008; Mari Gallagher Research and Consulting Group 2007).

Supermarkets with a wide variety of food choices are less common in minority and poor neighborhoods than in primarily white and higher income neighborhoods. On the other hand, convenience stores and other suboptimal food outlets are more common in minority and low-income neighborhoods (Moore and Diez Roux 2006). Public health researchers have documented racial/ethnic and socioeconomic disparities in the quality of the local food environment, and hypothesized that such disparities may be a cause of the large racial/ethnic disparities in obesity/overweight we confront in the United States. For instance, (Morland, Wing, Diez-Roux, and Poole 2002) documented that there are four times more supermarkets in white neighborhoods than in black neighborhoods. Therefore, the “grocery gap” particularly hurts black, Latino and low-income households.

Research has also documented that local food environments have an effect on the recommended diet of local residents (Morland, Wing, and Diez Roux 2002), and on disease risk factors. It has been demonstrated that the local food environment influences the prevalence of obesity (Morland, Diez Roux, and Wing 2006). Recent research reports by the Mari Gallagher Group (Mari Gallagher Research and Consulting Group 2007) and PolicyLink (Babey et al. 2008) have documented the empirical association between local food environments (as measured by local food balance indices) and health outcomes such as obesity, diabetes and premature death.

This body of research is shaping initiatives to improve the local food environment across the nation. A growing movement is focusing on designing fiscal and other incentives to attract supermarkets and other healthy food outlets to segregated minority and low-
income communities. There are also new community-based strategies to improve local food environments. For a review of initiatives to improve the food environment see (Flournoy and Treuhaft 2005) and (Story, Kaphingst, Robinson-O’Brien, and Glanz 2008). Although some evidence suggests that neighborhood food-retail interventions may be effective in changing dietary patterns, still more evaluation studies are needed (Wrigley, Warm, and Margetts 2003).

Policy changes could help improve the food environment in disadvantaged neighborhoods. For instance, states could address the “grocery gap” issue by enacting legislation to create low-cost financing sources dedicated to grocery store ventures in underserved communities (Flournoy and Treuhaft 2005). The Pennsylvania Fresh Food Financing Initiative (2003) provides economic incentives for supermarket chains to locate in low-income communities by providing financing options for them from a combination of public and private funds. California is currently considering similar legislation to establish a Healthy Food Retail Innovations Fund aimed at improving healthy food retail options in underserved communities. Notably, although the Pennsylvania and California initiatives focus on improving food environment at the neighborhood level, they are state level initiatives. Local efforts such as work by community-level organizations are also needed, but equalizing opportunities in access to healthy food across neighborhoods may require initiatives at a higher level of government.
3. METHODOLOGY
THE MACRO-LEVEL FOOD ENVIRONMENT

In the current project, we characterized the community- or macro-level food environment in the North End, as well as the consumer- or micro-level food environment. The macro–level food environment refers to the type, location and accessibility of food outlets (Glanz, Sallis, Saelens, and Frank 2007). The micro-level food environment refers to the availability, quality and cost of healthy food choices that consumers face in the establishments where they buy food (Glanz, Sallis, Saelens, and Frank 2007). Here the macro-level food environment refers to all establishments selling non-prepared foods within the North End neighborhood, including both Memorial Square and Brightwood. We described the macro-level food environment by investigating the number, type, and location of stores in the neighborhood in order to see who has access to non-prepared foods and who does not. Access to healthy food options such as fresh produce, low-fat dairy, and lean meat products directly impacts what people buy and what they eat. A healthy diet is essential to health, and is of great concern in this community, with the city of Springfield suffering high rates of dietary related illness including obesity, type II diabetes, and cardiovascular disease.

Other dimensions of the macro-level food environment to be investigated in future studies include restaurants, mobile food vendors and school food services. We chose not to investigate the school food environment at this time because we wanted to capture the macro-level food environment of both adults and children. We chose non-prepared food vendors over restaurants and food trucks selling prepared foods because groceries tend to cost less than pre-cooked foods. With high unemployment rates and lower average income than the rest of Massachusetts, we assumed Springfield residents, including those in the North End, would try to spread their food budgets as far as possible by purchasing most of their food from stores and grocers rather than restaurants or food trucks.

THE MICRO-LEVEL FOOD ENVIRONMENT

The research team also investigated the micro-level food environment, which refers to the quantity, quality, and variety of healthy food options available in the individual stores identified in the macro-level food environment evaluation. Together with the macro-level data, the information describes where North End residents can buy healthier food options and the type, quantity, and quality of foods that can be expected at each vendor. In such a small community we were able to survey almost all (two vendors were not included) the non-prepared food vendors in the North End providing a significant and representative picture of individual food items available to residents within walking distance of their homes.

“THE MACRO-LEVEL FOOD ENVIRONMENT REFERS TO THE TYPE, LOCATION AND ACCESSIBILITY OF FOOD OUTLETS. THE MICRO-LEVEL FOOD ENVIRONMENT REFERS TO THE AVAILABILITY, QUALITY, AND COST OF HEALTHY FOOD CHOICES…”
SURVEYING NORTH END FOOD VENDORS: QUANTITATIVE DATA

The first step of this project was to conduct the macro-level evaluation of the food environment. North End food vendors were identified, enumerated, classified, and mapped. Two MIT students conducted a site visit of the neighborhood to identify all food vendors in the North End. Food vendors were defined as either grocery stores or convenience stores, using the definitions in (Glanz, Sallis, Saelens, and LD 2005). The resulting map and list of vendors were used to inform micro-level food environment assessments and to provide information on where to obtain fresh, non-prepared foods in the North End. This data was included on the North End food environment map.

The second step of the project was the micro-level food environment assessment conducted in 13 identified North End food vendors (for a list of food vendors, refer to Appendix B). This vendor-level assessment used the NEMS-S tool to gather quantitative data on the availability, quality, price, and quantity of certain healthy food options. The NEMS-S tool was developed by researchers at Emory University School of Public Health to assess how well stores compare to a nationally representative basket of healthy food options. Because the tool is nationally representative, it may not accurately represent commonly purchased foods in a primarily Latino community such as the North End. Despite this, the proven reliability and validity of this measure make it an excellent tool for use in evaluating the micro level food environment. In addition, the widespread use of the NEMS-S tool makes the data resulting from this project comparable to other datasets throughout the country. For these reasons, we decided not to modify the NEMS-S tool, although it could have been made more relevant to food purchased in the North End.

Teams comprised of two MIT students and/or faculty and at least one North End resident, often a teen volunteer, conducted a census of 13 non-prepared food vendors using the NEMS-S survey on two days, November 11 and 13, 2008. The NEMS-S was also used to evaluate a nearby Big Y supermarket in order to make comparisons between neighborhood vendors and those outside of the North End. The Big Y store was chosen because several neighborhood residents identified this particular store as their main source of groceries. Several North End residents mentioned that certain foods are cost less at the Big Y, while more culturally relevant items were more expensive at this large chain grocery store than at the neighborhood stores.

QUALITATIVE DATA

In addition to the NEMS-S quantitative survey, a qualitative data was also gathered during the food vendor assessments using a brief questionnaire filled out by survey administrators. This tool was developed to gather store-level data about items influencing food-purchasing patterns.
that were not included in the NEMS-S. The full survey is included in the Appendix (Appendix C), and includes following types of data.

- **Advertising.** Information was collected on ads inside and outside of the store, including the type of item advertised, the size and number of ads, and the placement of these ads. Advertising is a well-developed tool used by producers to influence buyers. These data were gathered to bring attention to what is being advertised in North End food stores and to start a dialogue about why this might be and whether residents or vendors have other ideas for advertising in these stores.

- **Cleanliness.** Information was collected using sensory evaluation of each food vendor (smells, sights, sounds, etc.) as well as by inventory of certain cleanliness issues such as pests, equipment, spills, damaged food, and other items of concern to survey administrators. These data were collected in order to create a gestalt feel for the overall cleanliness of each store. Some of these issues may impact the quality of food, such as malfunctioning refrigerators for milk or meat, and others may impact consumer choices. For example, fruit flies around fresh produce may discourage people from buying this healthier food option. Awareness of these issues can assist vendors in attracting more customers and safely maximizing the shelf life of their products.

- **Hours of operation.** A store's hours of operation is an important dimension of food availability in the North End. Regardless of the amount or quality of healthy food options inside a store, if a resident cannot fit a visit to the store into her schedule, these foods are still beyond her reach.

- **Size of store.** Number of cash registers was used as a proxy for store size. Store size gives some indication of the quantity of foods available, and also provides information on each vendor's buying power.

- **Food placement.** Similar to advertising, food placement can impact the choices consumers make. This tool assesses what is placed in key areas of the store such as the front entrance and the cash register area, as well as along the walls, in the back, in the middle, and in the front of each store. This can again encourage discussion in the community about what is most readily available and brought to one's attention in each store, why this might be, and potential changes vendors or customers may like to see.

Another aspect of qualitative data collection included in this project was digital storytelling on the part of the survey administrator, residents purchasing food, or the vendor or vendors themselves. Most of the digital data are in the form of pictures or audio recordings taken by MIT students or teen volunteers from the North End. This assessment process and the resulting photos and audio clips will be incorporated into the final poster and an interactive online map. These personalized glimpses into the North End food environment and residents' experience of it will build awareness with individuals, community stakeholders, and policy makers.
leaders, and business owners of the nutritional challenges facing the neighborhood and provide tangible evidence with which to begin important conversations about the food environment at the North End on multiple levels.

THE DATABASE

A database was created for the quantitative data collected in order to compile results and run simple analyses. An individual NEMS-S score for each of the 10 included food items is calculated, as detailed below, as well as a composite score created from summing each food item score for a particular vendor. We followed the scoring methods as defined by the NEMS-S guidelines. Scores are based on availability, price, and quality of each measure.

- **Milk.** A vendor receives points if skim milk is available and additional points if skim milk is of equal or lesser price than whole milk.
- **Fruit.** A vendor receives points for the number of fruit options offered and additional points depending upon the relative quality of the fruit.
- **Vegetables.** A vendor receives points if five or more varieties of vegetables are available and additional points depending upon the relative quality of the vegetables.
- **Ground Beef.** A vendor receives points if lean meat is available and additional points if lean meat is of equal or lesser price than regular ground beef.
- **Hot Dogs.** A vendor receives points if fat-free or lean hot dogs are available and additional points if fat-free or lean hot dogs are of equal or lesser price than regular hot dogs.
- **Frozen Dinners.** Vendors receive points if reduced fat frozen dinners are available and additional points if reduced fat frozen dinners are of equal or lesser price than regular frozen dinners.
- **Baked Goods.** Vendors receive points if low-fat baked goods are available and additional points if low-fat baked goods are of equal or lesser price than regular baked goods.
- **Beverages.** Vendors receive points if 100 percent juice is available and additional points if diet soda and 100 percent juice drinks are of equal or lesser price than regular soda and juice options.
- **Bread.** Vendors receive points if whole grain bread or two varieties of whole wheat bread are available and additional points if whole wheat bread is of equal or lesser price than white bread.
- **Baked Chips.** Vendors receive points if baked chips are available and additional points if baked chips are of equal or lesser price than regular chips.

An alternative analysis was carried out for the fruit and vegetable scores described above, in order to account for culturally relevant and typical produce that was not used in the NEMS-S tool. The original fruit score only counted bananas,
apples, oranges, grapes, cantaloupe, peaches, strawberries, honeydew melon, watermelon, and pears in their evaluation of total number of fruits available. An adjusted fruit score was calculated allowing culturally relevant fruits such as mangos and pineapples to be counted in the evaluation of total number of fruits available. The original vegetable score counted only carrots, tomatoes, sweet peppers, broccoli, lettuce, corn, celery, cucumbers, cabbage, and cauliflower. In keeping with the modified fruit score, an adjusted vegetable score was also calculated allowing culturally relevant vegetables such as chayote to be counted in the evaluation of total number of vegetables available.

Data collected using the qualitative tool developed by the team were also included in the database.

ILLUSTRATING THE DATA

A poster using these data and a map of all food vendors surveyed in the project was created for use by the community in facilitating discussions and informing both residents and vendors about the non-prepared food options in the area. This poster includes a map with the locations of the 13 non-prepared food vendors identified in the macro-level assessment. The total NEMS-S scores calculated for each vendor using data from the micro-level assessment were divided into three categories—“Healthy,” “Less Healthy,” and “Least Healthy,” representing scores of 0-16, 17-32, and 33-50, respectively. Each score category was assigned a shade of green. The categories reflect the full range of values possible using the NEMS-S method—not the actual score distribution among stores in the North End—in order to provide a sense of the absolute availability of healthy foods in the neighborhood. Additionally, the specific scores for each of the stores included in this report provide a sense of the relative ranking of the stores within the North End.

On the map, each store was colored in the shade of green corresponding to their total NEMS-S score. Icons representing the 10 individual NEMS-S items were placed next to pictures of each vendor if that particular item was available on the day the store was surveyed. For fruits and vegetables, the number of varieties found is printed on the icon; the number indicates how many varieties listed in the NEMS-S tool were available at the time the food vendor was surveyed. All other icons simply indicate whether the item, such as skim milk, was available or not on that day. The text accompanying this map and the photos of each vendor with icons for healthy food options includes a brief description of the project and its goals, including an emphasis on what healthy eating entails and why it is important. There is also a section of suggestions for what to do next if this poster sparks one’s interest. Information is included on where to find more information, including the current executive report, and who to contact with comments or ideas.

Above: Icons used on the poster to represent the 10 NEMS-S measurements.
4. RESULTS
A review of each vendor’s score by individual nutrition measurement indicates that the majority of vendors in the North End do not offer healthy food options. The NEMS-S guidelines state that the highest possible score attainable is a total score of 50 points. The highest total score attained by a North End food vendor is 13 points (one vendor received a score of 13). The lowest total score attained is one point (three vendors received a score of one). The mode of total scores is 1 point. The average total score is 5.54 points. Below is a detail of the food vendors’ scores for each individual measure:

- **Milk.** Six vendors received a score of two or higher (highest score was 4) while seven vendors received a score of one or less. The prevalence of low scores for the milk measure indicates that the majority of food vendors in the North End do not offer skim or 1% fat milk.

- **Fruit.** Five vendors received a score of two or higher (highest score was five). Seven vendors received a score of one or zero. These scores indicate that a majority of vendors do not offer any fruit.

- **Vegetables.** Seven vendors received a score of one or higher (highest score was 4). Six vendors received a score of zero. These scores indicate that a large number of vendors do not offer any vegetables.

- **Ground Beef.** Of all of the vendors, none offer lean ground beef and, thus, all vendors received a score of zero.

- **Hot Dogs.** No vendors offer fat-free or lean hot dogs, thus, all vendors received a score of zero.

- **Frozen Dinners.** No vendors offer reduced fat frozen dinner, thus, all vendors received a score of zero.

- **Baked Goods.** No vendors offer low-fat baked goods and, thus, all vendors received a score of zero.

- **Beverages.** Three vendors received a score of one while the remainder of vendors received a score of zero. These scores indicate that the majority of vendors do not offer 100 percent juice drinks.
• **Bread.** One vendor received a score of negative one because whole wheat bread was more expensive than white bread. The remainder of the vendors received a score of zero. These scores indicate that a majority of vendors do not offer whole wheat or whole grain bread.

• **Baked Chips.** Three vendors received a score of one or higher (a maximum score of three). Ten vendors received a score of zero. These scores indicate that a majority of vendors do not offer baked chips.

Table 1 to the right depicts the total NEMS-S score for each North End food vendor as well as a total adjusted score. The adjusted total score includes the fruits and vegetables that were not included as individual measures in the NEMS-S survey but that are culturally relevant to the North End. The table below clearly illustrates that the food vendors in the North End each received very low total score considering that the highest score achievable is 50—no food vendor managed to score close to 50 points, with the highest score achieved being a 13. The reason for the low total scores is due to the lack of healthy food items as detailed above in the review of scores by each individual measure. As stated, no food vendors received points for offering lean ground beef, fat-free hot dogs, reduced fat frozen dinners, low-fat baked goods, or other healthy food items at a lower price than the alternative, less-healthy option.

<table>
<thead>
<tr>
<th>Store Name</th>
<th>Total NEMS-S Score</th>
<th>Total Adjusted Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Old San Juan Bakery</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Leannie's Variety</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Mimi &amp; Andpa's Mini Market</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Getty Mart</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Pepy's Mini Market</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>J&amp;J Deli</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Priscilla's Bakery</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Bethania Market</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Brightwood Clinic</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Medina’s</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>Mobil Gas Station</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>El Fogon Market</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>Puerto Rico Market &amp; Bakery</td>
<td>13</td>
<td>14</td>
</tr>
</tbody>
</table>

*Sorted by Total NEMS-S Score*
Three stores received a total NEMS-S score of 1: Old San Juan Bakery, Leannie’s Variety, and Mimi & Andpa’s Mini Market. These three stores each received one point because they offer 100% juice drinks. The adjusted total score for Old San Juan Bakery is still 1, while Leannie’s Variety adjusted total score is 2—with one additional point for offering a culturally relevant vegetable. Mimi & Andpa’s Mini Market received an adjusted total score of 3 for offering one culturally relevant fruit and one vegetable.

Getty Mart and Pepy’s Mini Market both received a total NEMS-S score of 3. Getty Mart received 3 points for offering low-fat milk at the same price as whole milk. Getty Mart’s adjusted total score is also 3 because the food vendor did not offer any fruits and vegetables. Pepy’s Mini Market received points for offering a fruit (bananas), a vegetable (tomatoes), and 100% juice drinks. The adjusted total score for Pepy’s Mini Market is also 3 because no additional, culturally relevant fruits or vegetables were offered.

J&J Deli received a total NEMS-S score of 5. The score of 5 resulted from offering three types of fruit (bananas, apples, and oranges), three types of vegetables (tomatoes, peppers, and lettuce), and one negative point for pricing 100% juice drinks higher than other juice options. J&J Deli’s total adjusted score is seven for offering one culturally relevant fruit and vegetable.

Three stores received a total NEMS-S score of 6: Priscilla’s Bakery, Bethania Market, and the store at the Brightwood Clinic. Each of these vendors received a point for offering low-fat milk, while Bethania received 3 points for milk (one point for offering low-fat milk and two points because the low-fat milk cost less than whole milk). The remainder of the 6 points was received for offering fruits and vegetables. The adjusted total scores for each food vendor (7, 8, and 7 points respectively) were received for offering additional, culturally relevant fruits and/or vegetables.

Medina’s and Mobil Gas Station received total NEMS-S scores of 8. Medina’s received points for offering both low-fat and fat-free milk, one fruit, two vegetables, 100% juice, baked chips, and a negative point for offering wheat bread at a more expensive price than white bread. Mobil Gas Station received points for offering both low-fat and fat-free milk at a lesser price than whole milk, one fruit, 100% juice, and baked chips. Medina’s adjusted total score is 10 for offering additional, culturally relevant fruits, while Mobil Gas Station’s adjusted total score remains the same, at 8 points.

El Fogon Market received a total NEMS-S score of 11 points. The 11 points were earned for offering both low-fat and fat-free milk, good quality fruit, good quality vegetables, and 100% juice. El Fogon Market’s adjusted total score is 12 for offering an additional, culturally relevant vegetable.
Puerto Rico Market & Bakery received the highest total NEMS-S score of 13 points. This food vendor offered both low-fat and fat-free milk at a lesser price than whole milk, good quality fruits and vegetables, and baked chips. Puerto Rico Market & Bakery’s adjusted total score is 14 for offering an additional, culturally relevant fruit.

The review of each food vendor’s total NEMS-S and adjusted scores indicates that among stores in the North End, the points received for fruits and vegetables had the most impact on the total scores. The number of fruit and vegetable items offered and the respective quality of those items greatly influenced the total score. For example, a food vendor may have only offered one vegetable for one point but that one vegetable may have been of very good quality, increasing the points received for the vegetable item from one to four, with three points for the high quality. Most of the food vendors offered the same non-prepared food items (low-fat and/or fat-free milk, 100% juice, and baked chips) but it is the difference in the number and quality of fruits and vegetables offered that impacted the total NEMS-S and adjusted scores to create the range of total scores that is outlined in Table 1 above.

INTERPRETING THE QUALITATIVE DATA

Qualitative data were also summarized, with the following key themes identified in each topic area. Photos and audio recordings were used to enhance the final poster and Google Map.

- **Advertising.** Outside of stores, more vendors displayed ads for food (5/13) and cigarettes (7/13) than for phone cards, food stamps, or newspapers. Notably, the Puerto Rico Market and Bakery had 9 ads for food stamps outside of the store. Inside stores, most advertising tended to be for cigarettes. Seven out of thirteen stores advertised cigarettes inside, followed by 4/13 stores displaying food ads inside.

- **Cleanliness.** Survey administrators overwhelmingly reported ‘OK’ smells in North End stores (7/13). One store had an unpleasant smell and one was very nice. Two others smelled like specific food items. While most (7/13) stores were ranked from ‘OK’ to ‘very clean’ visually, four stores were either dark or dirty. Two out of thirteen stores had loud coolers, two had loud music, and two had ‘light’ or ‘nice’ music. In three instances, survey administrators reported tight, small, or crowded conditions. Mice, fruit flies, dirty equipment, and very old, bruised fruit were each reported in one of thirteen stores. A refrigeration unit was leaking in one store, and two of the thirteen had leaves and dirt on the floors. With some exceptions, this indicates a generally acceptable level of cleanliness among North End food vendors.

- **Hours of operation.** The earliest store to open does so at 5am, while most others wait until 7 or 8. Stores have a wider spread of closing times, ranging from 4pm to 11pm. This indicates that North End residents do have access to local food vendors during...
most hours and on most days. In fact, North End vendors are open more hours each day than the Big Y, which opens later than most at 10am and has one of the earlier closing times of 7pm. Of note, the only vendor on the Brightwood side of the neighborhood only opens from 8-4pm on Sundays, further restricting food access to this isolated community.

- **Size of store.** All North End stores could be classified as small food vendors, with only 1 register in the majority. Medina’s, the largest grocery store, has 3 registers. In comparison, Big Y has 12 registers. Considering the small size and population in the North End, the small size of local food vendors may not be of issue. However, increased size of North End stores may attract more residents who currently shop at Big Y and other large grocery stores outside of the neighborhood. Larger food stores in the North End may also be able to benefit more from economies of scale, purchasing more products at lower prices.

- **Food placement.** No typical food placement pattern emerges among North End food vendors from these data. While ice cream, chips, and candy are more common at high traffic and attention-grabbing areas like the entry to the store and the area around the cash register, some stores also use this space for produce and other staple foods like rice. Canned foods do seem to be placed in the middle more than elsewhere in these stores. In contrast, the Big Y had flowers and produce placed at the entrance to the store. However, this larger chain grocery store also had chips, candy, and sodas at the check-out area. During informal conversations with residents of the North End, the research team found that many people bought their produce at the Big Y and used local vendors for last minute details or extra provisions to get them through the week before returning to the Big Y. Perhaps more residents would purchase produce locally if it were prominently displayed at the front of the store by the smaller North End vendors.

The results of the food assessment were quite bleak according to the NEMS-S scoring tool. None of the food vendors in the neighborhood had more than a few of the healthy alternatives listed on the survey.

While it was reported by various community leaders that grocery shopping occurs both inside and outside of the neighborhood, it is still relevant to document the food choices within the neighborhood. Additional work to determine actual purchasing habits by neighborhood residents would be needed to verify the claim above. Not all people within the North End have the same access to transportation options and other resources that may allow them to grocery shop outside of the neighborhood. Even if a trip is just a quick run to the corner store to pick up milk, the fact that many stores do not provide low-fat milk means that the consumer must make a less-healthy choice than if there were more availability of healthier food choices among the North End food vendors.

Another interesting condition found amongst many of the food vendors that was recorded in the qualitative survey was the presence of cigarette advertising within the stores. Oftentimes these ads would predominate on the store facades and directly inside the markets.
**Mapping the Food Environment**

Do North End grocery and convenience stores offer healthy, good-quality, affordable foods?

The map below illustrates the availability, quality and price of various healthy food products available in 13 neighborhood grocery stores.

The goal of this map is to create awareness about local healthy foods options in order to start conversations about personal nutrition and form coalitions with local vendors and community organizations around how availability of healthy food affects our health.

The information was collected using a nationally tested measurement tool during November of 2008 by local community members, middle school students, and university students through in-store surveys. The three indicators (healthy food availability, quality and price) were used in calculating a score for each store, and the score was then categorized into three levels: ‘healthy’, ‘less healthy’ and ‘least healthy’.

The images on the right depict what healthy foods (as defined by the measurement tool) are available at these local stores. They do not reflect price or quality of the items.

Tell us your thoughts on this map and the food environment in the North End:

Stop by the NEON office to let us know what you think!

Above: The map created to illustrate the data collected about the North End food environment.

**What are ‘healthy’ foods?**

In this context, healthy foods mean those foods which are:

- Lower in fat
- Lower in sugar
- Higher in fiber
- Higher in minerals & vitamins

**Healthy food availability**

Are healthy food options available at North End neighborhood stores?

**Healthy food availability**

Healthy food options are available at North End neighborhood stores.

**Healthy food options**

- Fresh fruit
- Fresh vegetables
- Whole grains
- Lean beef
- Low-fat milk
- Baked chips
- 100% fruit juice
- Lean frozen dinners
- Whole grain bread
- Baked potatoes
- Baked chicken
- Whole milk
- Fresh fish
- Low-fat yogurt
- Whole wheat bread
- Fresh salads
- Whole wheat pasta
- Low-fat hot dogs
- 100% fruit juice
- Fresh bread

**Why should I care about healthy foods?**

Eating healthier can help you:

- Maintain a healthier weight
- Increase fitness
- Become healthier faster
- Reduce cancer risk
- Not miss work or school
- Increase self-confidence
- Have more energy
- Increase feelings of well-being
- Sleep better
- Increase your risk of:

- Cardiovascular disease
- Diabetes
- Obesity
- Colon cancer
- Cancer
- Stomach cancer
- Lung cancer

**Healthy food availability**

Are healthy food options available at North End neighborhood stores?

**Healthy food options**

- Fresh fruit
- Fresh vegetables
- Whole grains
- Lean beef
- Low-fat milk
- Baked chips
- 100% fruit juice
- Lean frozen dinners
- Whole grain bread
- Baked potatoes
- Baked chicken
- Whole milk
- Fresh fish
- Low-fat yogurt
- Whole wheat bread
- Fresh salads
- Whole wheat pasta
- Low-fat hot dogs
- 100% fruit juice
- Fresh bread

**Healthy food options**

- Fresh fruit
- Fresh vegetables
- Whole grains
- Lean beef
- Low-fat milk
- Baked chips
- 100% fruit juice
- Lean frozen dinners
- Whole grain bread
- Baked potatoes
- Baked chicken
- Whole milk
- Fresh fish
- Low-fat yogurt
- Whole wheat bread
- Fresh salads
- Whole wheat pasta
- Low-fat hot dogs
- 100% fruit juice
- Fresh bread

** gratefully acknowledge**

North End Neighborhood, Springfield, MA

Massachusetts Institute of Technology: Springfield Practicum Fall 2008
COMPARISON WITH OTHER COMMUNITIES

The highest score received by any North End food vendor was 13 including only the NEMS-S scores and 14 including all additional fruits and vegetables. For a local comparison, the Big Y on Saint James Avenue scored a 31 with only NEMS-S scores and a 32 with all fruits and vegetables counted. The highest possible total score is 50. This means the top score in the North End is only receiving 26% of the total points available. Almost half of the stores (6 of 15) scored 5 points or lower.

Other communities around the nation have undergone this same survey. (Glanz, Sallis, Saelens, and Frank 2007) conducted an analysis in four neighborhoods in Atlanta, surveying 85 grocery and convenience stores. Results from this analysis showed that the mean score for grocery stores was 22.58 while convenience stores had a mean score of 5.85. Stores (both grocery and convenience) scored greater in high-income communities versus low-income communities (13.14 versus 7.83, respectively). The average score in the North End was 3.85, which came below all averages in the Atlanta study.

As discussed in the introduction, the North End is a low-income neighborhood, and it suffers from many of the typical food-access problems other low-income communities suffer from—namely, the lack of affordable, high-quality and accessible healthy foods. The comparison with the Atlanta case study indicates that the situation in the North End may be even more dire than other areas in similar economic conditions.
5. A DISCUSSION OF THE RESULTS
STUDY LIMITATIONS

Several issues were identified regarding the methodology and results; the following list summarizes those concerns.

- **The cultural context of the tool is not geared to a predominately Latino and Puerto Rican community.** Common brands, such as Goya juices were not the standard used in the survey. Additionally, fruits and vegetables commonly used in Puerto Rican cooking were not listed, e.g. avocado and plantains, onions and yucca. These differences would not necessarily affect scoring, since we could include Goya juices if we could not find Tropicana juices, but it could come across as not being geared toward the neighborhood stores by some people. A major point of discussion with community members was the difference in the types of vegetables and fruits that granted points to a store. As described in the methods, to address this concern we calculated alternative scores by counting non-NEMS-S fruits and vegetables. The table below shows the differences when counting only NEMS-S fruits and vegetables versus all fruits and vegetables. The last column shows that even when counting all vegetables and fruits (including less-nutritional items such as cilantro, lemons, and garlic which are used for flavoring more than nutritional value) the scores for any particular store do not increase by more than 2 points. This is not enough to move any store into a higher category of overall rating. Addressing the relevance of the NEMS-S tool for use in primarily Latino communities should be explored further. However, in this instance the limited cultural appropriateness of the tool did not distort the picture of healthy food availability in the North End—both scoring methods yielded very similar results.

- **Prices were often unmarked.** This was an issue for two reasons. One is that people may be reluctant to buy items when their price is not obviously marked. This also presented a problem in our methodology. Often, the community member who was with the group would ask the storeowner (who they often knew) what the price was. The price quoted to them could be a lower price than is normally charged, either due to their relationship or to the fact that we were obviously collecting data on prices and they may have wanted to look ‘better’ in terms of their products and prices.

- **Frozen and canned vegetables and fruits were not counted in the survey.** While these products usually do not have the same degree of nutritional quality as the fresh variety, many anecdotes related that vegetables were often consumed in the canned form. Residents have such busy schedules that preparing vegetables from scratch was reported as very difficult. This suggests the need to conduct surveys on work- and child-care related constraints to healthy eating, in addition to the food environment constraints we have examined here. Previous research suggests that in among Latino women in Springfield, scarcity...
of food and physical access to food purchasing points may not influence food purchasing and preparation as much as limited time for food shopping, cooking and family activities, and challenges in transportation to stores and childcare. (Dubowitz, Acevedo-Garcia, Salkeld, Lindsay, Subramanian, and Peterson 2007).

- *Data collection occurred in November.* Anecdotally, we heard there were more fresh fruits and vegetables in the summer months. While this is likely true, it is also a relevant finding that the access to these foods becomes more difficult in the winter months.
6. NEXT STEPS: IDEAS FOR ACTION BEYOND FALL 2008
Based on our initial surveying and research, the resulting map, list of vendors, and survey tool could be used to measure the availability of healthy foods on a neighborhood level over time, but also to take the conversation further into advocating for change based on food related health issues. In essence, the North End could use this initial spark of small food vendor stores to launch a larger community food assessment, in the spirit of the Community Food Security Coalition of California (Pothukuchi, K., Joseph, H., Burton, H., and Fisher, A. 2002.)

To get started, the Campus Committee and their partners thus have an opportunity to undertake either or both of the following actions: (a) continue/expand the measurement and analysis of the food environment started by the MIT group or (b) use the existing data and results in this report to inform and organize local and external stakeholders.

First, if the Committee decides to expand this food environment analysis within the neighborhood, action steps could include continued use of the tool described in this report or creation of a new measurement tool. The advantage of the continued use of the NEMS tool by the community would be the ability to collect more neighborhood specific data on the stores over time, so the data can reflect seasonal changes and a monitoring/tracking component. Also, this tool has been scientifically tested and provides a useful overall score that is simple to include in reports and posters. Additionally, the Campus Committee may explore modifying the NEMS tool to better reflect the diet of North End residents and healthy options within that diet. However, it is important to note that modifying the NEMS tool will require formative research to determine relevant food items, testing of the modified tool, and validation of the modified tool.

MOVING FORWARD

More specific steps the Campus Committee could take could include:

1. **Create a working group**, with representatives from partner organizations, community resident doctors from Baystate, and storeowners, to create some collaborative goals for collecting additional data. This working group could review the NEMS tool in order to make adjustments, perhaps adding more culturally appropriate fruits and vegetables or expanding to other food outlets, such as restaurants and the schools. A NEMS tool for assessing healthy food options in restaurants (NEMS-R) is available and its use in the North End could be explored.

2. **Develop a multi-prong effort** to continue collecting data on the vendors. Data collection groups may include: TOLD trained youth or youth from NEON’s after school program; New NEON Outreach Workers on household visits; Baystate Health Community medicine residents; North End Community Initiatives Fund grant applicants, as part of the requirements for the grant.

3. **Conduct regular meetings** of both the working group and the data collectors, to provide space
for further reflection and organizing, and to train these participants as nutritional environment advocates.

4. *Create mechanisms* (in person or on the web) to collect data and more qualitative stories, for both internal institutional memory and also for public reporting of efforts.

5. *Summarize findings*, through regular reporting (a weblog, a radio show, a paper or email newsletter, a video podcast of digital stories about the food environment) for local community communication and external policy and awareness.

6. *Form partnerships* with administration of the Baystate Health facilities, in order to support Baystate Health to act as a model institution by conducting these surveys in their internal food facilities (see campaigns from Health Care Without Harm www.noharm.org) and adding a nutritionist on staff at the clinic.

7. *Make connections* between nutritional environment data and neighborhood health data (provided by Baystate Health), possibly linking to larger food justice and public health campaigns within the city and state.

The Committee, based on the evaluation of the NEMS tool’s limitations in this report, also could decide to create a new store survey tool, based on simplified examples from other communities suggested by the Community Food Security Coalition of California (such as the one from Hollywood, CA—see Appendix E) or the USDA’s Food Survey Instrument (http://www.ers.usda.gov/publications/efan02013/). The advantage of creating a new, simplified tool could be the ability to measure more culturally significant options and the ease of the tool to be administered by youth and everyday citizens. The disadvantage of creating a new tool would be the inability to compare to the data gathered here, as well as the need to validate the new tool.

We recognize this data should be grounded in a larger campaign to create awareness and then organize actions in the North End around the food environment’s connections to public health. These actions could build upon both health education around individual nutritional choices, as well as awareness and advocacy to change the larger health ecology of the neighborhood, i.e. food environment. Based on this new awareness, the Campus Committee could then work to connect individuals and families to nutritional resources and information through Baystate Health or other social service providers. But most importantly, the ultimate goal is to make individuals aware of how their individual choices are affected by larger forces, such as economics and local availability of healthy food, so that residents could organize to influence neighborhood level change.
IN INVOLVING COMMUNITY ACTORS

Based on the key actors in the North End, we suggest three specific actions:

1. **Hold community meetings to inform residents of the findings presented here to start creating awareness about the food environment in the North End:**
   - Use food access map created in this study as an initial awareness and publicity tool.
   - Incorporate exercises from the Food Project (<www.thefoodproject.org>) at regularly scheduled community meetings and events, that make people aware of their assumptions about nutrition, the advantages of a more locally based food distribution system, and the power local citizens to call for food environmental change (see Appendix F).
   - Hold a specific food environment community input focus group, where you can use the findings in this report to motivate local community members and stakeholders to make specific individual and community level changes. See proposed meeting agenda, adapted from Community Food Security Coalition’ Food Access Community Input Meeting Format in Appendix G.
   - Create nutritional awareness by holding food education workshops, such as cooking classes, recipe circles or cookbook clubs. These workshops could focus on adapting eating and cooking practices prevalent in the North End to incorporate the use of healthier ingredients and cooking techniques. These workshops should include facilitated dialogues on nutrition issues and hands-on activities, as opposed to only including nutrition lectures. Potential education materials are available from the Latino Nutrition Coalition, specifically the Camino Magico shopping guide (http://www.latinonutrition.org/Resources-EducationalMaterials.htm)

Examples of workshops from other communities include:

- **Operation Frontline** collaborates with community based organizations throughout Massachusetts to provide nutrition-based cooking classes to low-income families. Volunteers work with local community organizations to run workshops for youth and adults on how to make healthy meals at home, using a wide variety of foods that are commonly available in local stores and from emergency food providers. Instructors teach lifelong cooking skills, practical nutrition information and food budgeting strategies. They run an office out of Quincy, MA. http://www.operationfrontline-mass.com/

- **Food Education workshops**, following the Just Food—Food Education format from NYC. These workshops teach CSA members, community gardeners, youth, seniors and other community members new, creative cooking skills and storage options, emphasize the direct relationship between wellness and food, provide easy to use nutrition information.

Above: Kimberfly Maloomian (center) teaches a class at Operation Frontline on how to prepare low-cost meals.
and explain the value of local foods and sustainable food systems. (http://www.justfood.org/education/)

2. **Incorporate food environment concerns in the North End Community Initiatives Fund grant, with an eye to creating a collaborative community food and nutrition resource guide.**

For instance, in 1999, local social service groups in Somerville, MA, worked with a state research institute and Tufts University to create a community food and nutrition resource guide, that lists a wide range of programs and services, primarily targeting low-income and ethnic minority residents. It includes retail food stores, government and private food assistance programs, nutrition and health services, community gardens, farmers’ markets, and CSA (Community Supported Agriculture) farms (Community Food Security Coalition case study, 2002).

In addition to the resource guide, the Committee could use narrative and storytelling resources of TOLD to create media pieces that describe or explore the context of food and nutrition, including social, cultural and spatial (geographic) factors that influence access to healthy food and diet.

The North End Community Initiatives Fund could also support initiatives such as the community meetings and nutrition workshops described above. It is likely that residents may need grant writing support to submit proposals that address food environment issues. The Campus Committee should consider holding a grant-writing workshop focused on food environment issues.

3. **Inform, organize and support local small-store owners to provide healthier food options.**

Several of the previous year’s plans identified the need to strengthen local businesses in the North End. As reported in the 2005 plan for economic development in the North End, “many [local storefront businesses] face a difficult business climate—safety concerns, a disjointed commercial strip, abandoned properties, and uncoordinated signage make Main Street a challenging commercial corridor in which to operate a business. Business owners often struggle to make rent payments, do not have guaranteed leases, and exist without security for their future. Furthermore, anecdotal evidence suggests that they do not feel supported by community resources and leadership (Plan 2005).”

Several of the storeowners we encountered in our food environment assessment expressed continued frustration with these challenges, which will only be exacerbated by the current economic downturn. The economic health of the neighborhood is intricately intertwined with the physical health of the residents.
ENGAGING STOREOWNERS

The renewed concerns around the food environment could create a new catalytic moment to redirect attention to supporting these small businesses and at the same time improve the availability of healthy food in the North End. In order to engage storeowners, The Campus Committee may consider the following options:

- Devise strategies to approach store owners as key food environment stakeholders
- Adapt the community meeting agenda (see Appendix G) to engage these owners in a conversation about the food environment in the North End, the constraining factors of the socio-economic environment and individual choice, and their power to be agents of change.
- Build their capacity to provide healthier options in a cost-effective way, for instance offering micro loans for storeowners to encourage them to take risk to carry healthier foods, or to facilitate cooperative buying of healthier items.
- Develop an in-store advertising campaign based on the anti-obesity intervention strategy Healthy Stores. This initiative drew upon ethnographic approaches to identify appropriate cultural metaphors for health communications, frame messages in appropriate ways, and to understand the social and cultural context of key behaviors related to food and health. Youth from TOLD and other after school programs could create posters and flyers to create buyer awareness around nutrition, price and availability. These media pieces could be posted in participating stores, in parallel to their internal and collective efforts with other stores to provide affordable healthier food options. For examples, please see the Baltimore Healthy Stores campaign on http://www.healthystores.org/BHSmaterials.html.

COLLABORATING WITH GREATER SPRINGFIELD

Finally, given the ground-level analysis in this report, we see an opportunity to use this data to make connections to resources and networks external to the neighborhood. Based on this very specific geographic data, the disparities in availability of healthy food options are clear and cannot get lost in the aggregate statistics on the city. Specifically, North End community members could use these findings to:

- Collaborate with Springfield’s Planning and Health Departments, the Public Health City Council, the state Department of Environmental Protection, and Bay State Medical Center. These collaborations could explore both information sharing and funding in relation to improving the food environment.
- Inform government agencies, elected representatives and local leaders to advocate for policy changes, such as zoning, advertising, WIC benefits distribution, and bans on point-of-purchase advertising.
• Form solidarity with other neighborhoods, by exploring data sharing or making the revised survey tool available in both Springfield and Massachusetts-wide, as a way to do comparisons with other areas, and highlight areas of most critical need.

• Connect to other universities doing research in public health and the food environment.

USING THIS PLAN

This report is intended to serve as an overview of the pilot food assessment survey done by the Fall 2008 Springfield Practicum, and a gateway to further resources included in the report. Given that community members will have different interests in and uses for the analysis and recommendations in this document, it has been structured such that components can be utilized separately and also as chapters in a future comprehensive public health plan.
APPENDIX A

The North End Neighborhood, Springfield, Massachusetts

Community Profile

The North End is one of 17 neighborhoods in Springfield, Massachusetts, the third largest urban center in Massachusetts. Many well known companies make this city an important base for their operations. These companies include Massachusetts Mutual Life Insurance Company, Friendly’s Ice Cream Corporation, Milton Bradley, Peter Pan Bus Company, and Smith & Wesson. In addition, the Baystate Health System, today a recognized major teaching and research facility, has a significant history in the Springfield area.

However, Springfield is also known for several public health crises and low educational attainment figures. The city has the state’s highest mortality rate and the second highest diabetes rate. Over 10% of the population has less than a 9th grade education, almost double the state average. In addition, the failure rate in Springfield for Massachusetts Standardized Tests is approaching 75%. Poverty is an increasing crisis with almost 20% of Springfield families living below the federal poverty level. Consistent with national trends, poverty rates are higher for children and people of color in Springfield.

The North End consists of two Springfield neighborhoods separated in 1961 by the construction of Interstate 91: Brightwood and Memorial Square. These two neighborhoods are home to approximately 5,000 residents each. This area has a long and proud working-class, ethnic history. The first Puerto Ricans arriving here were attracted to Springfield and the North End community in particular because of job opportunities. Originally, migrant laborers came from Puerto Rico to work in the farms of the Connecticut River Valley. Eventually, some decided to stay year-round in the closest urban area – Springfield. With this community established in the North End, increasing numbers of Puerto Ricans moved to Springfield to reunite with friends and family. The thriving manufacturing sector of Springfield also provided economic opportunity for this newly arrived group.

The North End is mostly residential and is bordered by the Connecticut River, downtown Springfield, and a nearby industrial area. The neighborhood is dominated by youth, yet has a significant elderly presence. Since the early 1960’s, the North End community has been a safe haven for the rapidly expanding Puerto Rican population: over 75% of the residents in the North End are of Puerto Rican heritage. Commercial activity is centered on Main Street in the Memorial Square neighborhood, and on Plainfield Street in Brightwood. Main Street contains many retail and service businesses. Most storefronts are occupied, although some lots along Main Street are vacant. Plainfield’s commercial activity is predominantly industrial and manufacturing-related, with some industrial sites less than a block from residential properties. Many of the sites are vacant or in disrepair.

The community is known as the poorest in Springfield and contains the poorest census tract in the Commonwealth of Massachusetts (according to the 2000 census). With a 50% high school completion rate (a statistic which is even lower for males alone), the North End also has the lowest educational attainment in the city. Incarceration rates are high with 10% of the community population passing through the Hampden County Correctional Center each year. The community also exhibits high rates of environmentally related diseases such as asthma and diabetes. Twenty percent of families report that at least one member of the household suffers from asthma. In addition, as of 1999, Springfield had the 11th-highest new HIV case rate in the country. Other health related challenges include a high teen birth rate and infant mortality rate, as well as low child immunization rates.

Although the community faces many challenges, the population of the North End is relatively stable. The family structures are strong with many extended families supporting each other through good and bad times. The Puerto Rican culture, particularly through music, food and dance, maintains its prominence within the community and is seen as a source of pride for the neighborhoods. There is also wonderful spirit and community involvement throughout the North End with voter participation rates reaching 40% for board elections of the local citizen’s council.
## APPENDIX B

### North End Non-Prepared Food Vendors Surveyed

- Bethania Market, 2760 Main Street
- Brightwood Clinic Convenience Store, 380 Plainfield Street
- Elfogon Market & Restaurant, 526 Chestnut Street
- Getty Mart & Gas, 2221 Main Street
- J&J Deli & Restaurant, 1344 Dwight Street
- Leannie's Variety, 2291-2295 Main Street
- Medina's Supermarket, 2705 Main Street
- Mimi & Andpa's Mini Market, 47-49 Montmorenci Street
- Mobil Gas Station, 3111 Main Street
- Old San Juan Bakey, 2460 Main Street
- Pepy's Mini Market, 2895 Main Street
- Priscilla's Bakery, 2960 Main Street
- Puerto Rico Market & Bakery, 2895 Main Street
Qualitative Survey

Information to gather from stores before entering/speaking with owner:

These data should be collected for all food vendors for the purposes of comparing compliant vendors with those who do not comply, and also to evaluate some aspects of vendor context.

- advertising in front windows/doors of building (food/drink related)
- hours/days of operation (this applies to accessibility)
- type of food(s) displayed at immediate entrance (what do you see when you walk in?)
- rough initial assessment of cleanliness (problems you can smell, see, or hear immediately, or no problems)
- number of cash registers (proxy for store size)

Contextual information to gather after receiving vendor consent:

In addition to the items above, these data should be gathered from all compliant stores in addition to the NEM-S surveys in order to capture more information on store layout, cleanliness, and in-store advertising.

- What types of foods are at the front of the store? at the back of the store? in the center of the store? line the sides of the store? are near the registers?
- Do you see evidence of any of the following cleanliness issues – vermin/pests, equipment functionality (i.e. refrigerators, freezers), liquids/debris/dust on shelves or floor, damaged food items, anything else notable?
- What items do you see advertised throughout the store? Is there an overall concentration of ads in one place, or ads of a certain type?

APPENDIX C

Of special attention for the “comments” section:

While we will use the NEM-S tool in its present form to preserve its tested reliability and validity, we should take note, in each section, of the following data in the “comments” section for each question. Most importantly, we need a consensus on the brands of milk, bread, and other items that are common in the community. Please note these brands in your first survey, and we will decide on brands to focus on in subsequent surveys during our lunch meeting.

- If the item or brand noted on the survey is not available, are there other substitute items or brands that you see? This could be plantains in place of bananas, or Hood milk instead of Borden, etc. Please try to note the most predominant brand, as well as prices associated with this brand or the substitute item.
- Make note of any striking scarcity or overabundance of an item. For instance, if you see broccoli, but only two bunches, take note of this in the comments section. There is no need to count an overabundance, please just note this.
Qualitative Survey

Pre-consent data collection:

1. Advertising in front of store:
   - Item advertised
   - Size of ad
   - Placement of ad

2. Hours and days of operation:
   - Sun
   - Mon
   - Tues
   - Wed
   - Thurs
   - Fri
   - Sat

3. What food/beverage items do you see when you walk in?

4. Cleanliness issues:
   - Smells
   - Sights
   - Sounds
   - Other

5. Number of cash registers:

6. Types of foods in different store areas:
   - Front
   - Back
   - Middle
   - Lining Walls
   - Near register(s)

7. Additional cleanliness issues:
   - Pests
   - Equipment
   - Spills, etc.
   - Damaged food
   - Other

8. In-store advertising:
   - Type
   - Number
   - Location(s)
## Individual Measurement Scores and Alternate Scores by Food Vendor

<table>
<thead>
<tr>
<th>Food Vendor</th>
<th>Milk</th>
<th>Fruit</th>
<th>Culturally relevant fruit</th>
<th>Vegetables</th>
<th>Culturally relevant vegetables</th>
<th>Ground Beef</th>
<th>Hot Dogs</th>
<th>Frozen Dinners</th>
<th>Baked Goods</th>
<th>Beverages</th>
<th>Bread</th>
<th>Baked Chips</th>
<th>J&amp;J Deli</th>
<th>Getty Mart</th>
<th>Pepe's Mini</th>
<th>El Fogon</th>
<th>Mobile Gas</th>
<th>Learnright Variety</th>
<th>Walgreens</th>
<th>ANAqals</th>
<th>Big Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>Puerto Rico</td>
<td>2</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Old San</td>
<td>3</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Priscilla's</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Medina's</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bethesda</td>
<td>4</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Brightwood</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pepe's Market</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Fresh Market</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Fresh Store</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Station Market</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Variety Market</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Big Y</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

APPENDIX D
### Hollywood Food Needs Assessment Survey Tool (from Community Food Security Coalition)

**ID:**

**Store name and address:**

**Chain?**

**Hours:**

**Phone:**

**Type of store:**

- Supermarket
- Local market
- Convenience store
- Sundry (like .99)

**Check one:**

- C
- SD
- D

**Other impressions:**

<table>
<thead>
<tr>
<th>Item</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Handicap accessible</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food stamps accepted</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Card machine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WC accepted</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bent can resals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delivery or ride</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microwave</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nutrition promotion</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>Not Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 lb. chicken</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 oz. can tuna</td>
<td></td>
<td></td>
</tr>
<tr>
<td>One dozen eggs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 oz. jar peanut butter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>One pound bananas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>One pound apples</td>
<td></td>
<td></td>
</tr>
<tr>
<td>One pound oranges</td>
<td></td>
<td></td>
</tr>
<tr>
<td>One pound carrots</td>
<td></td>
<td></td>
</tr>
<tr>
<td>One pound tomatoes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>One pound onions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>One pound potatoes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>One pound rice, bulk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32 oz. Bag rice</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bag 96 Corn tortillas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2 lb. 1 oz.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loaf, wheat bread</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(List size) Pkg., pita</td>
<td></td>
<td></td>
</tr>
<tr>
<td>bread</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 oz. Bag Spaghetti</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2 gal. Non fat milk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2 gal. 2% milk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2 gal. Whole milk</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX F

The Wind Blows – Icebreaker and Food Environment Awareness Tool (Adapted from materials from The Food Project)

Preparation: Print out the facts below and cut them into strips by question.

Instructions: To begin this activity, have everyone grab a chair and form a circle. (If you lack chairs, having everyone form a circle, take off one shoe and place it in front of them is a good substitute).

Have everyone facing towards each other with a good amount of running room in the middle of the circle. Remove one chair (or shoe) so that someone is left without a place to stand. That person then moves to the center of the circle. Place the question strips in a bowl in the middle of the circle.

The middle person starts this activity by grabbing a piece of paper and reading it, starting with “The wind blows for _____. “ Anyone in the circle who possesses that particular characteristic, or has done the activity that is described by the person in the middle, has to run to a new chair (or shoe). (Very important - they can’t jump to the chair next to them. They must find a new chair somewhere else in the circle.) Ultimately, there will be one person left in the circle who then has to repeat the process all over again.

Wind Blows Questions 2007:

The wind blows for anyone who enjoys eating strawberries, pineapples and mangoes in the middle of winter.

Growing, processing and delivering the food consumed by an average American family of four requires 3,367 gallons of gas each year; that’s enough to fill up your car 22 4 times, or once every day and a half.

The wind blows for anyone who buys candy or popcorn at the movies.

50 cents out of every dollar Americans spend on food is used to purchase junk food that is high in fats, sugars, and artificial flavorings.

The wind blows for anyone who enjoys being outdoors.

More than 17,000 U.S. farmers go out of business every year – that is one every half hour.

The wind blows for anyone who has ever complained that the lettuce at the supermarket looks wilted or brown.

Supermarkets mark up the price of farm produce as much as 90 percent. When you buy a head of lettuce for $1.90, the farmer is paid only 19 cents. If you bought that same head of lettuce at a farmer’s market, the farmer would get $1.90 and the head of lettuce would be a lot fresher.

The wind blows for anyone who has ever bought something to eat because it said it was “healthy” on the label.

A study in one US supermarket found that of the 27,000 products in the store, three-quarters of them did not qualify as even “minimally healthy”.

The wind blows for anyone who has drunk a soda in the last month.

The average American consumes 156 lbs. of sugar a year, that is 1 cup a day. Most of that sugar comes from high fructose corn syrup.

The wind blows for anyone who has had a cold this past winter.

27% of all antibiotics used in the US are fed to animals to increase their rate of weight gain and prevent disease outbreaks on industrial farms.

The wind blows for anyone who enjoys talking to friends on the phone.

There are more than 3,700 farmers’ markets in the U.S., twice as many as in 1994. There are ten times as many conversations at farmers’ markets than at supermarkets.

The wind blows for anyone who enjoys swimming in the ocean.

The use of nitrogen fertilizer has increased tenfold in the last 50 years. More than 1/2 of the nitrogen applied to cropland ends up in rivers and oceans creating dead zones where fish cannot survive.
Why map the food environment?

The way a community is set up can hinder or help an individual's ability to maintain a stable, nutritious diet. Our goal is to increase the awareness of possible barriers to food security and help facilitate improved access to nutritious food.

Although the Federal nutrition safety net and agricultural policies play a key role in household and community food security, many decisions that affect a community's food security are made at the local level, such as funding allocations, types of programs or outreach, who to target, and so on. (USDA)

Why are we here?

We are going to talk about some of the issues that you face in getting food. We are going to look at all of the surrounding issues that it takes in getting food beyond income. We have five to six general questions, but the desire to focus on a specific topic dealing with food access is your choice. We encourage you to share your opinions about the topics we discuss. Working in a group like this gives us the benefit of getting collaborative responses.

Explanation of what will happen to information after meeting:

[To Be Determined by Campus Committee]
APPENDIX G CONTINUED

Proposed Community Meeting Agenda (Adapted from Community Food Security Coalition’ Food Access Community Input Meeting Format)

1. Where do you currently do your food shopping and why do you choose to shop there? (20 minutes)
   - Where do you do most of your food shopping? Is it in the North End neighborhood?
   - Are there other stores you use besides your main local food store, Medina’s?
   - What are the reasons you shop at these other stores?
   - How do different stores compare in terms of price, quality, service, selection, convenience (try to draw specific examples from people, make sure alternate recorder knows to write down these stories with as much detail as possible)
   - When do you shop (time of day/time of month), who does the shopping?
   - Is there anything else that influences where you shop? (Transportation, time, preference)
   - Is there anything else that we need to record about shopping in this area?

2. Is there any other way you get food? (10 minutes)
   - For instance, do you garden at home or have fruit trees?
   - Do you go to the Avocado Street Farmers Market’s in the summer?
   - Do you shop at the outside carts the stores on Main St. put out in the summer?

3. Are there foods you find difficult to get? Why? (10 minutes)
   - Do you sometimes not buy certain foods because they are too expensive or the quality is bad?

   - Do you find there are some foods that you can’t find in the stores even when they are in season (referring to perishable items)?

   - Is there not enough selection of some product to let you make the most nutritious choice?

4. In general, what kind of transportation do you use to get your groceries and get home? (10 minutes)
   - How far do you have to go to shop? (how far away from your home is the nearest grocery store- do you have to use a car or bus or is it close enough to walk?)
   - Do you have difficulty getting transportation to get to the store?
   - If transportation wasn’t an issue, where would you shop? (where there is babysitting, major grocery outlets such as…)

5. What changes in the community would make it easier to get food? (10 minutes)
   - What small things could be changed to make it easier to get food?
   - Are there some system changes (bus routes, location of food sources) that need to be addressed?
   - What do you feel are the most important issues that the community needs to discuss?
APPENDIX H

Sources


Flournoy, Rebecca and Sarah Treuhaft. 2005. “Healthy Food, Healthy Communities: Improving Access and Opportunities Through Food Retailing.” PolicyLink and The California Endowment, Oakland, CA.


