

A geonarrative analysis of food justice: examining how mobility and concepts of place affect food deserts in Baltimore, MD

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I. INTRODUCTION

In 2007 La Via Campesina, an agricultural social movement, organized an international conference in the small village of Nyéléni in central Mali. There representatives from over 80 countries worked to define the term “food sovereignty”:

“Food sovereignty is the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and **their right to define their own food and agriculture systems. It puts those who produce, distribute and consume food at the heart of food systems and policies rather than the demands of markets** and corporations. It defends the interests and inclusion of the next generation. It offers a strategy to resist and dismantle the current corporate trade and food regime, and directions for food, farming, pastoral and fisheries systems determined by local producers. Food sovereignty prioritizes local and national economies and markets and empowers peasant and family farmer-driven agriculture, artisanal - fishing, pastoralist-led grazing, and food production, distribution and consumption based on environmental, social and economic sustainability. Food sovereignty promotes transparent trade that guarantees just income to all peoples and the rights of consumers to control their food and nutrition. It ensures that the rights to use and manage our lands, territories, waters, seeds, livestock and biodiversity are in the hands of those of us who produce food. Food sovereignty implies new social relations free of oppression and inequality between men and women, peoples, racial groups, social classes and generations.”¹

Although Via Campesina focuses primarily on the problems and issues faced by smallholder farmers in the Global South, their words ring true for marginalized communities in the Global North as well. The rise of the term “food desert” exemplifies the relevance of food sovereignty issues for Global North communities. A food desert is defined as an area, oftentimes within an urban center, that lacks adequate access to healthy food. Many municipalities have focused resources on combatting this issue, but many interventions that have been undertaken often fail to acknowledge the issues raised by the food sovereignty movement, and in turn struggle to make significant impact. Focus falls heavily on quantitative drivers like income, distance and associated physical access issues that often ignore more nuanced social interactions and reasonings. This leads to projects that don’t take root in the community and often have little to no impact on people’s behaviors and habits. Only through a deeper understanding of the nature of the problems facing these communities can policy be crafted to sustainably ameliorate the current state of food sovereignty in communities within the urban centers of the United States.

Food is an inherently social facet of everyday life. What food is purchased, how that food is prepared, and what flavors it imparts is tied deeply to individual cultures, histories and experiences. Because of this, food sovereignty can only be obtained by ensuring that the consumer is at the very center of the conversation about food access issues. Food deserts tend to ignore this fact because their construction tends to emphasize that distance and a confluence of quantitative factors are the main drivers of the current imbalance, instead of a market-based system that ignores the social and mobile aspects of how populations use and consume foodstuffs. In order to tailor policy that that helps adjust the current

¹ La Via Campesina, “Declaration of Nyéléni,” Nyéléni Forum for Food Sovereignty, February 2007, <https://nyeleni.org/spip.php?article290>.

organization to be more effective, focus needs to be put on understanding food consumer's current habits, the reasoning for those habits, and how the issues currently hindering those habits can be addressed in the most effective and efficient manner possible. These consumer habits exist in a spatial context, but one that is more defined by relational placemaking and different levels of mobility than it is strict Euclidian distance.

The root of this need for context was best summarized by Doreen Massey in her 1994 book *Space, Place and Gender*. Massey speaks of how different people and groups move through a given space in different ways that are based upon their own personal agency and relationship to the space. In other words, distinct individuals and groups have "differentiated mobility: some people are more in charge of it than others; some initiate flows and movement, others don't; some are more on the receiving-end of it than others; some are effectively imprisoned by it."²

In order to properly contextualize the impact of a food desert, the mobility of individuals within their community needs to be understood. This mobility cannot be boiled down into only a quantitative representation. It needs qualitative data to properly contextualize an individual's relation to place, and how their own personal mobility impacts how they interact with their environment.

Geonarratives are an emerging mixed-methods research approach that seek to better understand that context surrounding various geospatial phenomena. I suggest that geonarratives may provide insight into the nature of food sovereignty for disenfranchised communities in Global North cities. In particular, my study asks the question: How does relational place affect the understanding of food deserts?

This study will build on the current understanding of food sovereignty by looking at it through contextualized spatial data, providing a deeper understanding of the forces that impact a person's placemaking and mobility, and how they try to operate within those specific confines. The following section will go into greater detail on the concepts of food sovereignty, food deserts and geonarratives.

II. BACKGROUND

A. Food Deserts and Food Sovereignty

Food sovereignty as a concept was born out of a movement in the Global South, but its core philosophies have a deep significance to the current issues impeding the fight for more equitable food systems in the United States. The central concept to this movement focuses on trying to find solutions that allow communities to be free to define their own food system, acknowledging that the market-based solutions that currently dominate the landscape of alternative food networks may not be most effective in providing this freedom. Financial markets gave rise to these current inequalities in the first place, so they

² Doreen Massey, *Space, Place, and Gender*. (Minneapolis: University of Minnesota Press, 1994), 149.

are poorly equipped to help combat it. Food sovereignty looks to mitigate the issues posed by market-based solutions by promoting democratic, bottom-up interventions that try to provide more agency to the very people who are most alienated by the current structure, allowing them to define what they want and need out of their food system.³ In a recent article about the issue of food sovereignty in Chicago, Meleiza Figueroa underlines why this reframing is so important to fully understanding the issues of food access in urban America. She explains how communities are often viewed as having or not having certain things, and how this leads to the thought process that resources from outside the community need to be brought in to fix this problem. She goes on to state that this “deficit lens:”

“...that pervades much of mainstream food movement discourse often ignores the specific histories and differential ways that structural inequalities affect minority and low-income communities in urban centers. In doing so, these efforts not only fail to engage the very communities they are trying to reach (Guthman, 2008a), but also fail to recognize potentially useful forms of knowledge and social practice that already exist within those communities.”⁴

By shifting the focus away from trying to provide access to a commodity towards providing the self-determinism necessary to define how food fits within the social fabric of an individual’s day-to-day experience, modern urban areas may be able to design more equitable and impactful interventions to combat the issue of urban food access.⁵

Food deserts, on the other hand, tend to focus heavily on Euclidian distance from a large market. Although most reports that use these maps stress the need for nuance and the inconclusive nature of what the map is portraying, the product they’re creating still suggests that areas within a certain Euclidian distance of a supermarket do not qualify as an area that requires special attention or focus, putting significant weight on the issue of distance, whether intentionally or not. This means the physical distance from an individual’s primary residence to a store where they can purchase the staple items necessary to eat a healthy diet. Although this analysis can be a useful starting point for understanding questions of food access and justice, human behavior and interactions with environment can never be mapped out in clear and understandable lines. It is these mercurial patterns of human movement and reasoning are largely missing from this standard mapping approach. Simply improving that Euclidian distance from healthy food sources in disenfranchised neighborhoods does not ensure that people living in those neighborhoods have access to that food. One community-supported agriculture organization established in the Hollygrove neighborhood of post-Katrina New Orleans demonstrates this fact. Despite being located in a low-income community, providing local resident discounts and accepting payment from EBT with the intention of helping to improve access to healthy food, farmer’s markets were attended primarily by middle-class individuals who did not live in the neighborhood. Researchers concluded that the issue of

³ Daniel Block, et al, “Food sovereignty, urban food access, and food activism: contemplating the connections through examples from Chicago,” *Agriculture and Human Values* 29, issue 2 (2012): 203-215.

⁴ Meleiza Figueroa, “Food Sovereignty in Everyday Life: Toward a People-centered Approach to Food Systems,” *Globalizations* 12:4 (2015): 501-502.

⁵ Figueroa, “Food Sovereignty in Everyday Life: Toward a People-centered Approach to Food Systems,” 498-512.

food access is relatively easy to address, but the more complex question of food sovereignty is a more difficult problem to address.⁶

A more recent body of research has also cast doubt on the reasoning that distance from a market with healthy food is one of the primary determinants of healthy diets. A 2014 study suggested that the introduction of a new grocery store to a neighborhood had little to no impact on the dietary habits or obesity levels of the surrounding neighborhood.⁷ This study directly defies the idea that physical access is the most significant factor preventing people from obtaining and consuming a healthy diet. Additionally, a GIS-based study of Detroit in 2011 suggested that despite the limitations faced by residents of low-income communities, most found ways to travel to other parts of the city to shop at larger grocery stores to overcome their food desert environment.⁸ Both of these studies suggest that the biggest factors inhibiting food sovereignty are not physical access, but may in fact be more intangible factors that aren't as easily visible in the existing quantitative research on this topic. The interconnected nature of all the issues feeding into the fight for food sovereignty need to explore the nuance of the issue in greater detail. This nuance can be provided by finding ways to integrate qualitative data into these historically quantitative approaches to the issues surrounding food access.

B. Geonarratives

Geonarratives have developed recently as an attempt to bridge the divide between quantitative research and qualitative research and attempt to implement both in a mixed-methods approach to better understand social phenomena. The research approach blends mapping statistical geodata along with personal narratives of experiences that are tied to the aforementioned geographic data.⁹ The geonarrative is capable of helping to facilitate a much greater understanding of the “environmental contextual effects on human behavior.”¹⁰

⁶ Kato, Yuki. “Not Just the Price of Food: Challenges of an Urban Agriculture Organization in Engaging Local Residents.” *Sociological Inquiry* 83, no. 3 (2013): 369–391.

⁷ Steven Cummins, Ellen Flint, and Stephen A. Matthews. “New Neighborhood Grocery Store Increased Awareness of Food Access but Did Not Alter Dietary Habits or Obesity.” *Health Affairs* 33, no. 2 (2014): 283-291.

⁸ Timothy, LeDoux and Igor Vojnovic, “Going outside the neighborhood: The Shopping Patterns and Adaptations of Disadvantaged Consumers Living in the Lower Eastside Neighborhoods of Detroit, Michigan.” *Health & Place* 19 (2013): 1-14.

⁹ Paul R. Watts, “Mapping narratives: the 1992 Los Angeles riots as a case study for narrative-based geovisualization.” *Journal of Cultural Geography* 27, no. 2 (2010); Mei-Po Kwan, and Guoxiang Ding. “Geo-Narrative: Extending Geographic Information Systems for Narrative Analysis in Qualitative and Mixed-Method Research.” *The Professional Geographer* 60, no. 4 (2008).

¹⁰ Jeremy Mennis, Michael J. Mason, and Yinghui Cao, “Qualitative GIS and the visualization of narrative activity space data,” *International Journal of Geographical Information Science* 27, no. 2 (2013).

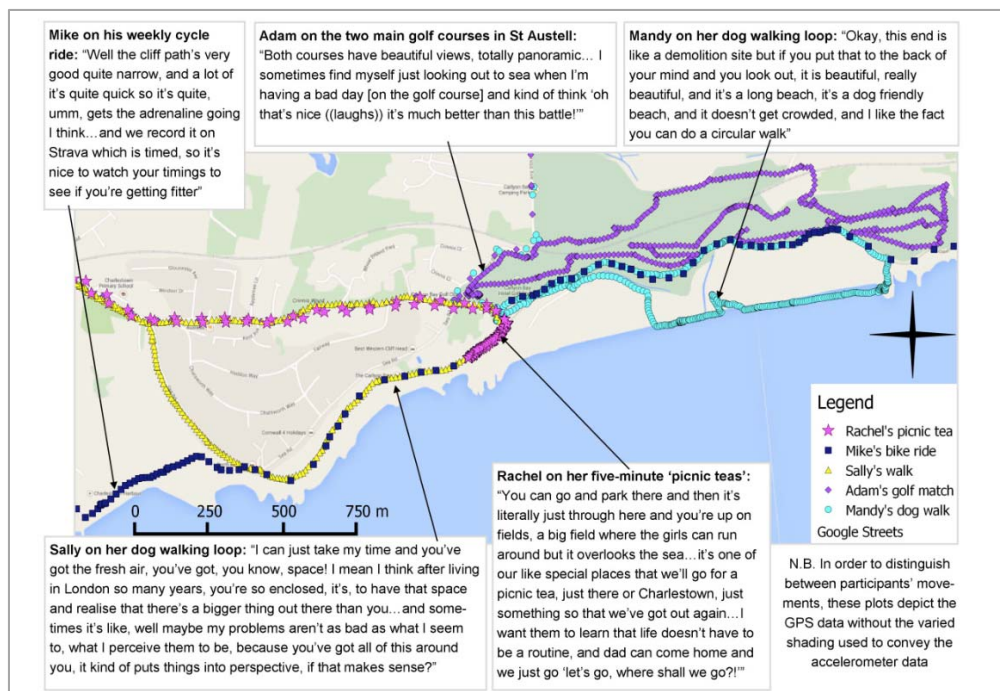


Figure 1: An example of a geonarrative that combines qualitative information with quantitative spatial information. Source: (Bell, et al, "Using GPS and geo-narratives: a methodological approach for understanding and situating everyday green space encounters," 91)

Since only certain elements of an individual's surroundings or "environment" can be gleaned from any given data source, someone trying to draw any conclusions based upon that data may misinterpret trends in a way that causes their analysis to over (or under) emphasize the impact of particular factors. Since food sovereignty views food access through a social lens, this environmental context is essential. Geonarratives have the potential to provide a new level of environmental context through the geotagged shopping route and accompanying narrative that could help to provide new and unique insights into trends that might otherwise be lost in more traditional surveying and data collection methods.

Geonarratives are able to provide the critical context that allows observation of the issues of food sovereignty from a social perspective in ways that other more traditional forms of data collection cannot. Use of geonarratives has been shown to be able to create a "chronology of people's experiences and the sequence of events" that may provide greater insight into how they acquire their food than a survey or interview could.¹¹ Research has also provided greater insight into the activity patterns of the homeless population and help to reconcile differing perceptions on a low-income neighborhood's problems and the type of interventions that would best address those problems.¹²

¹¹ Kwan and Ding, "Geo-Narrative."

¹² Andrew Curtis, et al, "Spatial video geonarratives and health: case studies in post-disaster recovery, crime, mosquito control and tuberculosis in the homeless," *International Journal of Health Geographics* 14, no. 22 (2015), <https://ij-healthgeographics.biomedcentral.com/articles/10.1186/s12942-015-0014-8>.

The combination of spatial data and long-form interviews can help to provide an individual with the mental and visual cues necessary to provide deeper insight into their activities than one might be able to gain from either method alone. For example, a study using geonarratives was able to look in depth and better understand how different individuals from different backgrounds interacted with green spaces and what they meant to them.¹³ It was from these prior geonarrative-based studies that this study was designed to look at the interplay between quantitative and qualitative information concerning how people interact with their food system. As it stands, food deserts provide only a single spatial interpretation of the issues surrounding food access and food sovereignty. By including qualitative data in addition to the quantitative, a better understanding of how mobility, placemaking, and Euclidian distance issues impact an individual's food sovereignty can be reached. It is with this in mind that the discussion turns now to how this study was designed.

III. RESEARCH DESIGN

This research was designed to bridge the gap between quantitative and qualitative assessments of food sovereignty by creating geonarratives around the issue. Specifically, this case study investigated the desires and reasoning behind how people develop their shopping habits in order to see how they harnessed their personal mobility to build a sense of place and acquire the food they wanted to eat. This deeper understanding of an individual's mobility will allow policy makers to focus on addressing certain food sovereignty issues that may not be visible within a food desert analysis of an urban center.

Case Study

A city particularly hard hit by the post-industrial era, Baltimore serves as an excellent example of how modern-day urban food deserts came to be because of the city's history of residential segregation, poor public transportation, and growing socioeconomic disparity brought on by a decline in manufacturing jobs. Immigration to Baltimore started in the early part of the century, with the city experiencing a boom in manufacturing jobs and reaching a population of close to one million people. Unfortunately, residential segregation has remained a significant issue, one that continues in many ways up through the present day. In the latter half of the 1900s as manufacturing began to decline and jobs became scarcer, the population began to shrink from almost one million down to 651,000 by the year 2000. During this same time the percentage of Black people living in the city of Baltimore rose from 25 percent to 65 percent. This economic decline, segregation and subsequent white flight (spurred by the development of the U.S. interstate highway system, redlining, blockbusting and racial steering) from the city of Baltimore has led to a vast number of blighted homes, urban decay and a host of growing socioeconomic problems.

¹³ Sarah Bell, et al, "Using GPS and geo-narratives: a methodological approach for understanding and situating everyday green space encounters," *Area* 47, no. 1 (2015): 94-95.

Although the city has begun to see a renewal in recent years, the 2015 riots surrounding the death of Freddie Gray highlighted the fact that this deep-seated history is far from resolved.¹⁴ This study will focus on the city of Baltimore and the steps it is taking towards eradicating food deserts, now referred to in local policy documentation as “Healthy Food Priority Areas” due to concern for the pejorative or misleading nature of the term food desert. They will, however, be referred to as food deserts throughout the rest of this report to avoid any confusion in terminology.

A food desert is a geographic area on a map that meets certain quantitative criteria that indicate possible difficulties with food access such as income, store availability, and transportation. There is no universal agreement on the categories of data or thresholds that need to be met to qualify a particular area as a food desert. Each city and policy-making body defines the criteria differently, but all tend to focus on issues of income, availability and access. For the sake of juxtaposing the potential of geonarratives against what is already happening, this study will work exclusively within the confines of the current Baltimore city definition of the criteria that need to be met to consider an area a food desert/healthy food priority area:

- The average Healthy Food Availability Index (HFAI) score for all food stores is low (0-9.5)¹⁵,
- The median household income is at or below 185 percent of the Federal Poverty Level,
- Over 30 percent of households have no vehicle available, and
- The distance to a supermarket is more than a quarter of a mile.¹⁶

Baltimore first laid out a strategy to combat these food deserts in 2010 and has since updated their strategy a number of times, most recently in 2018 when food deserts were rebranded as healthy food priority areas in their “Baltimore City’s Food Environment: 2018 Report.” This most recent report lays up their current strategy to combat these issues of food access by focusing on: community engagement, increasing healthy food availability in convenience stores, attracting new supermarkets, improving public markets, working on supply chain solutions, increasing the impact of assistance programs, increasing urban agriculture and addressing transportation gaps.

Over the course of this study the true nature of the food environment in Baltimore will be examined vis-à-vis geonarratives before coming back to these recommendations to see how well they fit the findings of this particular study in the conclusion.¹⁷

¹⁴ Jamelle Bouie, “The Deep, Troubling Roots of Baltimore’s Decline,” *Slate Magazine*, Accessed December 20, 2016, http://www.slate.com/articles/news_and_politics/politics/2015/04/baltimore_s_failure_is_rooted_in_its_segregationist_past_the_city_s_black.html.

¹⁵ Per the 2018 Food Environment Report for Baltimore City: “The HFAI tool awards points to stores based on the presence of a market basket of basic staple food items, as well as whether there are healthy options available including lean protein, whole wheat grains, low-fat dairy, and produce. Scores can range from 0 to 28.5, with a higher score indicating a greater presence of healthy foods.

¹⁶ Sarah Buzogany, Holly Freishtat and Caitlin Misiaszek, “Baltimore City’s Food Environment: 2018 Report,” Baltimore City Planning Department, 2018.

¹⁷ *Ibid.*

Methods

Fifteen people were selected from a variety of neighborhoods around Baltimore city as well as one individual who lived just outside the city limits in Baltimore county. They came from a variety of backgrounds as detailed in the outline below.

Demographic Information	
Gender	12 Female, 3 Male
Income	\$9k-\$100k annually
Location	4 live in a food desert, 1 lives a block from one, and 1 lives in a former food desert (included on 2015 map, not on 2018 map)
Car Ownership	10 own cars, 5 do not
Place of Birth	7 transplants, 8 lifelong Baltimoreans
Race	9 African Americans, 5 Caucasian, 1 Asian

Figure 2: A breakdown of research participants by gender, income, location of residence in relation to the food desert map, car ownership, place of birth and race.

The participants took part in two interviews. The first interview involved travel to the store (in some instances two stores) that the participant shopped at most frequently, while conducting an interview in which the participant described their habits, the reasoning for those habits, thoughts on eating healthy, and their use of alternative food systems such as gardening, CSAs and farmers markets. Audio and GPS data of the interview was recorded using a Contour +2 GPS enabled action camera. The audio was transcribed, and the GPS data was converted into Keyhole Markup Language format and input into Google Earth.



Figure 3: A picture of the equipment used to collect data for the study. The camera recorded the audio and GPS tracking for the first interview, and the recorder recorded audio from the second interview.

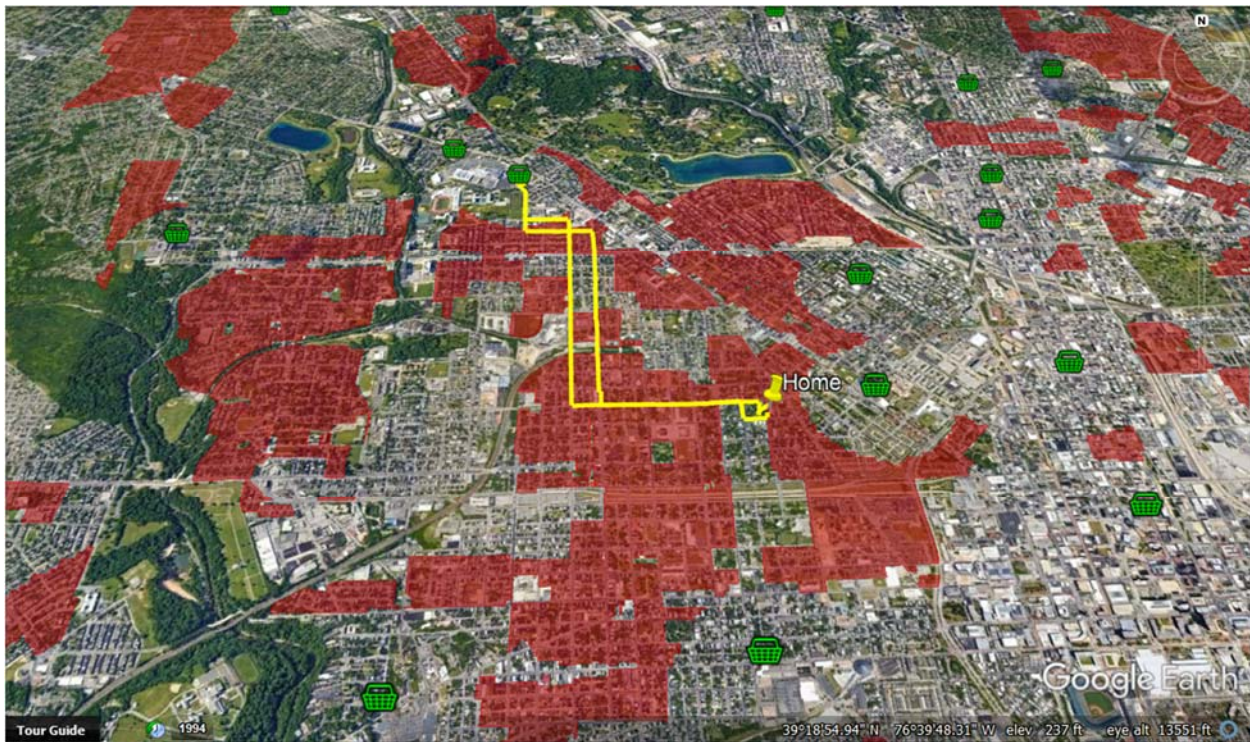


Figure 4: An example of the map created for the second interview. GPS data from the first interview was converted into keyhole markup language and input into Google Earth along with supermarket and food desert data from the Johns Hopkins Maryland Food System Map. This map was then used as a visual aid during the second interview. (Data Sources: Google Earth, Johns Hopkins CLF Maryland Food System Map)

In the second interview participants were shown a Google Earth map of the GPS route that was recorded during the first interview. Additionally, data of the supermarkets in Baltimore and the outlines of the 2015 and 2018 food desert/healthy food priority area

maps were superimposed upon the map as well. The data was released halfway through conducting the research so only the second half were able to see the updated information, but this had no substantial impact on any of the interviews conducted. The participants were then asked a series of follow-up questions concerning their understanding of the map, if they thought anything was missing from this particular interpretation of their shopping habits, their thoughts about their habits now that they were looking at it in map form, and their thoughts on food deserts as a representation of where people struggled or didn't struggle with access to healthy and appropriate food.

These interviews were then transcribed and processed using NVIVO to identify trends and themes within the responses from the two interviews to assess how people felt about their shopping habits, and how they felt about the different types of maps that were being used to depict those habits.

IV. Results

Based on the study's results, residence inside a food desert among this small group was not the most defining factor behind shopping habits and access. Instead, the ownership of a car most heavily dictated where and how often an individual would shop for their food. Additionally, people often multitasked on their grocery shopping trips and spoke often about comfort and familiarity when explaining the reasons why they tended to shop at one particular place or chain over another. Based upon these findings, it appears that the most significant drivers to food sovereignty are an individual's mobility and their ability to make these particular food retail spaces a place of both comfort and convenience.

A. The Impact of a Vehicle and the Use of Alternative Methods of Transportation on the Food Desert

When looking at individuals who lived in or near food deserts versus those who didn't, there were no stark delineations in experience. Those who lived inside the bounds of a food desert would often travel similar distances to those who outside them. Instead, the factor that had the most notable impact on an individual's habits was car ownership. Among participants in the study, the distribution of car ownership inside of food deserts was relatively even, as was the distribution or non-car owners between those living inside and those living outside of food deserts.

Distribution of Car Ownership Among Residents of a Food Desert		
	Live Inside a Current Food Desert	Live Outside a Current Food Desert
Car Owners (10 Total)	2	8
Non-Car Owners (5 Total)	2	3

Figure 5: Distribution of car ownership as it relates to location of residence (inside or outside a food desert).

When dividing interviews based on vehicle ownership, the clearest differences in habits formed. Individuals with cars tended to travel to a number of different stores and make more frequent trips due to ease of going, while those without a personal vehicle tended to make less frequent trips to a smaller number of stores. This was due to greater difficulties in getting to and from the market, the additional costs larger trips usually incurred, and being inhibited from buying in bulk when walking or taking public transportation. One respondent with a car spoke of how she often helped out her neighbors who don't have cars:

“I have neighbors who will ask me to take them to different places to shop. So we used to make it like a Saturday. I would just take three neighbors out, older ladies, we would just go out. You know, they would tell me where they wanted to go and we would just go there. And they would be shopping for food and other things for the house. So yes it makes a difference. Because you don't want to travel on the bus with a ton of grocery bags.”

Many respondents without cars would often rely on similar mechanisms to do infrequent bulk shopping, while walking or using the bus for smaller trips in between these bigger runs. While most respondents without cars would rely on rides or borrowing a car from friends or family sometimes, those of greater means would often supplement those favors with by spending money on short-term car rentals like Zipcar or rideshare services such as Uber or Lyft. The planning tended to be more methodical and planned for those without a car, as they often had to budget extra time and money to achieve the same shopping patterns that those with cars already had.

Distribution of Car Ownership Among Gender		
	Own a Car	Do Not Own a Car
Female (12 Total)	9	3
Male (3 Total)	1	2

Figure 6: Distribution of car ownership of participants by gender.

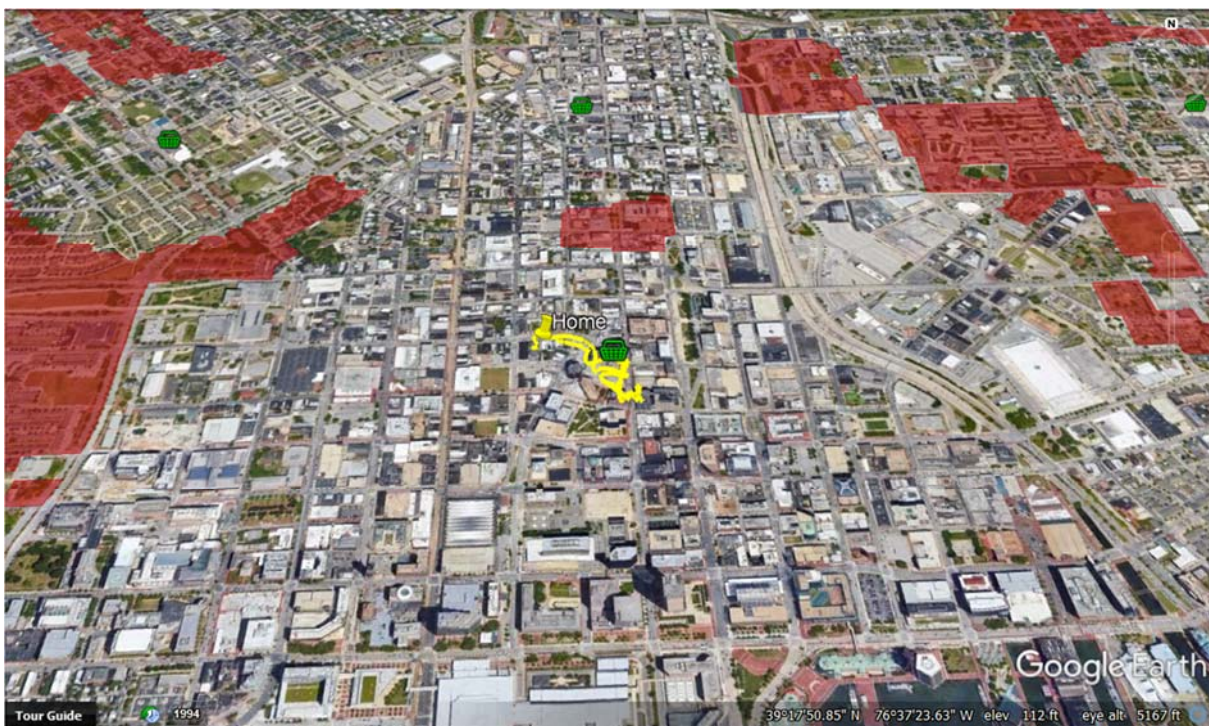


Figure 7: Map of a male participant who does not own a car and does not live in a food desert. (Data Sources: Google Earth, Johns Hopkins CLF Maryland Food System Map)

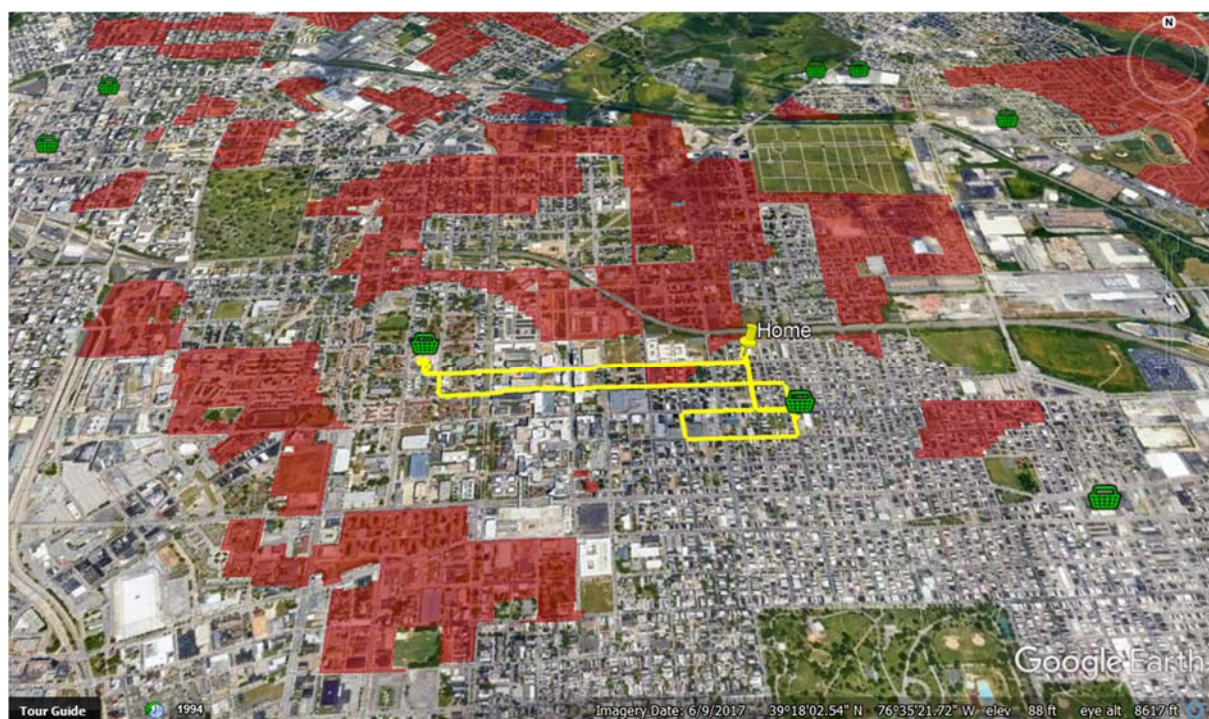


Figure 8: Map of a male participant who does not own a car and does not live in a food desert. (Data Sources: Google Earth, Johns Hopkins CLF Maryland Food System Map)

Of those without cars, further distinctions could be drawn among that population of five participants along gender lines. While the two male respondents with no vehicle were content to do the vast majority of their shopping at their closest store and make do with

what was available, the three female respondents without a vehicle used varied methods to overcome their limited access based upon their respective means. One particular female respondent had this to say of her single male neighbor: “I’m going to say from what I know ... from both of my neighbors, just both of the neighbors on both side, the guy on my right-hand side, he’ll go anywhere to shop. He’s single, man. He doesn’t care. He’ll go anywhere.”

The female respondent living on the lowest income utilized the city bus system but lamented the difficulty of buying in large quantities when using public transport. In order to overcome this, she would often rely on rides from family members to do her bulk purchasing, avoiding the bus whenever possible. Another respondent who lived close by but was not in a food desert herself spoke of providing similar transportation services to some of her neighbors who lacked access to a personal vehicle as well. The lack of a car presented a twofold problem: not only was it much harder to get to and from the store, the lack personal vehicle access severely limited the quantity of groceries that could be purchased.

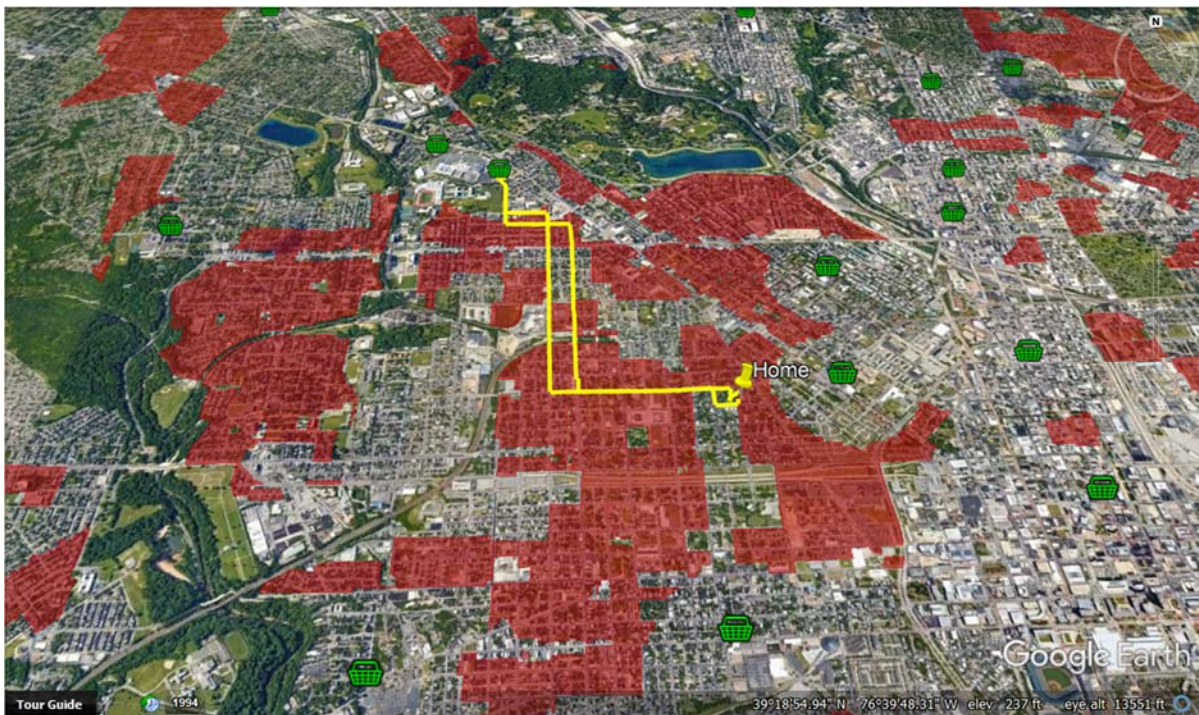


Figure 9: Map of a female participant who does not own a car and lives in a food desert. (Data Sources: Google Earth, Johns Hopkins CLF Maryland Food System Map)

The other two females who did not have personal vehicles had higher incomes, and therefore utilized a mixture of rideshare services, car rentals and assistance from friends to do the majority of their shopping. They never felt reliant on public transportation and would only utilize it on rare occasions, even though all the other options they utilized usually involved relatively steep price tags (\$20+ per trip). All three females found fault with the same aspect of the stores closest to them, which were price, quality, and comfort with the store’s options, prices and layout. They preferred to take more expensive and

time-consuming trips to stores where they felt they could purchase the type of product that they wanted at the price they were willing to purchase it at in order to eat in the way they wanted to.



Figure 10: Map of a female participant who does not own a car and lives in a food desert. (Data Sources: Google Earth, Johns Hopkins CLF Maryland Food System Map)

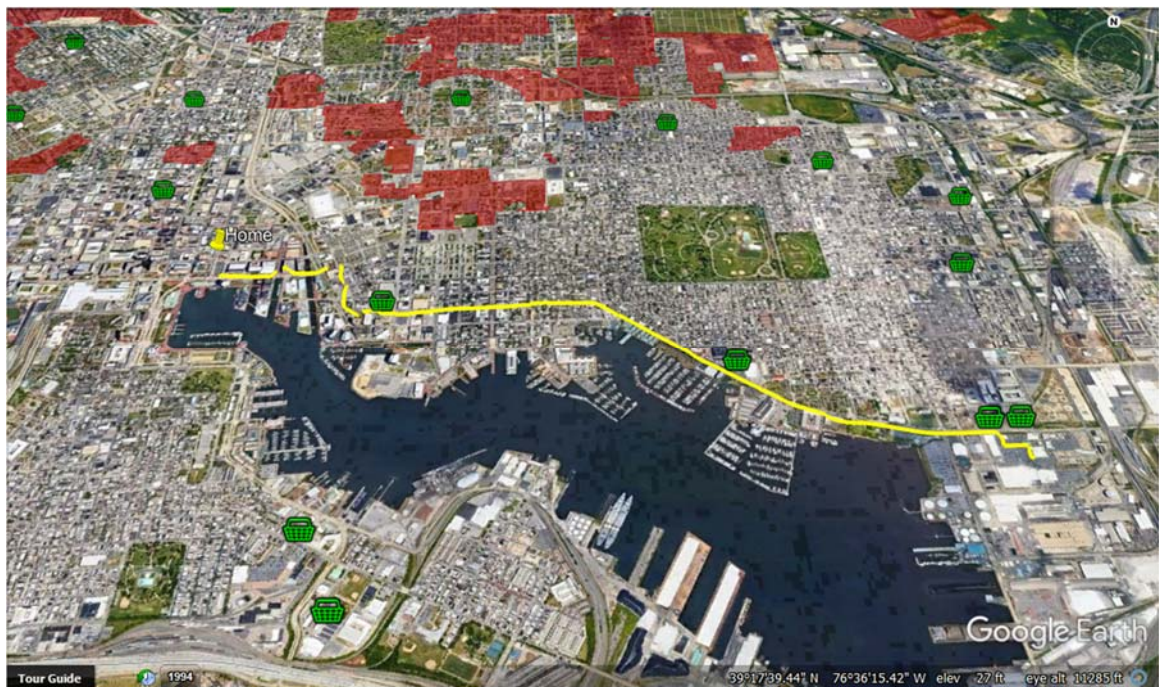


Figure 11: Map of a female participant who does not own a car and does not live in a food desert. (Data Sources: Google Earth, Johns Hopkins CLF Maryland Food System Map)

The Baltimore City Health Department's "Baltimarket" initiative is implementing a "virtual supermarket" that provides free online grocery ordering and community-based pickup in some areas of the city impacted by food deserts.¹⁸ It is an idea that is on a number of minds, as many participants in this study also brought up the idea as a possible improvement to the current system during their second interview. Despite bringing up the topic, none of the participants reported using any such service themselves. Some cited pick-up times as the reasons they didn't use it. As one person said: "the reason I haven't used delivery services for groceries is because you have to be home for it, and then they give you these ridiculous time windows like you're waiting for the cable guy, and I'm just like, I can't..."

Others cited that the price of delivery for someone who already doesn't have a car would be inhibitive: "It would be nice to have grocers come to the people. Where you have people deliver, but they don't have to pay a high payout. Most people, if you don't have it covered, pretty much most of the time, that's because you just can't afford a car... at the same time you wanna get the groceries, but you don't want to be paying all this money to get groceries."

Although it was not stated by participants in the study, market research has shown a reluctance to purchase food that people can't see for themselves. Recent market research by Morgan Stanley has suggested that 85% of individuals who don't order groceries online don't do so because they want to physically see and choose the groceries they're buying. Another 27% who don't order online have already tried the service and canceled it because they don't like it.¹⁹ If the goal of these policy shifts is to provide a community with agency and the access they want, it seems that online ordering does a poor job of fulfilling those goals.

Instead of focusing on these ill-received market-based solutions that are already showing signs of wear, alternative methods of improving transportation that overcome the main barriers associated with lack of car ownership, while still allowing people to shop for their own groceries should be explored. It is clear from this research that individuals are already harnessing their networks and resources to overcome these barriers, so it would make sense to use those as launching off points for possible policy interventions.

B. What is "Healthy"?

What is healthy for one person may not be healthy for another. Although research into what causes this phenomenon is still ongoing, public opinion has begun to believe that every person needs a specifically tailored diet. This issue of healthy has now become a facet of the food sovereignty conversation, because access to healthy food for one individual may not mean access to healthy food for another. Although the methodology for food desert

¹⁸ Baltimore City Health Department, "Baltimarket," *Baltimore city*, Accessed May 1, 2018, <https://health.baltimorecity.gov/programs/baltimarket>.

¹⁹ Alison Griswold, "There's still one big reason why people aren't buying their groceries online," *Quartz*, Accessed April 26, 2018, <https://qz.com/1077743/people-dont-buy-groceries-online-because-they-prefer-to-pick-things-out-in-stores/>.

mapping in Baltimore tries to define what staple foods are needed for a store to rank as healthy, it may be that individuals need different foods than the ones listed in order to consume a diet that is healthy for their specific body type. Even worse, that individual may not have the knowledge or budget necessary to determine what a healthy diet would be for them. Because of this, it is necessary to understand how people perceive the concept of “healthy,” and how they reached the conclusions that they did.²⁰

When asked if the respondents were currently eating a diet that they considered to be “healthy,” the responses were very mixed. Some respondents thought that they were eating healthy, others that they were doing an alright job but could improve on their habits, while a few openly admitted to not eating as healthy as they should. All respondents had a desire to eat a healthy diet, but most felt that a lack of personal willpower to follow through on that desire was the main issue impeding their ability to eat healthy.

When asked how they determined what constituted a healthy diet, responses were equally mixed, but self-discovery was at the root of most people’s definitions of what healthy was. When asked what prevented them from cooking more for themselves in order pursue that healthier diet, most highlighted time as the most significant restraint, forcing them to opt for “grab and go” options more than they would like to, and attributing that to one of the issues prevent lying them from eating healthier.

“Time. Because if you're at work all the time, you're working 12 hours or 11 hours, you just don't feel like ... you're tired, you're tired. And you just wanna pick up something along the way. That's when I really fell into it, and I really need to get back into what I was doing but, it's so easy for me now. By the time I get off work, I'm tired. There's a McDonald's on the corner, there's a Taco Bell or I can come in and order pizza because I don't feel like cooking.”

When asked about how they informed their dietary choices to determine what a healthy diet looked like, answers were incredibly varied, but tended to emphasize balance, fresh fruits and vegetables, and protein. Some lamented the difficulty in knowing what qualified as a healthy diet.

“Yeah, it's like you have to go to school to cook now or to eat.”

Others felt that they were able to figure out how to eat healthy by self-teaching though internet or other media sources, or through personal trial-and-error after encountering their own health issues.

“...having enough of those things occur to me, of those instances of not feeling well, I've been able to get a really clear understanding of what makes my body feel good and what doesn't make my body feel good and regardless of what the FDA says around what is the best, and the USDA, what they say is the best diet for everyone, I don't believe that to be true. There is no such thing as monolithic health food because a food that's healthy to one person, like peanuts, can be deadly to another person. So that's my philosophy on health and healthy food is that it's very personal in that we should all be doing these journeys to pay attention

²⁰ Alice G. Walton, “Why Health Food To One Person May Be Junk Food To Another,” *Forbes*, Accessed May 3, 2018, <https://www.forbes.com/sites/alicegwalton/2015/11/20/why-a-healthy-food-for-one-person-may-be-unhealthy-to-another/#2d2d5ff86100>.

to our bodies and see what makes us feel healthy instead of what everyone should need to feel healthy.”

Since it was hard to pinpoint what was healthy to these individuals, it is also a difficult thing to quantify across the population as a whole. Despite this difficulty, it is important to understand that these varying conceptions of healthy need to be taken into account when determining an individual's access to “healthy” foods. Healthy varies from person to person, and levels of understanding among individuals concerning what is “healthy” for them varies significantly.

C. The Impact of Comfort and Familiarity on Shopping Habits

As discussed previously, food exists both as a necessity of human life, as well as an incredibly important piece of social life. Since food is so intricately tied into the social fabric, food can often serve as a comfort. It is a item that is interwoven into life experiences and culture in a way that drives different people to different foods out of a desire to feel that connection and familiarity again. For many, shopping for food also exists within that spectrum. Almost all respondents had shopping habits that were well-reasoned and extremely personal. Their experiences in grocery stores, their familiarity with the prices, layouts and availability of certain items was directly woven into where they went shopping and why they chose those particular stores. Distance was often not mentioned when talking about why they chose one store over another. In fact, when talking to two respondents who grew up in East Baltimore, they mentioned having a propensity to go shopping back in their old neighborhoods just because they liked the comfort it provided them.

“S: Yes. Where I started going initially, because I didn’t start shopping in this area. I’ve been in this house 25 years. In December it will be 26, 27 years ago. So when I moved in I never shopped on the side of town, I always went back to Northeast Baltimore. I never shopped over here. I was thought that there wasn’t enough in one place, so I was one back home and shopped there. So I started shopping on the side of town, well, Shoppers is not that old, it hasn’t been there very long, but I would shop at Sav-A-Lot, this Sav-A-Lot here on Lafayette. I started shopping over there. Then they built a new one on Pennsylvania Avenue near Dolphin Street. Now, I like that one because it’s newer and it’s cleaner, but I like this one over here because it’s... I wouldn’t say “safer,” but it seems to be... People there are more shopper oriented versus down here, you just kind of suspect, like, okay “are they in here to steal?” Honestly, and I’m being real honest.

Interviewer: So the clientele is a bit different?

S: The clientele is different, yes. But I like clean stores where you don’t smell the store when you walk in. If I smell the store when I walk in then I don’t shop there, because something’s not right. But this one is kind of the one that I do go to most of the time down here. It’s getting old now, it needs to step it up a little bit.”

The participant above spoke of the stores and how they made her feel, and why she chose certain stores over others based upon that feeling. She felt as though her experiences in East Baltimore were more complete, and so even though it required extra time and

resources, she felt more comfortable driving back to East Baltimore than trying to find a store she wanted to go to in West Baltimore. Once she started to make the transition, however, she started to understand the stores in West Baltimore better and subsequently changed her habits. The smells, the employees and the clientele all had an impact on her experience, and she chose where to shop based more on that experience than the actual availability or price of the items at the store. It's this comfort factor that appeared as a significant driver behind most participants shopping habits.

Chain loyalty was also strong. People tended to have distinct opinions about each grocery store chain within their sphere and tended to alter their shopping habits more to fit those opinions than to fit the physical distance those particular chains were from their residence. Instead of distance people instead focused on the types of food available, the price of those foods, the customer service they received in the store, and other intangible moments that made their experience pleasant or unpleasant.

This issue of comfort often dictates where and how a person decides to shop, regardless of their personal means. It is also an integral part of food sovereignty, because it allows community members to feel that a particular place is their "own," a factor that will make individuals of that community much more likely to shop there. This comfort factor must be taken into account when having a conversation about food deserts and food sovereignty.

D. The Myth of a "One-Stop Shop" and the Importance of Multitasking

Another inherent piece of the mobility puzzle is the issue of multitasking. Oftentimes grocery shopping does not exist in a vacuum. People are coming and going from work, combining a trip with picking up kids from school or with a trip to pick up household goods as well. They could be travelling to and from friends, airports, or other locations that impact shopping habits as well. Since these trips are intertwined with so many other mobility-related tasks, it is important to look at the role multitasking plays in an individual's shopping habit.

None of the fifteen participants did 100% of their grocery shopping at a single location. Sometimes their shopping habits were spread out over 6-7 different markets, but even the male respondents without a car would sometimes go to a different store on occasion to get a particular item, or because they were coming back from work or another activity. Although those without cars tended on average to make less frequent trips to a smaller number of stores, every respondent looked for ways to streamline their shopping experiences by multitasking.

"...it's also located in a shopping center with a Target and a Michaels and some other stores, so I usually try to, when I go to Harris Teeter, is combine that trip with shopping trips to those other places if I need to buy somethings, just because when I have a car it makes it so I

can buy bulkier items more easily. I'll buy more of my paper products like toilet paper and towels. If I need other household items, I'm just gonna combine all those trips together."

Whether it be stopping at the grocery store after work, after a particular activity, or tying in a trip to the supermarket in with trips to a box store to buy other goods, every respondent found a way to increase the efficiency of their trips by tying them into other activities, again casting doubt on the idea that distance from one's residence is a significant determining factor in where an individual shops and what they have access to.

Since multitasking is such a heavy factor, it is important to consider what other push and pull factors in a community might be contributing to shopping habits. A store near local school, the location of large employers or other factors may also be impacting the shopping habits of a community due to the impact of multitasking.

V. Discussion

Now that the issues surrounding mobility and placemaking have been entered into the conversation about food deserts and food sovereignty, what does it all mean? This study shows that focus needs to be drawn towards finding alternative transportation solutions in regards to grocery shopping, educating citizens on food access issues, and finding ways to emphasize comfort factors in the discussion about food access. Future research should seek ways to incorporate this new data into the framework that currently emphasizes the concept of a food desert. By addressing these issues, the push towards greater food sovereignty can be achieved.

A. Refocusing Food Desert Maps to Better Reflect Reality

When participants were asked whether they thought that the map being used in the second interview was missing anything as a depiction of their shopping habits, most respondents answered that there was something missing from the depiction. When asked what specifically was missing they responded that the variety of stores they visited to shop for food, the manner of transportation (walking, bus, rideshare or personal car), and the frequency of their trips were all missing.

"The reality is I don't shop at one store for my needs. On the grocery day I go to several stores and so what is missing... If this were an accurate picture you would see me in the middle and then you would see all these trajectories going out and kind of like a star formation around the city... So this is not really an accurate picture because it shows this narrow scope and I think that what is missing is that so many people have to do that, you know, treat the city as if it's one comprehensive grocery store."

A number noted surprise at the lines, suggesting that the lines looked incoherent, and didn't seem to follow a logical methodology respective of the supermarket data and the rest of the map.

“Because, when I think about it, when I look at this map, it’s like I’m shopping like a crazy woman. When I look at the map, like I said, I’m all over the place.”

The issues highlighted by the participants, in addition to the stark differences seen when mapping different people habits help to highlight just how ineffective food deserts are as a comprehensive policy tool.



Figure 12: The simplest and the most complex maps from the study are juxtaposed here to show how significant the difference between individual habits can be. The one on the left shows trips to many stores, some even all the way out into Baltimore County, while the other shows just a short walk to just one store (Data Sources: Google Earth, Johns Hopkins CLF Maryland Food System Map).

This is not to say that food desert mapping has no place in policy making. Instead, the mapping needs to shift the focus away from Euclidian distance and towards more holistic techniques that provide more nuanced maps that don’t draw policy makers to put too strong an emphasis on distance, while ignoring other less obvious societal and community-based factors that are also at play. The key lies in providing less direct documents and allowing the maps to serve as a guide towards greater inclusion and the promotion of possible interventions that may not obvious in more traditional data collection.

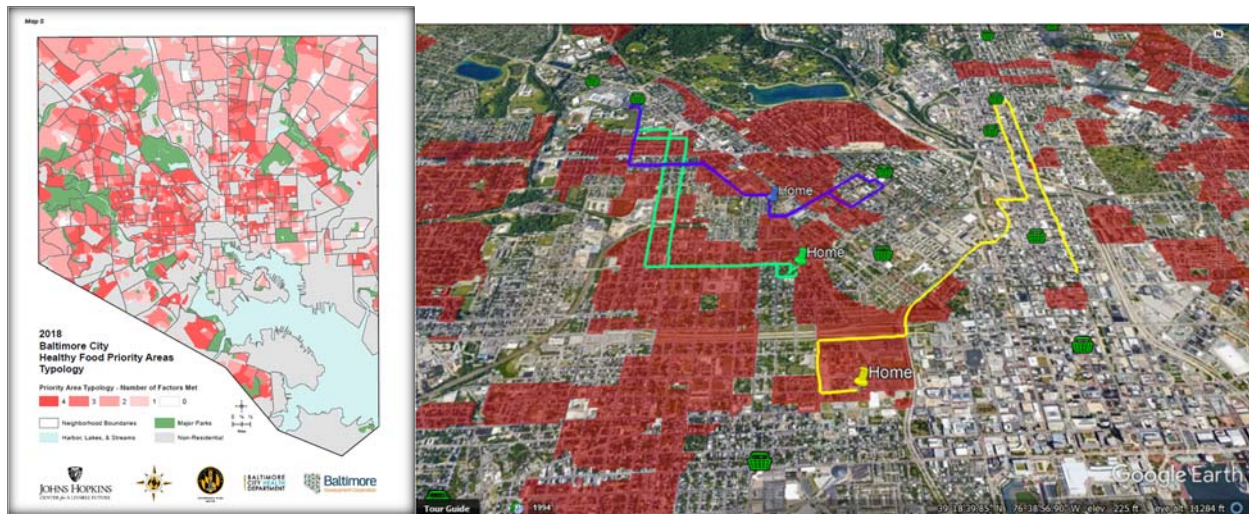


Figure 13: The choropleth map that served as the basis for creating Baltimore’s food desert (Healthy Food Priority Areas) map in 2018. Intermediate data products like this combined with qualitative products like the map on the left also need to be included in policy discussions to look for different possible solutions to the issue of food sovereignty. These products could help deemphasize the importance of Euclidian distance and

market-based solutions and allow for the promotion of alternative interventions that could strengthen community ownership of their food systems (Data Sources: Google Earth, Johns Hopkins CLF Maryland Food System Map, Baltimore City's Food Environment: 2018 Report).

To that end, it may be important to create a choropleth map that helps to highlight the areas of greatest need without excluding other areas that may also be in need but are able to meet a singular factor that removes them from consideration. The data is already available for it, it just needs to be altered from its current "all or nothing" perspective. It would also be a good idea to combine these maps with qualitative path maps that highlight other information that is missing from more traditional geospatial analysis:

- Diversity of Stores Taken
- Frequency of Trips
- Transportation Used and Why

By getting a small sample of stories in each district to go along with these more data-driven maps, policy makers will have a better idea of what the actual situation on the ground is, and how they can work to strengthen the community already there instead of risking a top-down market-driven acquisition that eventually fails due to insufficient customer support.

B. Focus on Transportation and Education, Not Distance

Food desert maps draw attention to distance instead of focusing on the most important determinants of access outside of income: access to reliable transportation (that allows one to carry a significant amount of weight or large items) and understanding how to eat healthy on the budget they have available.

"No. I think there's a difference between eating what I want to eat and eating what's healthy, and that is the problem, but not where I shop. It would disgust me to hear someone say, "I can't eat healthy because I live near Save-A-Lot." To a point that's true, but when you're making that argument, you clearly have not lived in places that are actually... some of the corner stores around here sell... If that was your only option, then I'd be like, "Yeah." You don't have many options. None of these places, a lot of them don't even have refrigerators. It's just like whatever is shelf stable, like Chef Boyardee canned soup..."

As the sentiment shared above shows, it oftentimes isn't that an area lacks the tangible access to foods that are healthy so much as it is an issue that people don't know how to eat healthy when their food budget is incredibly limited. By focusing on educating people on how to eat healthy with what is available and teaching the tenets of a balanced diet, those individuals will be equipped with the knowledge necessary to make those healthy choices as they become available and find ways to do so within the means available.

"The map helped when you broke it down to me. Like if you just have this if you put it on a projector broke it down and show them, "this is what I'm talking about," a group of people, I think they would understand it better than you would if you put it in writing for them to check it."

This education is does not only come into play with what to eat, but also with how to get that food on the budget available. Many individuals with low access don't know it, and don't understand exactly what it means to live in a food desert. Furthermore, many individuals who live in food deserts and/or lack access to a vehicle are already finding alternative ways to use their resources and networks to overcome those limitations. Helping them to understand what they're doing in a more concrete way could help to foster more formalized community-based solutions to the current problems faced by those in these areas.

Policy makers can then also put emphasis on enhancing some of those preexisting transportation networks and community resources, potentially leading to a much greater impact than trying to put a financially untenable market in an area that couldn't sustain it, only to have it close a few years later and erase any progress. By focusing on education and pre-existing networks, people's food sovereignty becomes based more on their knowledge and community and is less susceptible to the whims of the market.

C. Empowerment in Comfort

In addition to the more tangible access issues described above, it is important to frame this as an issue of comfort and familiarity. As with food and meals, the experience of shopping and cooking are directly tied into the social fabric of our lives. As was seen during these interviews and the analysis, not a single participant interacted with the environment in an entirely predictable and logical way. Most individuals tended towards stores that they understood, stores that they felt comfortable in and had what they were looking for. It was often these factors, and not mere distance, that shaped a particular individual's shopping habits.

It is these factors, in tandem with the more traditional factors that make up a food desert map, that shape where, why and how a particular individual does their grocery shopping. Policy makers need to understand that in addition to the more traditional powers that be, true food sovereignty can only be achieved when the issue of comfort and a sense of belonging are also felt.

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Bibliography

- Baltimore City Health Department. "Baltimarket." *Baltimore city*. Accessed May 1, 2018. <https://health.baltimorecity.gov/programs/baltimarket>
- Bell, Sarah, et al. "Using GPS and geo-narratives: a methodological approach for understanding and situating everyday green space encounters." *Area* 47, no. 1 (2015): 88-96.
- Block, Daniel, et al. "Food sovereignty, urban food access, and food activism: contemplating the connections through examples from Chicago." *Agriculture and Human Values* 29, issue 2 (2012): 203-215.
- Bouie, Jamelle. "The Deep, Troubling Roots of Baltimore's Decline." *Slate Magazine*. Accessed December 20, 2016. http://www.slate.com/articles/news_and_politics/politics/2015/04/baltimore_s_failure_is_rooted_in_its_segregationist_past_the_city_s_black.html.
- Buzogany, Sarah, Freishtat, Holly and Misiaszek, Caitlin. "Baltimore City's Food Environment: 2018 Report." Baltimore City Planning Department. 2018.
- Cummins, Steven, Ellen Flint, and Stephen A. Matthews. "New Neighborhood Grocery Store Increased Awareness of Food Access but Did Not Alter Dietary Habits or Obesity." *Health Affairs* 33, no. 2 (2014): 283-291.
- Curtis, Andrew, et al. "Spatial video geonarratives and health: case studies in post-disaster recovery, crime, mosquito control and tuberculosis in the homeless." *International Journal of Health Geographics* 14, no. 22 (2015). <https://ij-healthgeographics.biomedcentral.com/articles/10.1186/s12942-015-0014-8>.
- Figueroa, Meleiza. "Food Sovereignty in Everyday Life: Toward a People-centered Approach to Food Systems." *Globalizations* 12:4 (2015): 498-512.
- Griswold, Alison. "There's still one big reason why people aren't buying their groceries online." *Quartz*. Accessed April 26, 2018. <https://qz.com/1077743/people-dont-buy-groceries-online-because-they-prefer-to-pick-things-out-in-stores/>.
- Kato, Yuki. "Not Just the Price of Food: Challenges of an Urban Agriculture Organization in Engaging Local Residents." *Sociological Inquiry* 83, no. 3 (2013): 369-391.

Kwan, Mei-Po, and Guoxiang Ding. "Geo-Narrative: Extending Geographic Information Systems for Narrative Analysis in Qualitative and Mixed-Method Research." *The Professional Geographer* 60, no. 4 (2008): 443-465.

La Via Campesina. "Declaration of Nyéléni." Nyéléni Forum for Food Sovereignty. February 2007. <https://nyeleni.org/spip.php?article290>.

LeDoux, Timothy, and Igor Vojnovic. "Going outside the neighborhood: The Shopping Patterns and Adaptations of Disadvantaged Consumers Living in the Lower Eastside Neighborhoods of Detroit, Michigan." *Health & Place* 19 (2013): 1-14.

Massey, Doreen. *Space, Place, and Gender*. Minneapolis: University of Minnesota Press, 1994.

Mennis, Jeremy, Michael J. Mason, and Yinghui Cao. "Qualitative GIS and the visualization of narrative activity space data." *International Journal of Geographical Information Science* 27, no. 2 (2013): 267-291.

Walton, Alice G. "Why Health Food To One Person May Be Junk Food To Another." *Forbes*. Accessed May 3, 2018. <https://www.forbes.com/sites/alicegwalton/2015/11/20/why-a-healthy-food-for-one-person-may-be-unhealthy-to-another/#2d2d5ff86100>

Watts, Paul R. "Mapping narratives: the 1992 Los Angeles riots as a case study for narrative-based geovisualization." *Journal of Cultural Geography* 27, no. 2 (2010): 203-227.