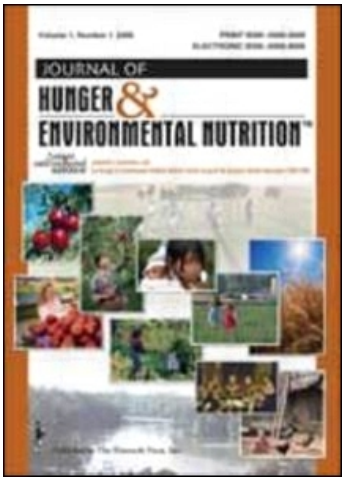


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# Food Systems and Public Health: The Community Perspective

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# Food Systems and Public Health: The Community Perspective

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*This article addresses the intersection of the food system and public health from the community perspective, based on the work of the HOPE Collaborative in Oakland, California. The HOPE Collaborative initiated intensive community outreach and engagement as part of its planning process to address inequitable access to healthy food in Oakland's most vulnerable neighborhoods. This effort involved two levels of community assessment and an inquiry into the potential of addressing both healthy food access and poverty through the construction of local food enterprise networks. Many unanswered questions remain. However, it seems clear in that in order to reduce health disparities in Oakland's most vulnerable neighborhoods, the community must address inequities in both access to healthy food and access to economic opportunity.*

*KEYWORDS HOPE Collaborative, health disparities, equitable access to healthy food, community outreach and engagement, food systems and economic development, vulnerable communities*

## INTRODUCTION

The HOPE Collaborative—HOPE stands for Health for Oakland's People and Environment—began in the fall of 2006. The W.K. Kellogg Foundation issued requests for proposals to 5 Oakland organizations, with the invitation to form a collaborative to address childhood obesity and health disparities through systemic interventions addressing equitable access to healthy food and safe, attractive places for active living. This invitation resonated strongly with many Oakland organizations working on these issues because of the

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striking disparities in health outcomes between the Oakland flatlands and the Oakland hills. Children and adults living in the flatlands bear an excessive burden of disease. The Alameda County Public Health Department described this burden in the following way:

> Compared with a White child in the Oakland hills, an African American child born in West Oakland [a flatlands neighborhood] is 1.5 times more likely to be born premature, or low birth weight, 7 times more likely to be born into poverty, 2 times as likely to live in a home that is rented, and 4 times more likely to be to have parents with only a high school education or less.
>
> As a toddler, this child is 2.5 times more likely to be behind in vaccinations. By fourth grade, this child is 4 times less likely to read at grade level and is likely to live in a neighborhood with 2 times the concentration of liquor stores and more fast food outlets. Ultimately this adolescent is 5.6 times more likely to drop out of school and less likely to attend a 4-year college than a White adolescent.
>
> As an adult, he will be 5 times more likely to be hospitalized for diabetes, 2 times as likely to be hospitalized for and to die of heart disease, 3 times more likely to die of stroke, and twice as likely to die of cancer.
>
> Born in West Oakland, this person can expect to die almost 15 years earlier than a White person born in the Oakland hills. (p. 3)[1]

With regard to childhood obesity, the Alameda County school district data shown in Figure 1 illustrate the relationship between percentage of youth in poverty and youth who are overweight in Alameda County, in the period 2000–2003. The lowest rates are in Piedmont, a small city surrounded by Oakland in the Oakland hills. The highest rates are in Oakland.[2]

In addition to childhood obesity, Oakland flatland youth face additional severe health disparities, beginning with violence. Homicide is the leading cause of death among youth ages 15–24 in Alameda County. Between 2001 and 2003, 78% of young African American men and 52% of young Latino men who died by homicide in Alameda County were from Oakland.[3] Other health disparities include asthma. For the years 2001–2003 the rate of asthma hospitalizations for children 0–14 was 356 per 100,000 in Alameda County, significantly higher than the state rate of 177 per 100,000. The asthma hospitalization rate for youth in this age range was the highest in East and West Oakland flatland areas.[3]

These disparities extend to the availability of safe, attractive spaces for active living. African American youth in Alameda County were least likely to have a park near their homes (79%), compared to other groups (over 90%). But fewer African American (41%) and Latino youth (32%) felt that the parks were safe at night compared to other groups (over 56%).[3]

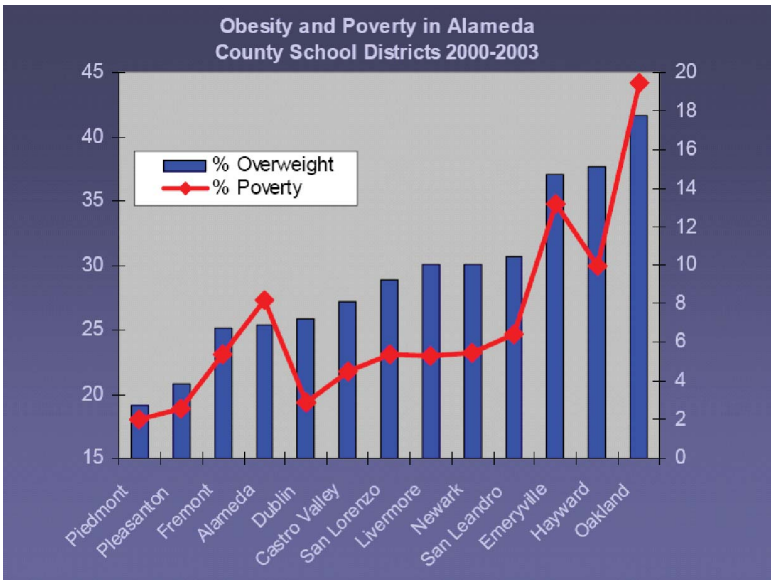



**FIGURE 1** Obesity and poverty in alameda county school districts 2000–2003 (see endnote 2).

This article will describe the work of the HOPE Collaborative in terms of its perspective on the intersection of food systems and public health.

## COMMUNITY OUTREACH AND ENGAGEMENT

Community outreach and engagement is a novel and critical element in the work of the HOPE Collaborative. Key organizational and institutional stakeholders in the Collaborative, as well as the Kellogg Foundation, fully expect that the HOPE Collaborative will build its work on the expressed needs, hopes, aspirations, and assets of the Oakland residents who most directly suffer the impact of health disparities. HOPE's co-convening organizations, the Alameda County Public Health Department and the Alameda County Community Food Bank, along with other cofounders of the Collaborative, such as Public Health Law & Policy, Mandela Marketplace, City Slicker Farms, People's Grocery, Cycles of Change, and Food First, hold this commitment. The Collaborative has fulfilled this expectation to a significant extent, with the recruitment and engagement of over 400 residents of Oakland's most vulnerable neighborhoods and close to 30 organizations. Community residents participate actively in the planning process through a steering committee and 4 action teams, organized around the content areas of food systems, the built environment, local sustainable economic development, and families and youth. The Collaborative has approached planning

from a social-ecological approach, building its assessment protocol on the notion that effective planning requires substantial knowledge of the human, social, and physical environment of the neighborhoods where it works. The planning process has integrated professional planning practices with a robust, grassroots, bottoms-up approach, where residents have equal voice and vote in the collection of data, data analysis, data interpretation, and the formation of recommendations based on the data.

## THE HOPE VISION

The HOPE vision is to create vibrant Oakland neighborhoods that provide equitable access to affordable, healthy, locally grown food; safe and inviting places for physical activity and play; and sustainable, successful local economies—all to the benefit of the families and youth living in Oakland's most vulnerable neighborhoods, those suffering the greatest impact from health disparities.

The HOPE Collaborative is one of 9 sites funded by the W.K. Kellogg Foundation through its Food and Fitness Initiative. HOPE received 2½ years of funding for planning a comprehensive strategy for creating environmental changes that will significantly improve the health and wellness of Oakland residents. The Kellogg Foundation plans to provide up to 3 years of funding for implementation upon approval of the community action plan.

## THE OAKLAND CONTEXT

We know that structural inequities impact communities in adverse ways. For example, the use of redlining in the mortgage industry created conditions of blight and neglect in cities across the United States. Oakland is a city divided by structural inequities, figuratively and literally represented by Interstate 580, a highway that runs along the base of the Oakland hills and separates the hills and the Oakland flatlands (see Figures 2–4).

Health inequities have their most severe impact in the flatlands. The map shown in Figure 5, produced by the Alameda County Department of Public Health, shows the distribution of mortality and high school graduation rates in Oakland.

The map shows that the adverse impact of health and educational disparities extends across the entire flatlands, from West Oakland to East Oakland. These inequities mirror the distribution of race, ethnicity, and income in the City of Oakland.

The distribution of supermarkets in Oakland follows this same pattern, with 9 supermarkets located in the hills, one supermarket for about 14,000

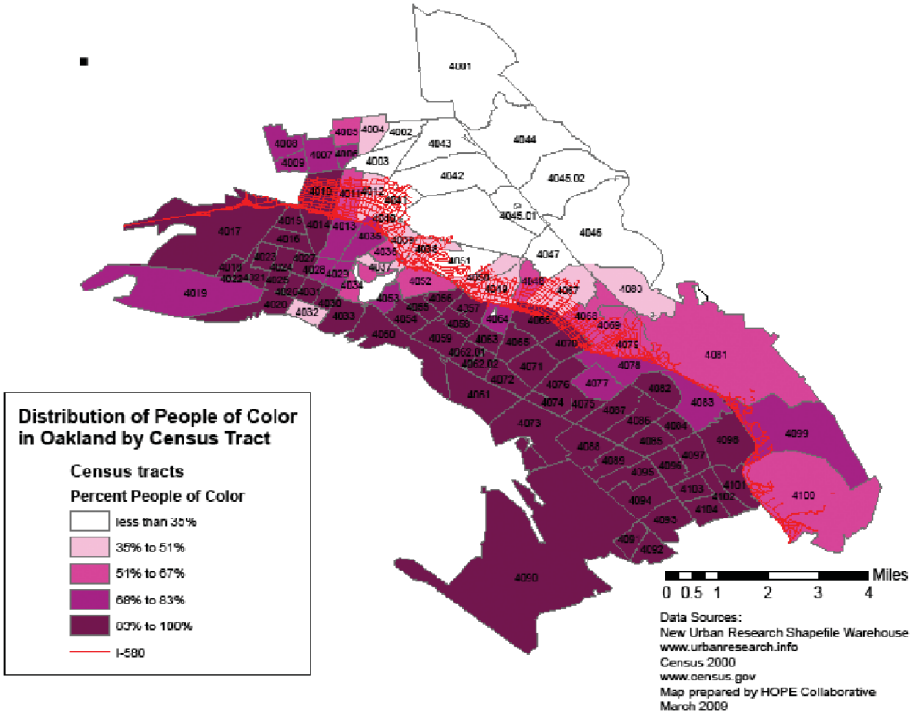



**FIGURE 2** Distribution of people of color by census tracts. Interstate 580 in red.

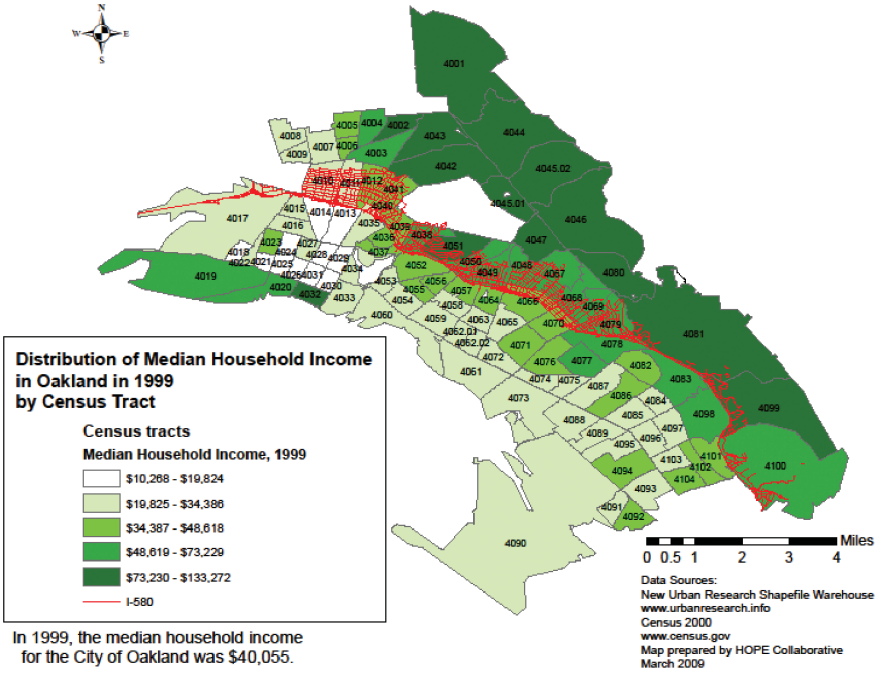



**FIGURE 3** Distribution of median household income in Oakland in 1999. I-580 in red.

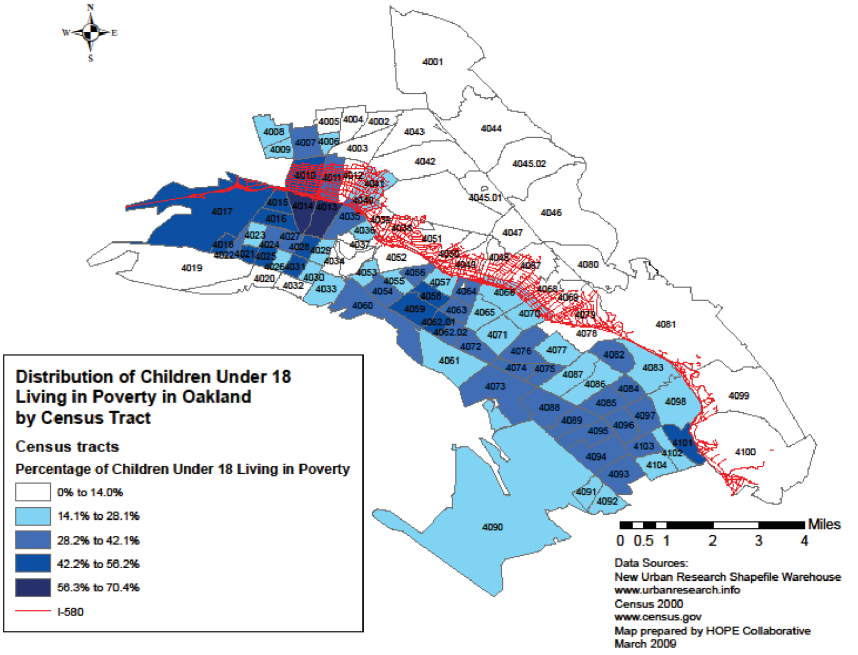



**FIGURE 4** Distribution of children under 18 living in poverty in oakland by census tract. I-580 in red.

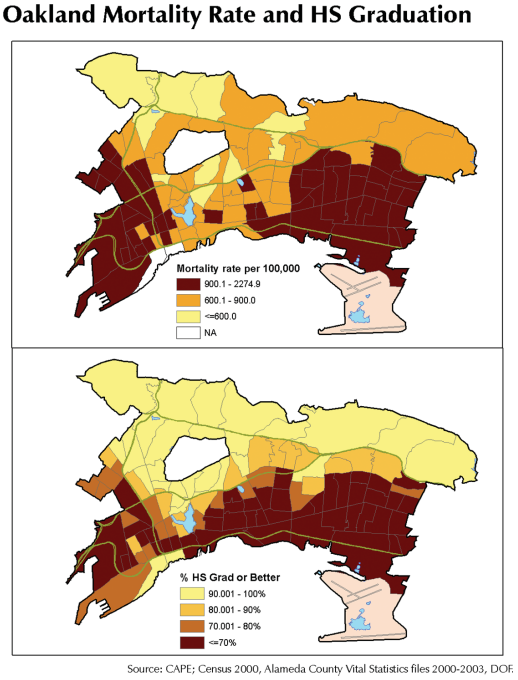



**FIGURE 5** The maps show that Oakland's highest mortality rates and lowest high school graduation rates are located in the flatlands area of the city.

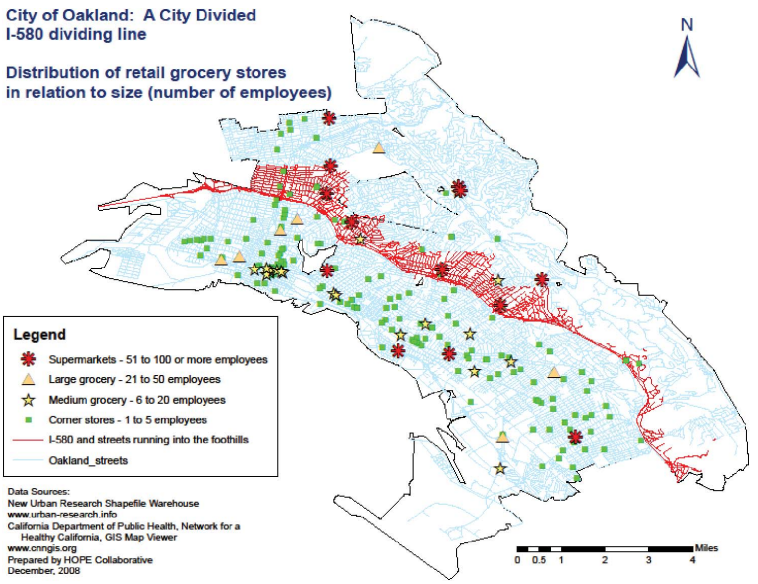



**FIGURE 6** Distribution of retail groceries in oakland. I-580 in red.

**TABLE 1** Comparison of Demographic Characteristics of Oakland FlatLands and Hills

| Characteristic | Flatlands | Hills |
|---|---|---|
| Population | 275,379 | 124,098 |
| Percentage of the population persons of color | 89.6 | 47.7 |
| Percentage of the population persons under the age of 18 | 28.2 | 17.6 |
| Percentage of persons under the age of 18 living in poverty | 32.3 | 11.7 |
| Median household income, 1999 (the median household income in 1999 for the City of Oakland was $40,055) | $33,093 | $61,528 |

people, and only 3 in the flatlands, one for about 93,000 people (see Figure 6). Table 1 further documents these disparities.

In addition to these disparities, the flatlands, compared to the hills, have much higher housing density, higher ratios of seniors and children, fewer transit options, infrastructure deficiencies such as roads and bike paths, public safety concerns, high levels of pollution such as diesel emission, lack of access to parks and recreation (about 20% of the city standard), and associated health inequities. Diesel trucks cannot travel along Interstate 580, protecting the hills from diesel emissions. Instead they must use Interstate 880, which runs through the flatlands. West Oakland has extremely high rates of diesel particulate matter in the air and associated high rates of asthma and cancer. Residents of the flatlands have lower life expectancies compared to the hills. Flatland residents have higher prevalence of Type II diabetes mellitus and asthma compared to the average in Alameda County.

## WHAT WE KNOW

To gain knowledge of conditions, challenges, and opportunities for systemic change, the HOPE Collaborative conducted two kinds of assessment. First, HOPE commissioned two meta-analyses or reviews of studies that had been done between 2003 and 2008 to identify key findings and knowledge gaps. Second, HOPE conducted microzone assessments, a series of neighborhood assessments to learn about current conditions.

The food systems meta-analysis reviewed 13 studies. Key findings were that affordability is the most important factor that influences where low-income residents shop for food and there are major gaps in food systems knowledge; that is, knowledge of the food system functioning as a whole system.

The built environment meta-analysis reviewed 15 studies. The key finding was that crime creates significant barriers to using the built environment for physical activity and play.



The HOPE microzone assessment includes the following data elements: microzone demographics based on census block group data; "walk-the-block" visual inspection to inventory land use and the condition of streets and sidewalks, parks, and playgrounds (HOPE uses the term "walk the block" because a team literally walks around each of 4 blocks in the microzone, all of which meet at the index intersection [e.g., 12th and Peralta] where there is a corner store. The team visually examines each parcel in the block and codes the use of the parcel); GIS mapping of land use on Alameda County parcel maps; and food store visits at corner stores in the microzone to determine product availability, prices, food quality, and ownership. The microzone assessment included estimates of aggregate consumer food expenditures; an inventory of the types of businesses and business ownership in the microzone; a series of listening sessions, individual interviews, household surveys; and two community mapping sessions for microzone residents to map out changes that they would like to see in their neighborhoods. HOPE conducted microzone assessments in 6 neighborhoods across the flatlands: West Oakland, North Oakland, the San Antonio neighborhood, the Elmhurst area, and 2 Deep East Oakland locations. Table 2 provides demographic data for each of the 6 microzones. (Census 2000, http://www.census.gov) provided the basic demographic information for each of the microzones. The microzone geography consists of the census block groups that touch on the index corner within the microzone. The index corner provides the name of the microzone. The US Census provides demographic data to the census block group level.)

Key findings from the microzone assessments are that people in the flatlands do cook at home, an average of 4.5 meals per week. Also, people eat fresh fruits and vegetables, an average of 2.5 servings daily. People told us in the listening sessions, individual interviews, and community mapping sessions that they want to buy fresh, healthy food but that it is not readily

**TABLE 2** Comparison of Demographic Characteristics of the Micro-Zones Included in the Micro-Zone Assessment

| | 98th and Edes | 23rd and Foothill | 12th and Peralta | Church and Avenal | 32nd and MLK (West and Brockhurst) | 90th and MacArthur |
|---|---|---|---|---|---|---|
| Population | 4105 | 9265 | 1875 | 2816 | 3009 | 4448 |
| Percentage people of color | 86.0 | 78.1 | 93.2 | 89.0 | 90.5 | 85.6 |
| Median household income, 1999 | $29,115 | $30,714 | $20,030 | $33,162 | $26,250 | $32,328 |
| Percentage in poverty | 18.9 | 34.1 | 40.0 | 19.0 | 44.2 | 29.4 |
| Percentage of households without vehicles | 15.2 | 24.6 | 47.4 | 18.9 | 37.0 | 26.4 |

available. Most people shop at supermarkets and must travel 20 to 30 minutes one way to access fresh food. The corner stores in the microzones sell very little fresh food of any kind.

We recognize that the public health perspective posits relationships between access to healthy food, income, race/ethnicity, and health status. However, from the community perspective the critical relationship is between the need for new grocery retail in the flatlands, based on the severe lack of access, and what people living in the neighborhood say that they want for themselves. The people want better access to healthy food. The people happen to be poor and predominantly people of color. But their desire for healthy food is paramount. From the community perspective, we start with endeavors to meet this need. And we recognize that meeting this need can generate sustainable local economic growth and ultimately improved health outcomes.

To estimate how much people spend on food, HOPE used a market basket list of 20 basic food items, based on the Consumer Expenditure Survey published by the Bureau of Labor Statistics.[4] The 20 items come from the food categories comprising about two thirds of all food purchases for home consumption. HOPE then surveyed supermarkets in Oakland to determine the actual prices for those products. Using per capita food availability data from the USDA, a proxy for per capita consumption for each product, and multiplying per capita consumption times the current price times the number of people living in a particular geographic location (e.g., the microzone, the flatlands, Oakland) gives an estimate of how much an individual spends annually for the 20-item market basket and an estimate of how much the population in each location spends in the aggregate for the 20-item market basket.

Using this methodology HOPE determined that in 2008 individuals living in the flatlands spent from $904 to $1824 per person per year for food for the 20-item basic food basket, depending on which of 8 supermarkets they used for purchasing food. The median per person annual expenditure was $1296 (see Table 3).



## WHAT WE NEED TO KNOW

From the perspective of the community most severely impacted by inequities in food access, the built environment, economic status, and health status, several questions emerge from the HOPE assessments with relevance to the intersection of food systems and public health. The stakeholders in HOPE assume that if HOPE achieves its vision, the systemic changes resulting from this achievement will produce (1) improved health status for the families and youth in Oakland's most vulnerable neighborhoods and (2) increased resilience in Oakland's most vulnerable neighborhoods. The model of change for this assumption is that improved food access and improved built environment will produce growth in the neighborhood

**TABLE 3** Value of Sales of 20 Basic Food Products Produced in California, Using 2004 Per Capita Consumption Data from the USDA Economics Research Service, Unit Prices from the Pac N Save Store on March 17, 2008, and the 98th and Edes Microzone Population. The Table Shows the Aggregate Food Expenditure for the Microzone and the Per Capita Food Expenditure. Assumptions for these Estimates are (1) Shoppers all Shopped at the Pac N Save Store for all of their Food and (2) the Price for the Survey Date for each Item Holds Throughout the Year

| Food at home | Units | 2004 annual per capita consumption in units | 98th and Edes population 2000 | Total annual consumption | Unit price at Pac N Save, March 17, 2008 | Total estimated sales for basic food product list |
|---|---|---|---|---|---|---|
| 1 White and whole wheat flour | pounds | 123.1 | 4,105 | 505,326 | $0.89 | $449,740 |
| 2 Beef | pounds | 65.8 | 4,105 | 270,109 | $2.49 | $672,571 |
| 3 Pork | pounds | 50.9 | 4,105 | 208,945 | 2.79 | $582,955 |
| 4 Other meats (veal, lamb) | pounds | 1.6 | 4,105 | 6,568 | $5.29 | $34,745 |
| 5 Chicken | pounds | 84.5 | 4,105 | 346,873 | $1.19 | $412,778 |
| 6 Fish | pounds | 5.5 | 4,105 | 22,578 | $3.99 | $90,084 |
| 7 Eggs | dozen | 21.0 | 4,105 | 86,205 | $3.68 | $317,234 |
| 8 Fluid milk | gallons | 23.7 | 4,105 | 97,289 | $4.59 | $446,554 |
| 9 American cheese and other cheese | pounds | 31.3 | 4,105 | 128,487 | $5.48 | $704,106 |
| 10 Ice cream | gallons | 3.4 | 4,105 | 14,048 | $7.99 | $112,245 |
| 11 Apples | pounds | 18.8 | 4,105 | 77,174 | $0.98 | $75,631 |
| 12 Strawberries | pounds | 5.5 | 4,105 | 22,578 | $4.98 | $112,436 |
| 13 Broccoli | pounds | 5.4 | 4,105 | 22,167 | $1.98 | $43,891 |
| 14 Fresh potatoes | pounds | 44.7 | 4,105 | 183,494 | $0.98 | $179,824 |
| 15 Onions | pounds | 20.4 | 4,105 | 83,742 | $0.98 | $82,067 |
| 16 Tomatoes | pounds | 16.4 | 4,105 | 67,322 | $2.98 | $200,620 |
| 17 Potato chips | pounds | 4.1 | 4,105 | 16,831 | $3.49 | $58,738 |
| 18 Canned vegetables (mixed) | pounds | 15.4 | 4,105 | 63,217 | $1.03 | $65,114 |
| 19 Frozen vegetables (mixed) | pounds | 16.9 | 4,105 | 69,375 | $2.39 | $165,805 |
| 20 Canned tomatoes | pounds | 70.4 | 4,105 | 288,992 | $1.26 | $364,130 |
| | | VALUE OF SALES OF 20 BASIC FOOD PRODUCTS PRODUCED IN CALIFORNIA | | | | $5,171,268 |
| | | | | | Per Person Price | $1,260 |

economy and a perceptible improvement in public and personal safety, and these positive changes will directly and indirectly improve physical, emotional, and social health for the families and youth in the neighborhoods. To support these assumptions HOPE needs to answer the following questions.

- Question 1: Can local food systems drive local economic development? HOPE stakeholders are searching for a parsimonious solution linking improved food access to local economic development to improvements in the built environment that support neighborhood shopping, walking, biking, and other forms of physical activity and play.
- Question 2: What does the per person food expenditure mean? HOPE estimates that poor people living west of Interstate 580 spend between $400 and $600 million annually to buy fresh, healthy food, based on the research using the 20-item market basket. That expenditure is a very large economic engine that could drive the development of local neighborhood economies—if it is accurate.
- Question 3: Can we use this information to plan and build local, neighborhood-based food enterprise networks? Using the per capita expenditure estimate of $1296, every neighborhood of 5000 people would generate about $6.5 million in local food purchasing revenues. To improve this estimate, HOPE needs ethnographic market research to tell us about flatland food purchasing behaviors—both food quality and food expenditures.
- Question 4: What would be the local economic impact of local food enterprise networks? Standard market gap analysis looks at the number of actual square feet of retail grocery space in relation to the total need for retail grocery space. Using data from the California Nutrition Network, the flatlands have a total of 946,320 square feet of retail grocery space. However, the majority of that space in most stores contains consumer packaged goods, not fresh food. Assuming that a retail grocery has 25% of the retail grocery space devoted to fresh food (a high, conservative estimate), the flatlands have 236,580 square feet of grocery retail for fresh food. Based on HOPE research the flatlands population spends $500 million annually for fresh, healthy food. Using an industry standard of $500 per square foot in food sales, the flatlands need 1,000,000 square feet in retail grocery space for fresh, healthy food. But the flatlands have only 236,580 square feet available, or 25% of the space needed for retail grocery. The remaining market gap is 75%. By multiplying the annual sales by the market gap ($500 million times 75%), this method estimates that approximately $375 million in food purchases leaks out of the flatlands in lost sales. A local food enterprise network—owned and operated by flatlands residents—could capture those sales. Estimating the cost of labor for the local food enterprise network as 18% to provide living wages for all employees (B. Ahmadi, personal communication, July 2009), $375 million in lost sales represents $67.5 million in lost wages or 1500 jobs paying an average of $45,000 per job.

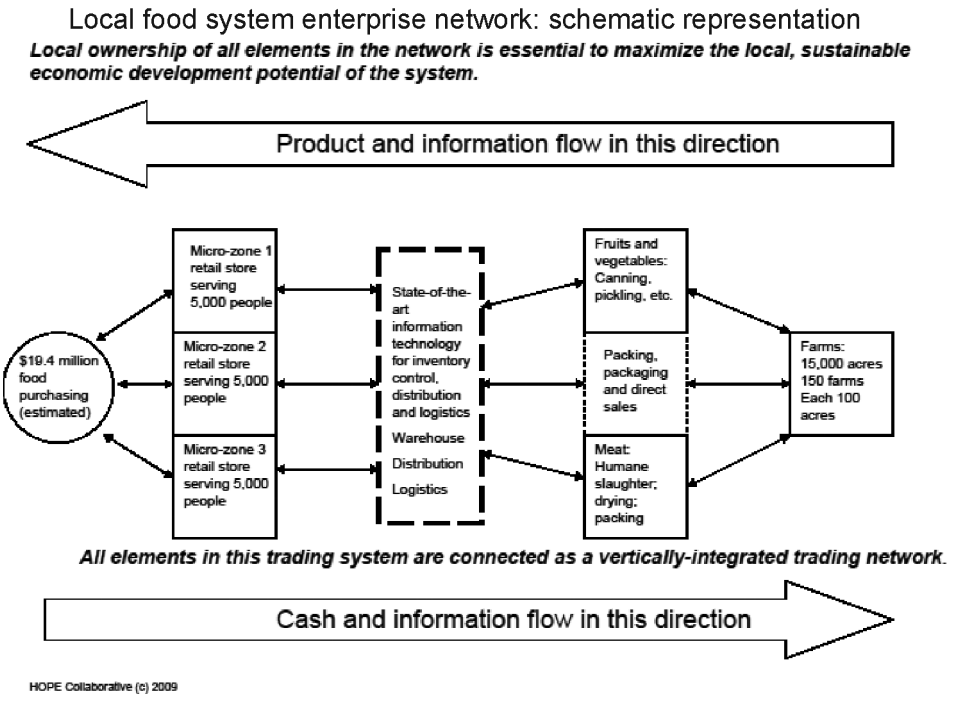
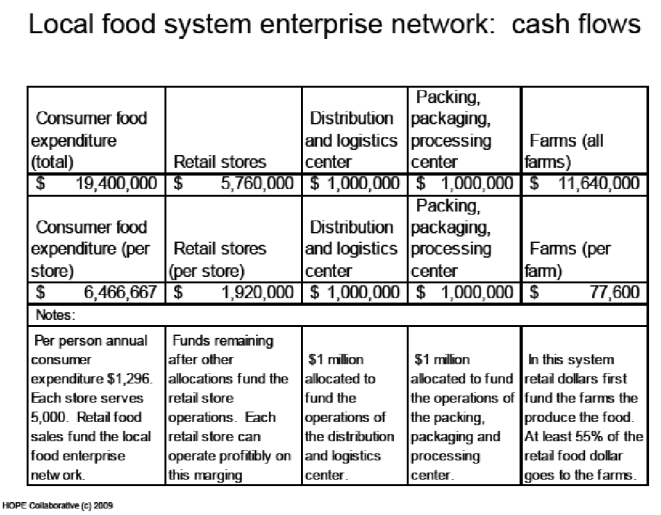



**FIGURE 7** Schematic diagram of a local food enterprise network.

- Question 5: Can we build a local food system that both increases access and builds wealth? In theory at least a local food enterprise network would vertically integrate all food system operations, from production to retail (see Figure 7). Local ownership of all elements in the network is essential to maximize the local, sustainable economic development potential of the system. After initial investment for financing startup costs, the local food enterprise network would fund itself through retail sales (see Figure 8). Reinvestment of profit would finance the expansion of the system beyond the initial unit of 3 retail stores supported by a production-packing-packaging-processing-distribution and logistics infrastructure. HOPE anticipates that additional neighborhood commercial development would result from the retail grocery stores action as "anchors" for other types of stores offering basic goods and services needed for everyday living, generating additional new income and jobs in the neighborhoods.
- Questions 6 and 7: How do we develop policies that make the psychological and social space in the neighborhoods safe and attractive? Does ownership lead to public safety? HOPE has based much of its planning on the belief that more community ownership, engagement, and jobs, especially for young people—beginning with creating a real stake for young people in the planning and policy development process—will give families and



Local food system enterprise network: cash flows

| Consumer food expenditure (total) | Retail stores | Distribution and logistics center | Packing, packaging, processing center | Farms (all farms) |
|---|---|---|---|---|
| $ 19,400,000 | $ 5,760,000 | $ 1,000,000 | $ 1,000,000 | $ 11,640,000 |
| Consumer food expenditure (per store) | Retail stores (per store) | Distribution and logistics center | Packing, packaging, processing center | Farms (per farm) |
| $ 6,466,667 | $ 1,920,000 | $ 1,000,000 | $ 1,000,000 | $ 77,600 |
| Notes: | | | | |
| Per person annual consumer expenditure $1,296. Each store serves 5,000. Retail food sales fund the local food enterprise network. | Funds remaining after other allocations fund the retail store operations. Each retail store can operate profitibly on this marging | $1 million allocated to fund the operations of the distribution and logistics center. | $1 million allocated to fund the operations of the packing, packaging and processing center. | In this system retail dollars first fund the farms the produce the food. At least 55% of the retail food dollar goes to the farms. |

HOPE Collaborative (c) 2009

**FIGURE 8** Cash flows through the local food system enterprise network. Transparency is essential for this system to work.

youth deep motivation to work side by side with all HOPE partners in co-constructing their neighborhoods and real hope that they can improve the everyday living conditions with which they now struggle.

Our most critical questions: How do we make our work real, tangible, with immediate impact and long-term sustainability? How do we integrate policies and practices for real systemic change? HOPE believes that we can answer these questions with community-driven participatory action research, planning, and action. We continue to build a base of outreach and engagement to make sure that our work responds to the wants and needs of neighborhood residents in Oakland's most vulnerable neighborhoods. And we continue to learn from the community residents that HOPE serves, who ask us startling questions such as, "Take a Latino family, the father goes off to work and the family only has one car—where does the mother go for food?" Community residents pose critical challenges: "We need ownership . . . a way for people in the community to own our food delivery system. You want to stop violence and all that stuff—give them ownership [by] removing the finance buddy system that keeps us away. Either include me in or get rid of it and I'll have my own good ol' boy system . . . move it away—it's the 900 pound gorilla—it's breaking things up—you have to get it out of the room."

## CONCLUDING COMMENT

Working at the intersection of the food system and public health presents complex challenges. Yet the history of epidemiology provides and important analogy

**FIGURE 9** The London pump from which John Snow removed the handle to end the cholera epidemic.[9]

and an historical precedent. The industrial food stream is like the water in the Thames that carried cholera in the mid-19th century. Dr. John Snow stopped the cholera epidemic by carefully mapping the water supply to the houses where people died and thereby identified the source of the contaminated water. To end the epidemic, he took the handle of the pump (see Figure 9).[5]

From the community perspective, the food stream entering the community brings health inequities. We are mapping out the sources of unhealthy "edible" substances that dominate what passes for "food" and enters the homes and the bodies of poor people in the flatlands. It is time to take the handle off the pump that delivers industrial food—increasingly implicated in chronic disease—into vulnerable communities and to ensure that vulnerable neighborhoods, families, and youth have equitable access to fresh, healthy, affordable food.

This work is very hard. The elements required to do the work include (1) collaboration between many community partners with reasonably aligned missions and a willingness to trust each other; (2) an approach to community assessment that has a strong community outreach and engagement component; (3) a commitment to participatory action research based on the foundation of community outreach and engagement; (4) an intentional involvement of community resident stakeholders in the process of data analysis and project design; and (5) a willingness to share power and

control with community resident stakeholders. True systemic change requires all of these elements.

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