Vallejo:

City of Opportunity Lacks Access to Healthy Food

FOOD
EMPOWERMENT
PROJECT

Report April 2016

Food Empowerment Project

Prepared by lauren Ornelas with analysis by:
Carol Glasser, Ph.D., Assistant Professor of Sociology at Minnesota State University, Mankato
Vandhana Ramaduai, Ph.D.

GIS maps by:
Stephen Metts, Adjunct Faculty, NSPE, The New School, NYC
Marija Drobnjak, MS in Urban Policy Analysis and Management, NSPE, The New School, NYC

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This report is available in English and Spanish on our website. For print copies, please contact us.

Food Empowerment Project
P.O. Box 7322 Cotati, CA 94931
W: foodispower.org **E:** info@foodispower.org

FOOD EMPOWERMENT PROJECT

Introduction

Approximately 49 million people in the United States lack consistent access to sufficient levels of healthy food[1], and this lack of access to nutritious food disproportionately affects women, children, the elderly, and communities of color.[2]

Over the last several years, the San Francisco Bay Area has witnessed increased problems with access to affordable, nutritious foods. Approximately 1 in 10 adults residing in the Bay Area struggles to eat 3 meals a day.[3] The San Francisco Bay Area is comprised of nine counties: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma.

Food Empowerment Project's report, *Vallejo: City of Opportunity Lacks Access to Healthy Foods*, looks at the current state of access to healthy foods in Vallejo, California, the largest city in Solano County.[4] We examine the availability of food in stores in Vallejo to understand the types of establishments that are in business and to determine the types of food available for purchasing. Additionally, we examine the disparities between high- and low-income stores in Vallejo.

Who We Are

Founded in 2007, Food Empowerment Project (F.E.P.) seeks to create a more just and sustainable world by recognizing the power of one's food choices. We encourage healthy food choices that reflect a more compassionate society by spotlighting the abuse of animals on farms, the depletion of natural resources, unfair working conditions for produce workers, and the unavailability of healthy foods in communities of color and low-income areas.

F.E.P. is a national nonprofit located in Northern California. Our mission is to encourage people to make the most ethical choices when eating, which in the end is healthier for them and the planet and can help to improve the lives of others locally and globally. We are compelled to learn why eating healthy food in U.S. cities seems to be a privilege and not a right.

We know that people's health and environment may not only be negatively impacted by eating too many animal products, but also by eating foods tainted with agricultural chemicals, which have a negative effect on workers who pick our food.

As part of our mission, we want to enable people to eat with their ethics by having choices that both align with their values and are healthier for them and the planet. F.E.P. is committed to addressing inequities in the food system by using accurate data and speaking with impacted communities to help ensure that their voices and needs are being heard.

1. Feeding America, Hunger and Poverty, http://www.feedingamerica.org/hunger-in-america/impact-of-hunger/hunger-and-poverty/?_ga=1.66752046.1625463989.1431059343feedingamerica.org/hunger-in-america/impact-of-hunger/hunger-and-poverty/?_ga=1.66752046.1625463989.1431059343 (Jul. 1, 2015)

2. Coleman-Jensen, A., Nord, M., Andrews, M., & Carlson, S. (2011). Household food security in the United States in 2010. USDA-ERS Economic Research Report, (125).

3. SPUR, Health Food Within Reach: Helping Bay Area Residents Find, Afford, and Choose Healthy Food, http://www.spur.org/sites/default/files/publications_pdfs/SPUR_Healthy_Food_Within_Reach.pdf (Jul. 1, 2015)

4. County Facts and Figures. Solano County California. Retrieved from http://www.solanocounty.com/about/county_facts_n_figures.asp (August 14, 2015)

The Issues

Environmental Justice/Environmental Racism

In 1991, the First National People of Color Environmental Leadership Summit drafted and adopted 17 principles of environmental justice. (To see the full set of principles, go to http://www.ejnet.org/ej/principles.html.) In essence, environmental justice encompasses where "we live, work and play, go to school (and sometimes it includes to pray)."

Environmental racism includes both the intended and unintended consequences of environmental rules and regulations, which are often lax or unenforced, directly impacting people of color.

The lack of healthy foods in communities of color and low-income communities is something that Food Empowerment Project views as a form of environmental racism. Simple terms such as "food deserts" and "food security issues" should not mask the huge problem that is the reality for many of those living in the United States.

Health of Communities of Color in California Lack of Access to Healthy Foods

Areas without healthy, safe, and culturally appropriate foods are often referred to as "food deserts." The United States Department of Agriculture[5] defines food deserts as:

> *[U]rban neighborhoods and rural towns without ready access to fresh, healthy, and affordable food. Instead of supermarkets and grocery stores, these communities may have no food access or are served only by fast food restaurants and convenience stores that offer few healthy, affordable food options.*[6]

However, our work has shown that this is a narrow view of this problem. This definition does not take into consideration those who are time-poor as well as cash poor[7], and how big of a barrier cost truly is.[8]

In other words, adequate access to food means that nutritious and culturally appropriate foods must be available on a consistent basis, at an affordable price, and within a reasonable distance among communities.

5. United States Department of Agriculture, Food Deserts, http://apps.ams.usda.gov/fooddeserts/fooddeserts.aspx (Jul. 1, 2015)

6. USDA definition of "food desert": They qualify as "low-income communities", based on having: a) a poverty rate of 20 percent or greater, OR b) a median family income at or below 80 percent of the area median family income; AND They qualify as "low-access communities", based on the determination that at least 500 persons and/or at least 33% of the census tract's population live more than one mile from a supermarket or large grocery store (10 miles, in the case of non-metropolitan census tracts).

7. http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736%2804%2917613-7.pdf

8. Bringing Community Voices to the Table: Food Empowerment Project Food Access in San José Focus Groups Qualitative Data Analysis Results 2014 page 3.

Communities that lack access to healthy foods are associated with higher rates of type 2 diabetes and cardiovascular problems.[9,10] Communities of color and low-income communities often have easy access to fast food, but lack access to healthy foods in gardens or grocery stores. Hence, individuals in these communities are more likely to consume diets high in fats and sugars.[11,12] A lack of healthy foods also has repercussions for individuals' emotional and mental health, including greater stress and increased risk of depression and poor mental health.[13,14]

Children are particularly vulnerable. One in five children within the United States does not have adequate access to food.[15] These children experience increased hospitalizations from compromised health, struggle with anxiety and depression, and have more academic problems.[16]

Type 2 Diabetes

The National Diabetes Information Clearinghouse (NDIC)[17] has shown that 90 to 95% of people with diabetes suffer from type 2 diabetes, a disease that can be caused by eating unhealthy foods and a lack of physical activity. In California, the prevalence of type 2 diabetes is 13% higher among women than men. Compared to whites, Latinos, Blacks, and Asian/Pacific Islanders have a similarly higher prevalence of type 2 diabetes. Additionally, the prevalence of type 2 diabetes is two times higher among Latinos and Blacks. For example, 1 in 20 whites have type 2 diabetes, compared with 1 in 10 Latinos and 1 in 11 Blacks.[18] There is also a high risk of cardiovascular disease in adults with diabetes, and the NDIC notes that 65% of those with diabetes die from heart disease or stroke.

Lactose Intolerance*

Consuming dairy negatively affects those who suffer from a common form of gastrointestinal malabsorption that affects an estimated 50 million people in the U.S.[19] The condition[20] causes symptoms such as abdominal pain, nausea, uncomfortable bloating, crippling cramping, diarrhea, flatulence, and borborygmi (stomach growling).[21] These symptoms disrupt daily life and can be particularly problematic for children, as they can divert the focus needed for them to perform adequately in school. A majority of people of color experience pain as a result of consuming lactose-filled milk products, and "95 percent of Asians, 60-80 percent of African Americans and Ashkenazi Jews, 80-100 percent of American Indians, and 50-80 percent" of Latinos are lactose intolerant.[22]

9. Treuhaft S, Karpyn A (2010) The grocery gap: who has access to healthy food and why it matters. Oakland, CA and Philadelphia, PA: PolicyLink and the Food Trust.

10. Ploeg M (2010) Access to affordable, nutritious food is limited in "Food Deserts". Washington, DC: Amber Waves.: Economic Research Service, United States Department of Agriculture (USDA).

11. Forsyth, A., Wall, M., Larson, N., Story, M., & Neumark-Sztainer, D. (2012). Do adolescents who live or go to school near fast-food restaurants eat more frequently from fast-food restaurants? Health & place, 18(6), 1261-1269.

12. Mulvaney-Day, N. E., Womack, C. A., & Oddo, V. M. (2012). Eating on the run. A qualitative study of health agency and eating behaviors among fast food employees. Appetite, 59(2), 357-363.

13. Siefert K, Heflin CM, Corcoran ME, Williams DR. Food insufficiency and the physical and mental health of low-income women. Women Health 2001;32(1–2):159–77 10.1300/J013v32n01_08.

14. Sateia MJ. Updates of sleep and psychiatric disorders. Chest 2009;135(5):1370–9 10.1378/chest.08-1834

15. No Hungry Kid, The problem, https://www.nokidhungry.org/the-problem (Jul.1, 2015)

16. Siefert K, Heflin CM, Corcoran ME, Williams DR. Food insufficiency and the physical and mental health of low-income women. Women Health 2001;32(1–2):159–77 10.1300/J013v32n01_08

17. http://diabetes.niddk.nih.gov/dm/pubs/overview/

18. California Department of Public Health, Burden of Diabetes in California, https://www.cdph.ca.gov/programs/cdcb/Documents/FINAL%20Rpt%20(1877)%20DM%20burden%202014_9-04-14MNR3.pdf (Jul. 1, 2015)

* F.E.P. recognizes that this term is problematic given that it implies people who cannot digest lactose are abnormal (who are predominately people of color).

19. R. Alexander Rusynyk and Christopher D. Still. "Lactose intolerance." 2001. The Journal of American Osteopathic Association 101: S10-S12. http://jaoa.org/article.aspx?articleid=2092407&resultClick=1 (1/28/16)

20. Ibid.

21. Ibid.

22. "Lactose Intolerance: Information for Health Care Providers." U.S. Department of Health and Human Services. https://www.nichd.nih.gov/publications/pubs/documents/NICHD_MM_Lactose_FS_rev.pdf. (9/15/10)

The Importance of Healthy Foods

Fruits and Vegetables

Diets high in fruits and vegetables decrease the risk of type 2 diabetes and some types of cancer, and so members of communities of color and low-income communities who do not have access to such foods are in danger of acquiring diseases that can easily be prevented. According to the Centers for Disease Control and Prevention (CDC)[23]:

- Healthy diets rich in fruits and vegetables may reduce the risk of cancer and other chronic diseases.
- Fruits and vegetables provide essential vitamins and minerals, fiber, and other substances that are important for good health.
- Most fruits and vegetables are naturally low in fat and calories and are filling.

Why We Conducted the Study

Food Empowerment Project only works in communities where we are collaborating with local organizations. We happened to meet David Hilliard when we were trying to learn more about the free breakfast programs conducted by the Black Panther Party in the 1970s, and, per his request, we began our work in Vallejo. As a resident of Vallejo, he asked us to do an assessment. From there, we also connected with Vallejo People's Garden and the Global Center for Success and began working with both groups on this project.

The findings set forth in this report are intended to give communities, community groups, and policymakers insight into what access to healthy foods is like in Vallejo. We want to ensure that community organizations working on this issue are given the funding they so desperately need to continue their work.


David Hilliard


Sister Elvie & Vilma of Vallejo People's Garden

Global Center for Success (GCS) has helped clients struggling with life issues and also assisted homeless and underserved individuals by helping them to mainstream back into the community. GCS offers a Basic Life Skills Training Program, Adult Education Services, Support Groups, Health & Wellness Education, and Employment Readiness Training, all of which nurture, empower, and enable clients to build on the strengths they already have.

The Vallejo People's Garden (VPG) is a collaboration of many different individual volunteers and partner organizations in Vallejo that assist the Vallejo community by promoting health and wellness, growing organic fruits and vegetables for those in need, taking care of the water, soil and wildlife, and encouraging social and cultural connections across neighborhoods.

23. Centers for Disease Control and Prevention, Fruits and Vegetables, http://www.cdc.gov/nutrition/everyone/fruitsvegetables/index.html (Jun. 1, 2010)

We conducted this survey to answer the following research questions:

1. Does access to fruits and vegetables differ for those in high-income areas versus those in low-income areas within Vallejo, CA? If so, how significantly?

2. What are the differences in types of stores where food may be purchased (e.g., supermarkets vs. liquor stores) available to those living in high-income and low-income areas within Vallejo, CA?

3. How does access to healthy food products (e.g., fruit, vegetables, "meat" and dairy alternatives) differ for those living in high-income and low-income areas within Vallejo, CA?

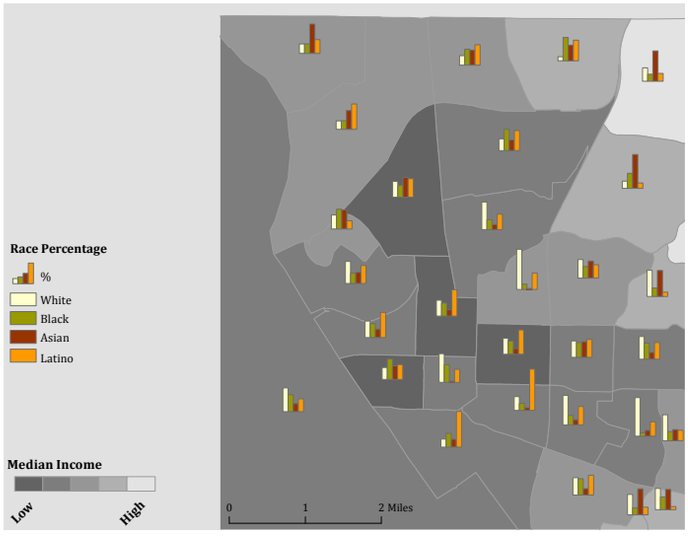
Survey Methods

To gain a complete and comprehensive understanding of access to food and the quality of food available in Vallejo, Food Empowerment Project physically surveyed food establishments in Vallejo, California.

The City of Vallejo

The city of Vallejo has a population of 115,942.[24] The city has a relatively equal distribution across race and ethnicity. About one-third of residents are white (32.8%), followed by about one-quarter (24.9%) Asian (21.1% being Filipino), 22.6% Latino (16.1% being Mexican), 22.1% Black, and 19.6% identify as "Other" or "Two or more." Even though Vallejo is a diverse community, lower-income neighborhoods tend to have higher proportions of Black and Latino residents, compared to high-income neighborhoods.

Using Reference USA, a database of 14 million U.S. businesses, we identified food-selling establishments in Vallejo. This database uses the North American Industry Classification System (NAICS) to categorize retail stores.[25] We identified supermarkets and other grocery stores, convenience stores, gas station and convenience stores, fruit and vegetable markets, and "meat" markets. Because past research on "food deserts" has noted that in some neighborhoods liquor stores can be a primary source of food,[26,27,28] we included all beer, wine, and liquor stores. Restaurants and other food service establishments were not included in the analysis. Any store that was permanently closed at the time of data collection was removed from the list. Further, because Reference USA is not updated in real time, any stores that were encountered by the volunteer surveyors but were not on the Reference USA list were added to the initial sample. Also, because the process of analysis was conducted over the course of a year, any new food service locations that had opened after the data had been collected were not added. In total, 70 locations in the city of Vallejo were surveyed.



24. US Census 2010

25. The NAICS codes searched are: 445110, 445120, 447110, 445230, 445210, and 445220. Reference USA requires for searches to be conducted by zip code, rather than census tract. The main zip codes in Vallejo include, for which the majority of the zip code lies within Vallejo and which comprise the majority of the city include: 94589, 94590, 94591, 94592.

26. Beaulac, J., Kristjansson, E., & Cummins, S. (2009). Peer Reviewed: A Systematic Review of Food Deserts, 1966-2007. Preventing chronic disease, 6(3).

27. Larson, N. I., Story, M. T., & Nelson, M. C. (2009). Neighborhood environments: disparities in access to healthy foods in the US. American journal of preventive medicine, 36(1), 74-81.

28. Zenk, S. N., Odoms-Young, A. M., Dallas, C., Hardy, E., Watkins, A., Hoskins-Wroten, J., & Holland, L. (2011). "You Have to Hunt for the Fruits, the Vegetables": Environmental Barriers and Adaptive Strategies to Acquire Food in a Low-Income African American Neighborhood. Health education & behavior, 1090198110372877.

Each store was assessed for the type and quality of food available to purchase. Specifically, surveyors recorded the availability of: 119 fruits and vegetables (including if they were fresh, frozen, canned, or organic, and amount available), dried fruits and beans, salad bars, prepared foods, the presence of food substitutes, tobacco products, and alcohol. Additional information included store hours, types of promotional materials (nutrition information, alcohol and tobacco products, etc.), if EBT was accepted, cleanliness of stores, presence of mold or dirty or dented cans, and more.

Our assessment of food availability and quality is unique and improves upon common analyses of food availability in several ways. First, our analysis provides a great amount of detail and nuance, allowing for a more comprehensive picture of the food landscape of Vallejo. Many studies examining "food deserts" focus almost exclusively on whether grocery stores are present, but do not address what types of food are available in those stores, how much is present, and if that food is safe and healthy—our data set allows us to address this nuance by recording not only how many food stores are present, but the type, amount, and quality of foods in each store.

This analysis is also nuanced by paying attention to the cultural and regional appropriateness of the types of food we include in our survey. In our previous study, *Bringing Community Voices to the Table*, it became apparent that different communities often consume and prepare foods that differ from the standard U.S. fare, particularly among communities of color and immigrant communities. Our initial list of fruits and vegetables was used in our previous study of access to food in Santa Clara County. F.E.P. worked closely with community leaders, organizations, and activists in the Vallejo community to identify fruits and vegetables that were not currently on this list, adding an additional 33 fruits and 31 vegetables to our survey. (See Appendix B for a complete list of fruits and vegetables.) This ensured that we did not exclude foods that might be available to and common in these communities, while at the same time recognizing that access to these foods is important.

Finally, the process was guided by trained research professionals, but carried out through collaboration with F.E.P., researchers, and volunteers in the Vallejo community, including those with Vallejo People's Garden and Global Center for Success. This collaboration ensured that valid and reliable research was conducted, promoted the collection of information directly relevant to the Vallejo community, and generated community investment in the outcome of this study.

Analysis

Due to the small number of stores overall in Vallejo, robust statistical analysis was not possible to analyze the results of the surveys. As such, we used descriptive quantitative analysis in combination with Geographic Information Systems (GIS) to identify and verify trends across Vallejo. GIS analysis of field survey work, in conjunction with state and federal data sources, is a proven strategy to ascertain spatial relationships in local community food environments and enhances the strength and validity of our findings. More details on data analysis techniques and other methodological considerations are provided in *Appendix A: Full Methodology.*

Mapping the City of Vallejo

A total of 70 businesses were surveyed across a total of 39 census tracts, with 20 of these census tracts containing at least 1 store in Vallejo, California. The remaining 13 census tracts did not contain at least 1 store and thus are exempt from some of the requirements of GIS analysis.

At first glance, excluding these tracts from this portion of the analysis seems to be discounting some high-income areas. However, further understanding of the topographical makeup of these areas reveals that they are largely on the outskirts of the city with high-income designations, low population densities, and a higher than average proportion of land dedicated to non-livable spaces where grocery stores could not be located, such as golf courses and state parks. This reveals that the ability to live in most of these locations is a choice, and perhaps even a luxury, suggesting that these residents likely don't have difficulty accessing food. As such, this study focuses on the areas in the center of Vallejo in which most of the population resides.

The study details localized food patterns across 20 census tracts within the city of Vallejo, resulting in a much more nuanced approach to local communities within the city and revealing additional communities and neighborhoods without adequate access to safe, affordable, and healthy foods.

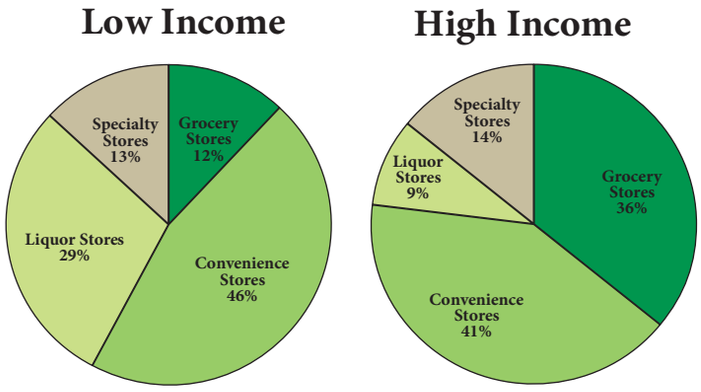
Survey Results

Our findings highlight that throughout the city of Vallejo, which has a higher than average population of people of color, there are issues of access to safe and healthy foods, and this problem is the most severe in low-income neighborhoods. The whole of Vallejo lacks access to organic and fresh versions of produce as well as "meat" and dairy substitutes. However, the problem is intensified in the most heavily-populated, less-affluent neighborhoods of Vallejo. There are 48 stores where fresh, unprepared food could potentially be purchased in low-income neighborhoods, compared to 22 such stores in high-income areas. Though the number of stores is greater in low-income areas, the type of stores and amount and quality of food available at those stores leaves low-income neighborhoods underserved.

Types of Stores

While high-income and low-income neighborhoods[29] have similar numbers of grocery stores, low-income census tracts have higher numbers of convenience stores and liquor stores.[30] What is most concerning is that corner stores and liquor stores are almost exclusively clustered in low-income census tracts and are the majority of stores present in low-income neighborhoods. Eighty-eight percent of all liquor stores and 71% of all convenience stores in the city of Vallejo are in low-income neighborhoods. There is a liquor store for every 2,769 residents in a low-income area, compared to every 51,041 residents in a high-income neighborhood.

Not only are corner and liquor stores predominantly located in low-income areas, they also comprise the majority of stores where residents can potentially access food (though notably not all of these stores carry produce or food). In low-income neighborhoods, three-quarters (75.5%) of all stores are liquor stores, corner stores, or convenience stores. Of these stores, 35 in total, about one-third, sell no produce or fewer than 5 types of produce. Sixty percent of those stores that do sell produce provide all or almost all of it only in cans. However, 91% of these stores sell beer, wine and/or liquor.



Produce

This study recorded the availability of 119 types of fruits and vegetables in fresh, frozen, and canned/jarred versions in 70 stores in Vallejo. Our study finds that the city of Vallejo as a whole suffers from a lack of availability of fruits and vegetables. Both high- and low-income neighborhoods suffer from lack of access and variety, though the problem is more severe in low-income neighborhoods.[31]

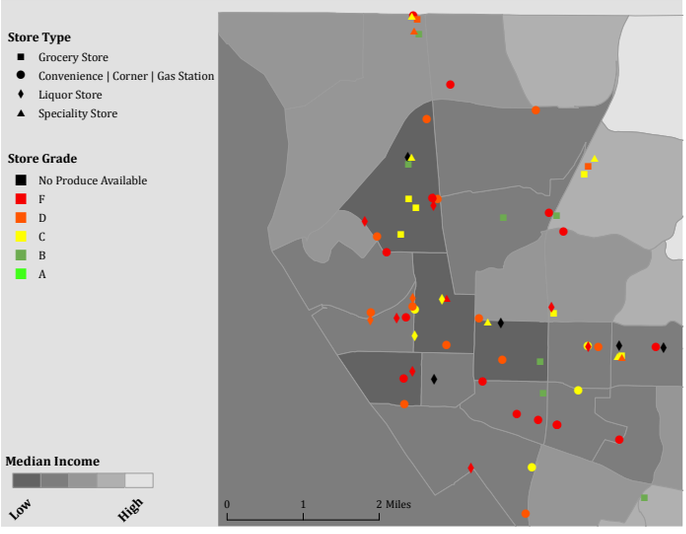
We also assessed the overall quality of the produce in Vallejo stores by assigning each store a grade based on the overall type and quantity of produce available. Specifically, we based our scoring on five criteria: 1) variety of produce available, 2) amount of produce available in fresh versions, 3) amount of produce available in organic versions, 4) amount of produce available only in conventional versions, and 5) amount of produce available only in canned/jarred versions. Each store received a grade of A, B, C, D, or F, with higher grades related to better overall access and quality and low scores associated with less produce and lower quality. More details on the study methodology can be found in Appendix A.

29. The Federal Poverty Level was utilized to categorize census tracts into high and low-income neighborhoods. When at least 20% of the residents are below the poverty level, a neighborhood is classified as low income. All other tracts within the study that have poverty levels less than 20% are categorized as high-income.

30. The store type used in our analysis was the store type as recorded by our survey collectors, not as might have been shown by the NAICS codes, as some stores were identified that were not listed by References USA.

31. Five of the stores surveyed had no produce in any version. All of these stores were liquor stores and four of the five were located in low-income neighborhoods.

As expected, the quality and variety of produce in convenience stores, corner stores, and gas stations is low throughout Vallejo, but these stores make up the majority of stores in low-income neighborhoods. Importantly, no stores in the city received a grade of "A." As the map highlights, the stores with the best grades tend to be grocery stores located in higher income areas. In low-income areas, those stores with a middling grade of a C tend to be grocery stores, clustered in the central-northern part of Vallejo. This leaves many in low-income neighborhoods in the southern and southwest part of Vallejo without easy access to a grocery store. Those in low-income neighborhoods are least likely to have cars as well, making this issue of access a serious problem. The particular struggles of these neighborhoods will be discussed later in the report.



*No store received an "A" grade.

Availability of Produce

Though most stores did have some kind of produce available in some version (fresh, frozen, or canned), the selection was often slim, particularly in low-income neighborhoods. In high-income areas, about one-fifth (22.7%) of the stores surveyed had fewer than 10 types of produce available in any version (frozen, fresh, or canned), compared to 50% of stores in low-income neighborhoods. This highlights that while the total number of stores in low-income areas is greater than in high-income areas (48 compared to 22, respectively), the amount of produce available is not improved by the increase in stores because the additional stores tend to be liquor, corner, and convenience stores.

		Low Income (FPL ≥ 20%)	High Income
Fresh Fruits	Conventional	54.2%	50.0%
	Organic	4.2%	18.2%
Fresh Vegetables	Conventional	43.8%	54.5%
	Organic	16.7%	27.3%
Frozen Fruits	Conventional	18.8%	27.3%
	Organic	2.1%	18.2%
Frozen Vegetables	Conventional	29.2%	54.5%
	Organic	6.3%	22.7%
Canned Fruits	Conventional	83.3%	86.4%
	Organic	10.5%	13.6%
Canned Vegetables	Conventional	85.5%	95.5%
	Organic	18.8%	40.9%

Fresh Produce

Fresh produce best allows people to prepare and cook healthy foods at home and, as we learned in a previous study, some individuals are more accustomed to cooking with fresh produce versus having to cook with canned tomato paste.[32] Fresh vegetables and fruits are also ideal, healthy snacks. Diets high in fruits and vegetables are associated with positive health outcomes, and therefore measuring the availability of fresh produce is a high priority when ascertaining access to healthy foods. Overall, these finding suggest that Vallejo has issues with access to fresh produce throughout the city, and these problems are notably more problematic in low-income neighborhoods. Over a quarter of stores in high and low-income neighborhoods have no fresh produce available, and only 10 of the stores throughout Vallejo have salad bars.

Other ways that stores may present fresh produce and increase availability is through the presence of endcaps promoting in-season fruits and veggies and salad bars. Though stores in high-income areas (40.9%) often promote fresh produce on end caps, at the front of the store, and in special displays, this is not typically found in stores in low-income neighborhoods (16.7%). A major problem in low-income neighborhoods is that even when fresh produce is available, it may not be an ideal choice due to the cleanliness of the store. Over 50% of the stores in low-income neighborhoods were evaluated as not providing "a clean and sanitary environment for fresh fruits and veggies."

32. *Bringing Community Voices to the Table:* Food Empowerment Project Food Access in San José Focus Groups Qualitative Data Analysis.

Organic Produce

Eating more organic produce and reducing the intake of agricultural chemicals may improve personal health, but choosing organic is not only a personal health issue. It impacts the health of the environment and of the farm workers who pick and grow produce, which is an important issue for F.E.P. In Vallejo, the greatest lack of access to high-quality produce is highlighted in the lack of organic foods. A majority of stores that carry produce in Vallejo (75.4%) have no organic versions available. This is the case in about 80% of the stores in low-income neighborhoods and in about 67% of the stores in high-income neighborhoods. As consumers learn more about the health and environmental consequences of agricultural chemicals, many stores seek to provide additional organic options in packaged foods as well as produce. However, the whole of Vallejo is lacking in this area as well, as only two stores in low-income areas and two in high-income areas have a section dedicated to health food and/or organic produce.

Canned Produce

In low-income areas, in about half of all stores with any produce available, over 70% of the fruits and vegetables are available in only canned or jarred versions, compared to 38% in high-income neighborhoods. The prevalence of produce that can only be accessed in canned and jarred versions brings a spotlight to the problems low-income neighborhoods face accessing high-quality foods.

The ability to store and consume non-seasonal foods for extended periods of time is one benefit of canned and jarred foods. However, it is often the case that canned and jarred food has added sugars and sodium, which are associated with high blood pressure and type 2 diabetes. Most cans also contain bisphenol A (BPA), which has been linked to metabolic disruption leading to higher body mass index,[33,34] and increases an individual's risk of breast cancer and prostate cancer, diabetes, abnormalities in liver function and heart disease. [35,36,37,38] Because of the often decreased health content and increased health risks associated with canned foods, F.E.P. finds that when there are canned versions of food to the exclusion of fresh and frozen foods, this is indicative of less availability to healthy foods.

33. Carwile JL, Michels KB. Urinary bisphenol A and obesity: NHANES 2003-2006. Environ Res. 2011;111(6):825-830

34. Vom Saal FS, Nagel SC, Coe BL, Angle BM, Taylor JA. The estrogenic endocrine disrupting chemical bisphenol A (BPA) and obesity. Mol Cell Endocrinol. 2012;354(1-2):74-84 94591, 94592.

35. Trasande, L., Attina, T. M., & Blustein, J. (2012). Association between urinary bisphenol A concentration and obesity prevalence in children and adolescents. Jama, 308(11), 1113-1121.

36. Masuno H, Kidani T, Sekiya K, et al. Bisphenol A in combination with insulin can accelerate the conversion of 3T3-L1 fibroblasts to adipocytes. J Lipid Res. 2002;43(5):676-684

37 Hugo ER, Brandebourg TD, Woo JG, Loftus J, Alexander JW, Ben-Jonathan N. Bisphenol A at environmentally relevant doses inhibits adiponectin release from human adipose tissue explants and adipocytes. Environ Health Perspect. 2008;116(12):1642-1647

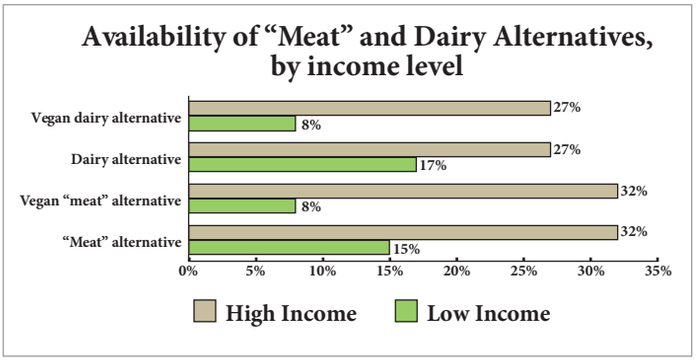
38 Lang IA, Galloway TS, Scarlett A, et al. Association of urinary bisphenol A concentration with medical disorders and laboratory abnormalities in adults. JAMA. 2008;300(11):1303-1310

"Meat" & Dairy Alternatives

The lack of "meat" and dairy alternatives (such as meatless burgers, tofu, non-dairy milk, and non-dairy ice cream) in communities of color and lower-income communities represents a kind of injustice that many do not consider; it limits the choices for the consumers.

The consumption of meat and dairy products can be associated with negative health outcomes, and there are additional benefits to consuming protein and dairy milk alternatives, such as soy and nut milks. Further, these alternatives are typically less likely to spoil as quickly, and in the case of milk alternatives, they are often shelf stable and provide healthy alternatives for vegetarians and vegans.

Only 16 stores in Vallejo have any "meat" alternatives or dairy substitutes. In most cases, these stores have both a "meat" and a dairy substitute. Though access is low across the city, it is worse in low-income areas. Only about 17% of the stores in low-income neighborhoods have a dairy alternative such as soy or almond milk, versus 27% of stores in high-income neighborhoods. "Meat" alternatives are available in 32% of stores in high-income neighborhoods, versus only 15% in low-income neighborhoods. In high-income areas these alternatives are also vegan, meaning they have no animal products in them, whereas in the low-income neighborhoods about half of the "meat" and dairy alternatives that are available are not vegan.



What is particularly concerning is that even in communities of color that have a high concentration of stores where food might be purchased, there tend not to be any stores with even a single dairy substitute available. This again highlights that the number of stores present does not correlate to having access to safe, healthy food since most of the stores are convenience and liquor stores. Overall, however, there is very little availability of "meat" or dairy substitutes across Vallejo. In addition to increasing access to "meat" and dairy alternatives, Vallejo will benefit from increased education about the benefits of not eating animal products and why some people are not not able to digest lactose. Only one store in Vallejo had any information about the importance of consuming fruits and vegetables, and none had information about lactose intolerance or the health benefits of vegan foods.

NAICS

In F.E.P.'s 2010 report, *Shining a Light on the Valley of Heart's Delight*, we made a comparison of the US government's North American Industry Classification System (NAICS) for supermarkets with what we had found when we physically surveyed these establishments in Santa Clara County. We discovered that the current NAICS coding for supermarkets obfuscated the difference between small and large grocery stores with widely varying selections of fruits and vegetables. When trying to take a look at these issues again in Vallejo, we found that many of the new locations that we surveyed were also not listed, most likely due to the NAICS database being out of date since it is only updated every 5 years.

Yet again, we find the NAICS codes are not a useful tool to determine if areas lack access to establishments that sell fresh fruits and vegetables. We've also discovered that "Title 13, U.S. Code, Section 9 (a) prohibits the U.S. Census Bureau from releasing information on a specific business including NAICS and SIC codes...There are a number of private research firms that provide SIC or NAICS codes and data for specific companies, often for a fee. The U.S. Census Bureau cannot verify the accuracy of the codes or data provided by these companies."[39]

This could then explain why some locations, which seem to be mainly liquor stores, are categorized as grocery stores when in fact they are not and why two liquor stores being so close to each other does not trigger additional scrutiny when issues of access are being addressed.

Given that NAICS is for North America, it is imperative that the U.S. create its own database to accurately identify true supermarkets which provide access to healthy foods. This will help corporations, public health officials and policy makers accurately identify what is available to local communities.

Discussion

Access to healthy foods, including produce, organic foods, and "meat" and dairy substitutes, is not only an issue of health, but one of ethics.

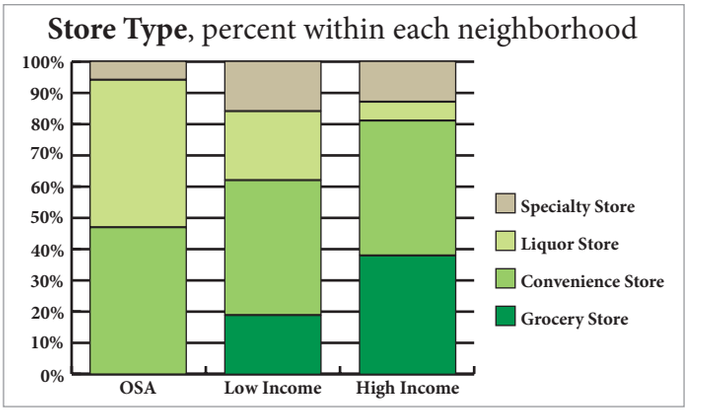
Food Empowerment Project's focus is to prevent injustices against non-human animals, workers, impacted communities, and the environment. We know that providing food choices that are free of animal products becomes even more important as consumers learn of the abuses animals raised for food endure.

Using animals for food has a number of serious negative outcomes. Raising and killing animals for food causes incredible pain and suffering. Confined in miserable conditions and typically slaughtered at extremely young ages, this system is steeped in cruelty. It is not only the non-human animals who suffer profoundly and are ultimately killed, but raising, housing, and killing non-human animals also impacts the environment through the generation of incredible amounts of waste, negatively affecting the surrounding areas where both native non-human animals and humans live.

According to the National Institute for Occupational Safety and Health, agriculture also consistently ranks as one of the most hazardous industries in the United States.[40] Agricultural workers experience increased rates of respiratory diseases, noise-induced hearing loss, skin disorders, certain cancers, exposure to toxic chemicals, and heat-related illnesses.[41]

39. North American Industry Classification System FAQs, https://www.census.gov/eos/www/naics/faqs/faqs.html#q13 (Jan. 20, 2016)
40. NIOSH Safety and Health Topic: Agriculture." National Institute for Occupational Safety and Health (NIOSH). 2009. http://www.cdc.gov/niosh/topics/agriculture/ (4/4/10)
41. Youth in Agriculture." U.S. Department of Labor (DOL) – Occupational Safety and Health Administration (OSHA). http://www.osha.gov/SLTC/youth/agriculture/workers.html (5/3/10)

Workers in the field are regularly exposed to a large variety of toxic agricultural chemicals. Each year, 10,000-20,000 U.S. agricultural workers are clinically diagnosed with 'pesticide' poisoning.[42] Long-term exposure to agricultural chemicals is associated with severe health effects such as cancer, neurological disorders including Parkinson's and Alzheimer's disease, as well as infertility and reproductive complications.[43,44,45] There are few effective regulations in place to protect workers from these hazards. Even in cases where there are good laws on the books, agencies lack the personnel for enforcement, and infractions carry negligible penalties. In many instances, workers are afraid to report health and safety violations due to the threat of losing their jobs, or in the case of undocumented workers, the threat of deportation. Ironically, these same workers who pick our food rarely have access to the same fruits and vegetables that they are picking.



How Safeway contributed to the problem in downtown Vallejo

As part of our engagement in Vallejo, we attended meetings dealing with various food issues. At one of these meetings, it was mentioned by Board of Supervisor Erin Hannigan that some of the problems in downtown were caused when Safeway moved from the city to the suburban areas and had put a deed on the property for 15 years to prevent any other grocery store from moving in. Because of this, we wanted to take a closer look at this area as part of our analysis.

This action by Safeway has created an extreme problem in the neighborhood where they were once located. To gain an understanding of the impact that this deed has had on residents, we examined the area where the Safeway was located and compared it to other low-income and high-income areas in Vallejo. This area, the Old Safeway Area (OSA), includes the neighborhood where the Safeway was located and all neighborhoods that border it.[46]

Most of this area is comprised of low-income neighborhoods; notably, however, one of these neighborhoods is actually a higher-income area, but suffers as a result of its location. In all, there are 17 stores in this neighborhood. The aforementioned inequalities between the high- and low-income neighborhoods in Vallejo are magnified when looking at this area.

42. A Story of Impact: NIOSH Pesticide Poisoning Monitoring Program Protects Farmworkers." Centers for Disease Control (CDC). Retrieved 3/3/2013 from http://www.cdc.gov/niosh/docs/2012-108/pdfs/2012-108.pdf

43. Alavanja MC, Hoppin HA, Kamel F. "Health Effects of Chronic Pesticide Exposure: Cancer and Neurotoxicity." 2004. Ann Rev Pub Hlth 25: 155-197. http://arjournals.annualreviews.org/doi/abs/10.1146/annurev.publhealth.25.101802.123020 (6/13/10)

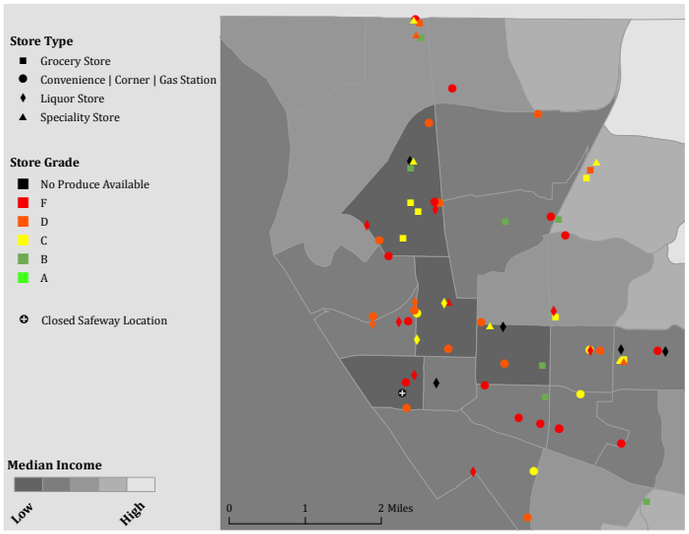
44. Garcia, AM. "Pesticide Exposure and Women's Health." 2003. Am J Ind Med 44: 584-594. http://www3.interscience.wiley.com/cgi-bin/abstract/106564991/ABSTRACT

45. Hayden KM, Norton MC, Darcey D, Ostbye T, Zandi PP, Breitner JC, Welsh-Bohmer KA; Cache County Study Investigators. "Occupational Exposure to Pesticides Increases the Risk of Incident AD: the Cache County study." 2010. Neurology 74(19):1524-30. http://www.ncbi.nlm.nih.gov/pubmed/20458069 (6/14/10)

46. Neighborhoods refer to census tracts. We defined the "area surrounding Safeway" as any census tract that physically touches the census tract (i.e. neighborhood) in which the Safeway was located. The census tracts included in the area being considered as the area impacted by the old Safeway location are: 2507.01, 2509, 2510, 2515, 2516. Approximately 11% of the Vallejo population in the study (about 13,947 people) lives in this area.

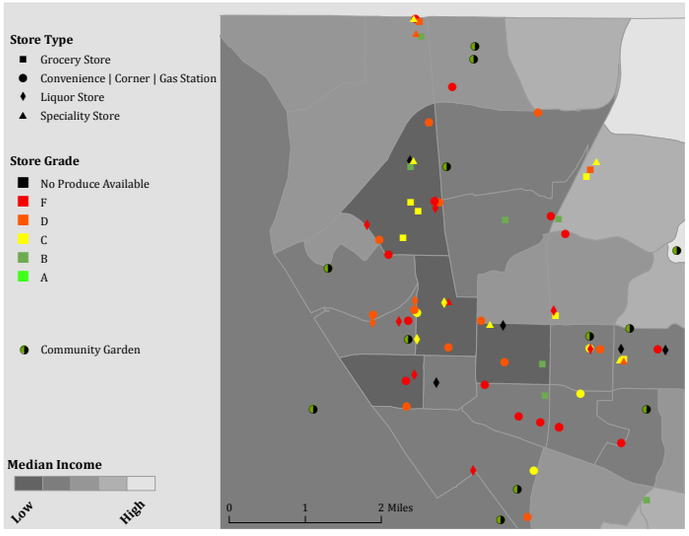
The disparity between this area and the rest of Vallejo is glaring. There is no grocery store in the neighborhood where Safeway had been located or any of the surrounding areas in the OSA. In this area there is only one store that is neither a liquor store nor a convenience store. This store is a specialty store providing seafood, and only had four items of produce, all available only in cans. In the OSA, 47% of all stores are liquor stores, compared to 22% in other low-income neighborhoods, and only about 5% in high-income neighborhoods.

Healthy food is particularly difficult to obtain in this area. In all, about 65% of the stores in the OSA have 10 or fewer types of produce available, if any, compared to 44% in other low-income neighborhoods, and 14% in the high-income neighborhoods. Of those stores that do have produce available, half of the stores provide 75% or more of their produce only in cans. None of these stores provided a "meat" or dairy substitute of any sort. The quality and cleanliness of the stores is lacking as well. Seventy-one percent of these stores had unclean environments for produce, moldy food, and/or expired and dented cans.



*No store received an "A" grade.

In late 2015, Grocery Outlet opened in the old Safeway location.[47]



Vallejo has small gardens in various areas of the city. This map shows where the gardens are located in comparison to the stores we surveyed.

47. Raskin-Zrihen, Rachel. 2015. "Grocery Outlet to open second Vallejo location downtown." Times Herald News. April 9. http://www.timesheraldonline.com/general-news/20150409/grocery-outlet-to-open-second-vallejo-location-downtown

Why Are These Findings Important?

Food Empowerment Project's goal is to have this report provide data for community members and policy makers so they have a true understanding of how dire the situation is in Vallejo regarding access to healthy foods. We also want to make sure that organizations like the Vallejo People's Garden are given the funding and support they need to allow them to be able to reproduce their incredible programs in more areas around the city.

Conclusion

In order to successfully address the issue of access in Vallejo, focus groups and additional work with residents, especially in the most impacted communities, need to take place to gain a better understanding of the wants, needs, and barriers faced by community members. Those living in Vallejo must be part of the solution. Food Empowerment Project would be interested in continuing to work with the Vallejo communities.

Additionally, the City and County should pass legislation that would prevent grocery stores from putting deeds on their former properties that keep other grocery stores from opening in the same location. This would help address the problem created by Safeway, which prevented a grocery store from opening for 15 years.

Appendix A:
Full Methodology

The Survey methods section in this report details our basic methodological orientation toward this project. This appendix provides additional methodological information about how data was collected and analysis conducted.

Data Collection

In November of 2013, community researchers conducted surveys in Vallejo in collaboration with research professionals. All data collection protocols and instruments were developed and overseen by trained research professionals. Community researchers consisted of volunteers from Food Empowerment Project, Vallejo People's Garden, and Global Center for Success. Community researchers were instructed on how to survey and were given a fruit and veggie appendix with images and descriptions of each fruit and vegetable, Data Entry Instructions, and a set of 10 data instruction sheets. Community researchers worked in teams of two to collect data. Each team was assigned stores to survey.

Analysis

Basic data analysis. All survey data was entered into an Excel spreadsheet by data entry professionals. Data analysis and basic descriptive statistics were conducted using Excel and SPSS statistical software. Each store was also evaluated for the total variety of produce, "meat" and dairy substitutes, and other factors.

Scoring stores. To better classify stores in terms of availability of produce for the GIS analysis, each store was assigned a score between 0-5, with 0 representing no availability to 5 representing a high amount of availability. Specifically, scores were assigned for: overall availability of fruits and vegetables, availability of fresh produce and organic produce, and proportion of produce available only in cans. From these, a composite score was calculated indicating the overall range and quality of produce available. Scores for each store were based on five equally weighted items: the total amount of produce available; the proportion of the available produce accessible in organic versions; the proportion of the available produce accessible in fresh versions; the proportion of the available produce accessible only in canned versions; and the proportion of the available produce accessible only in conventional versions. The highest scoring stores had a large selection of produce, and a high proportion of that selection was available in organic versions as well as in fresh versions. Low scoring stores had a small selection of produce, little if any of that selection was available in an organic version, and most or all of that selection was only available in cans.[48] These scores were then translated into "grades" with a score of 5 corresponding to an A and a 1 corresponding to an F.

Geographic Information Systems

Geographic Information Systems (GIS) is used to confirm trends found in descriptive analysis and to identify the spatial patterns of food availability across several business categories in both high- and low-income communities in Vallejo, California. Notably, GIS analysis of field survey work, in conjunction with state and federal data sources, is a proven strategy to ascertain spatial relationships in local community food environments. Map outputs found throughout this study illustrate key spatial patterns and differences across the study's main food availability and quality themes. Numeric data that is found throughout the study has been derived primarily from the GIS analysis of the study, creating linkages with the map outputs for additional quantitative perspectives for food issues in Vallejo, California.

In general, data related to food availability and quality have been recorded via the study survey methods, whereas data characteristics pertaining to local populations—location, income, and health—have been accessed via the U.S. Census Bureau using 2010 geographic boundaries for Vallejo, California. This tailored data analysis approach reveals patterns that would otherwise remain undetected through other means of analysis. For instance, the United States Department of Agriculture (USDA) refers to underserved communities relative to both proximity and store type (specifically grocery stores) as 'food deserts.' In Vallejo, through the original and strictest definition of 'food desert,' only three (3) census tracts in the whole of Solano County—2507.01, 2508.01 and 2509— are designated 'food deserts.' The combination of GIS and food surveys in our study has revealed the problem is greater than this.

48. A detailed description of the calculation of scores is available upon request from info@foodispower.org

Appendix B:
List of items surveyed at each store

Produce

Trained F.E.P. volunteers collected the following information for each of the fruits and vegetables listed in the table below:

- Availability of fresh, frozen, and canned or jarred versions of each fruit/vegetable
- Availability of organic variety of each fruit/vegetable, in all varieties
- Whether or not the total quantity (including both non-organic and organic) is fewer than five items
- Any additional notes or comments submitted by the surveyor

FRUITS			VEGETABLES		
Annonas	Guava	Peach	Alukbati	Chayote	Mustard Greens
Apple	Guyabano	Pear	Arrow Root	Chiles	Nopales
Apricot	Honeydew	Persimmon	Artichokes	Chinese - Mustard Greens	Okra
Atis	Jack Fruit	Pineapple	Asparagus	Collard Greens	Onion
Avocado	Jujube	Plantain	Avaas	Corn	Peanuts
Banana	Karmay	Plums	Basil	Daikon	Peas
Blueberry	Key Limes	Pomegranate	Bell Pepper	Edible Ferns	Potato
Cactus Fruit	Kiwi	Rambutan	Bitter Melon	Eggplant	Pumpkin
Calamansi	Kumquats	Raspberries	Beans, Black	Garbanzos	Leaves
Cantaloupe	Lanzones	Rattan Fruit	Beans, Fava	Garlic	Saluyot
Chayotes	Lemon	Santol	Beans, Pinto	Green Beans	Scallions
Cherimoya	Limes	Siniguelas	Black Eyed Peas	Jicama	Spinach
Cherries	Lychee	Star Apple	Bok Choy	Kale	Squash
Chico	Mangos	Star Fruit	Broccoli	Kang Kong	String Beans
Coconut	Mangosteen	Strawberry	Brussel Sprouts	Lemon Grass	Sweet Potato
Durian	Mixed Fruit	Tamarind	Cabbage	Lentil	Swiss Chard
Figs	Nectarine	Tangerine	Carrot	Lettuce	Taro Root
Fruit Cocktail	Oranges	Tomatillo	Cassava	Malunggay	Yams
Grapefruit	Papaya	Tomato	Cassava Leaves	Mixed Vegetables	Zucchini
Grapes	Passion Fruit	Watermelon	Cauliflower	Mushrooms	
			Celery		

"Meat" & Dairy Alternatives

F.E.P. volunteers also collected the following information for each of the "meat" and dairy alternative products listed in the table below:

- Availability of the product
- Whether or not the quantity is fewer than five items
- Whether or not the store has vegan versions of the product available

"MEAT" ALTERNATIVES		DAIRY ALTERNATIVES
Bacon	Sausage, Other	Milk, Almond
Burger	Seitan	Milk, Rice
Chicken	Soyrizo	Milk, Soy
Deli Slices	Tempeh	Milk, Other
Hot Dogs	Tofu	Nondairy Cheese
"Meat" Crumbles		Nondairy Sour Cream
Sausage, Breakfast		Nondairy Cream Cheese

Additional Items Surveyed

Finally, F.E.P. volunteers also answered the following questions for each survey location:

1. Does the store carry dried fruit in bags or in bulk?
2. Does the store carry dried beans in bags or in bulk?
3. Does the store carry liquor?
4. Does the store carry beer?
5. Does the store carry wine?
6. Does the store carry tobacco products?
7. Does the store provide an in-store salad bar and/or make available or prepared salads?
8. Are fresh fruits and veggies promoted near the front of the store or on aisle "endcaps?"
9. Are "meat"/dairy alternatives promoted near the front of the store or on aisle "endcaps?"
10. Does the store have outside signage promoting Nestlé products?
11. Does the store have outside signage promoting alcohol and tobacco products?
12. Are limes and/ or lemons available ONLY near the alcohol?
13. Does the store accept food stamps (EBT)?
14. Does the store have a separate organic or "health food" section?
15. Does the store have any information about lactose intolerance and/or alternatives to dairy?
16. Does the store have any information or carry literature about vegetarianism or veganism?
17. Does the store have information of carry literature about the health benefits of fruit and vegetables?
18. Does the store provide a clean and sanitary environment for fresh fruits and veggies?
19. Was there an excessive amount of denting or dust on the cans or other products?
20. Did you spot rotten moldy fruit or vegetables?
21. Did you notice expired cans?

APPENDIX B: List of items surveyed at each store

Appendix C:
Additional Tables

NEIGHBORHOOD	INCOME		RACE			
Census Tract	Income Designation	% below federal poverty line (FPL)	% Asian	% Black	% Latino	% White
2505.05	High	1.7	30.2%	19.3%	4.5%	31.9%
2522.01	High	2.7	21.9%	6.8%	13.1%	49.0%
2501.06	High	4.5	45.6%	10.6%	11.8%	20.3%
2522.02	High	4.8	20.6%	11.0%	22.7%	38.7%
2521.04	High	5	21.8%	8.8%	11.7%	49.5%
2501.05	High	5.6	50.7%	22.6%	7.8%	10.6%
2010.05	High	5.8	29.0%	0.4%	30.3%	37.3%
2010.03	High	7.2	47.9%	5.5%	20.1%	20.6%
2506.04	High	7.8	38.9%	10.4%	11.3%	30.8%
2513	High	8.1	1.7%	8.0%	24.8%	60.6%
2010.04	High	8.2	31.7%	10.8%	29.7%	22.4%
2010.07	High	8.6	30.7%	7.6%	30.9%	27.1%
3580	High	9.0	13.8%	11.2%	21.4%	48.3%
2518.04	High	9.2	43.8%	14.2%	20.7%	14.2%
2504	High	10.1	7.7%	14.1%	27.4%	44.4%
2501.04	High	10.2	39.1%	12.6%	6.2%	39.2%
2505.02	High	13.2	16.7%	13.8%	16.0%	39.1%
2512.03	High	13.4	36.7%	24.3%	15.7%	15.3%
2514	High	15.3	7.9%	14.9%	23.4%	41.6%
2505.01	High	15.4	8.7%	5.0%	21.9%	58.1%
2521.03	High	15.6	22.5%	23.9%	30.6%	14.3%
2519.02	High	16.2	1.9%	26.5%	19.5%	43.2%
2510	High	16.4	9.5%	24.6%	29.8%	26.0%
2506.01	High	16.6	23.4%	35.1%	31.0%	6.1%
2519.03	High	16.7	12.1%	25.5%	19.1%	35.7%
2508.01	High	17.7	28.2%	12.9%	38.0%	12.8%
2518.03	High	19.3	25.9%	17.6%	20.2%	27.9%
2519.01	Low	22.3	16.1%	32.1%	30.3%	17.7%
2515	Low	23.3	9.5%	19.7%	39.8%	23.8%
2517.01	Low	26.0	16.8%	15.5%	27.0%	33.2%
2507.01	Low	26.2	11.6%	20.7%	53.5%	12.0%
2517.02	Low	28.4	28.9%	29.7%	12.5%	21.1%
2503	Low	28.9	23.6%	22.1%	26.8%	24.6%
2502	Low	29.5	10.2%	24.2%	25.2%	34.2%
2512	Low	30.7	8.7%	20.1%	36.8%	24.4%
2511	Low	32.2	3.8%	10.7%	62.0%	20.9%
2516	Low	33.2	12.8%	21.1%	37.8%	24.9%
2518.02	Low	33.2	29.7%	17.5%	27.9%	23.9%
2509	Low	40.6	20.5%	30.8%	22.4%	17.9%

Appendix D:
List of Census Tracts and ZIP Codes in Vallejo

Notes: ZIP code 94592 is also within the Vallejo area, however, no stores in the survey are in the portion of 94592 that is included in the study area.

Census tract 2518.02 falls within ZIP codes 94589 and 94590. The majority (60%) falls within ZIP code 94590.

ZIP CODE	CENSUS TRACT
94590	2507.01 2509 2510 2511 2512 2513 2514 2515 2516 2517.01 2518.02
94591	2502 2506.05 2504 2503 2501.05 2501.03
94589	2514 2518.02 2518.03 2519.01 2519.02

P.O. Box 7322 Cotati, CA 94931
W: foodispower.org **E:** info@foodispower.org

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