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Jennifer C. Truell Date

A PROGRAM GAP ANALYSIS OF GROWNYC'S GREENMARKET AND YOUTHMARKET PROGRAMS ON FRUIT AND VEGETABLE ACCESS AMONG RESIDENTS IN EAST HARLEM, CENTRAL HARLEM, CENTRAL BROOKLYN, NORTH BROOKLYN AND THE SOUTH BRONX

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Abstract

A PROGRAM GAP ANALYSIS OF GROWNYC'S GREENMARKET AND YOUTHMARKET PROGRAMS ON FRUIT AND VEGETABLE ACCESS AMONG RESIDENTS IN EAST HARLEM, CENTRAL HARLEM, CENTRAL BROOKLYN, NORTH BROOKLYN AND THE SOUTH BRONX

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The local food environment plays a significant role in the availability and accessibility of healthy food options, ultimately impacting the health and wellness of residents living in that neighborhood. Fruit and vegetable intake has been shown to have positive health benefits, including the provision of necessary vitamins, minerals and nutrients. Diets containing a sufficient amount of fruits and vegetables are associated with reduced risk of obesity, Type 2 diabetes, cancer, heart disease, and stroke.

In New York City, a lack of access to, and affordability of fresh fruits and vegetables are the two most common reasons noted for reduced produce consumption among residents living in lower-income neighborhoods. It is often the case that in underserved neighborhoods, supermarkets and grocery stores are lacking, and fast food restaurants and small corner stores are plentiful, offering inexpensive foods that are in many cases, devoid of nutritional value. In some instances where healthier options are available, the cost might be prohibitive, and in turn could make inexpensive, lesser quality food a more economical option, to the detriment of one's health.

GrowNYC's Greenmarket chain of farmers' markets was established to help connect New Yorkers with fresh and affordable produce. While there has been significant growth in Greenmarket presence in some neighborhoods in New York City, the reality is that in several lower-income neighborhoods in New York City, Greenmarket presence is virtually nonexistent.

This program Gap Analysis explored the current state of Greenmarket placement in five lower-income neighborhoods in New York City, and was underscored with Key Informant interviews with food justice/food access workers in the impacted neighborhoods. These findings provide a preliminary overview of current Greenmarket placement, and offers possible suggestions for taking tentative, yet actionable steps towards increasing Greenmarket presence in lower-income neighborhoods in New York City. The Key Informant interviews added an additional perspective from advocates involved in food justice, specifically on the challenges facing residents in lower-income neighborhoods in procuring fresh produce amid local food environments that are lacking healthful food options.

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Table of Contents

List of Tables

List of Figures

Chapter I. Introduction

This chapter will provide an overview of the disparity in fruit and vegetable access in five lower-income neighborhoods in New York City. Specifically, cost and access will be addressed, as these are the two most often noted barriers that preclude lower-income residents from greater access to fresh produce. GrowNYC's Greenmarket program will be discussed, as an effort to ameliorate this disparity in fruit and vegetable access and consumption, which can have negative implications for individuals and ultimately, the larger community. In addition, a brief overview of the five neighborhoods under investigation for this research will be also be provided. Gap Analysis, the methodological approach used in this thesis, will also be introduced.

Introduction and Rationale

Fruit and vegetable intake is known to have a positive impact on one's health, the benefits of which include the provision of necessary vitamins, minerals and nutrients. Additionally, diets containing a sufficient amount of fruits and vegetables are associated with reduced risk of obesity, Type 2 diabetes, cancer, heart disease and stroke (Baronberg, et al., 2013). In contrast, a very low consumption of these vital nutrients can have a detrimental impact on a person's health. The local food environment plays a significant role in regard to the availability and accessibility of healthy food options, which ultimately impacts the health and wellness of residents in a community (Horowitz, et al., 2004; Gordon, et al., 2011).

In New York City, a lack of access to, and unaffordability of fresh fruits and vegetables are the two most common reasons noted for reduced produce consumption among residents living in lower-income neighborhoods (City Harvest, 2009, 2010, 2012; Myrtle Avenue Revitalization Project, 2012). While each barrier weighs heavily on its own, the combined impact of cost

barriers and access barriers can significantly hinder the procurement of fresh produce for residents living in neighborhoods lacking supermarkets and grocery stores. As a result, a significant number of New Yorkers are unable to benefit from the positive health outcomes associated with consistent fruit and vegetable intake, to the detriment of their health. In addition to overweight and obesity, chronic health conditions such as hypertension, high cholesterol and Type 2 diabetes are some of the adverse health outcomes that are associated with an unhealthy diet (Walker, et al., 2010).

It is often the case that in underserved neighborhoods, supermarkets and grocery stores are lacking, and fast food restaurants and small corner stores known as *bodegas* are plentiful, offering inexpensive foods that are in many cases, devoid of nutritional value (Horowitz, et al., 2004; Segal, 2010; Walker, et al., 2010). Furthermore, in some densely populated neighborhoods with large minority populations, fast food establishments far outweigh the number of available supermarkets. In some instances where healthier options are available, the cost might be prohibitive, and in turn could make inexpensive, lesser quality food a more economical option (Horowitz, et al., 2004; Segal, 2010; Walker, et al., 2010). The interplay of these factors can have an adverse impact on an individual's wellness, ultimately leading to a decline in the overall health and wellness profile of a neighborhood (Horowitz, et al., 2004).

In response to the high self-reporting of low fruit and vegetable consumption, overall poor health and high rates of obesity and diabetes among lower-income residents, the New York City Department of Health and Mental Hygiene (NYCDOHMH) has identified East Harlem, Central Harlem, North Brooklyn, Central Brooklyn, and the South Bronx as neighborhoods being most in need of food access programs to help increase fruit and vegetable access and consumption among its residents (NYCDOHMH, n.d.).

The Impact of GrowNYC on Fruit and Vegetable Access

History of GrowNYC and the Emergence of Greenmarkets

GrowNYC, a non-profit organization with the overarching goal of creating a healthier and more sustainable New York City, was established in 1970. While there are many programs that fall under the GrowNYC umbrella, including environmental education, recycling and composting programs, GrowNYC is most notably known for its Greenmarkets, the largest network of outdoor farmers' markets in the United States (Langholtz, 2014). Endeavoring to increase access to fresh fruits and vegetables, GrowNYC provides a much needed resource for New Yorkers who would otherwise go without access to fruits and vegetables.

Under the leadership of GrowNYC, there are currently 50 Greenmarkets in operation throughout the five boroughs of New York City (the Bronx, Manhattan, Brooklyn, Queens and Staten Island). The number of Greenmarkets per borough is varied, as are their size and operating seasons. Some markets are open on selected days on a year-round basis, while other markets are open seasonally, from mid-spring (May-June) through late fall (November). As of January 1, 2015, there are 23 Greenmarkets that offer year-round access (GrowNYC, 2015a,b).

In addition to the Greenmarkets, GrowNYC also oversees 15 Youthmarkets, which are smaller scale Greenmarkets, located in designated neighborhoods of need, many of which lack traditional supermarkets and other outlets for purchasing fresh fruits, vegetables and other healthy foods.

Table 1.1 provides an overview of the total number of Greenmarkets and Youthmarkets in New York City. Also noted in Table 1.1, is the number of Greenmarkets that accept Electronic Benefits Transfer (EBT) as a method of payment.

Table 1.1 Greenmarket and Youthmarket Numbers (as of 1/1/2015)

Total Number of GrowNYC Greenmarkets	50
Total Number of GrowNYC Greenmarkets offering year round service	23
Total Number of GrowNYC Greenmarkets offering seasonal service	27
Total Number of GrowNYC Greenmarkets that accept Electronic Benefits Transfer (EBT) as a form of payment	48
Total Number of GrowNYC Youthmarkets	15
Total Number of GrowNYC Youthmarkets offering year round service[1]	0
Total Number of GrowNYC Youthmarkets offering seasonal service	15
Total Number of GrowNYC Greenmarkets that accept Electronic Benefits Transfer (EBT) as a form of payment	15

Source: Adapted from GrowNYC (2015a). Our Markets. Accessed January 30, 2015 http://www.grownyc.org/greenmarket/search; and
GrowNYC (2015b). 2015 Listing of Year Round Greenmarkets. Accessed January 30, 2015 http://www.grownyc.org/files/gmkt/map.pdf

Cost Barriers

One significant factor contributing to decreased fruit and vegetable consumption among lower-income New York City residents is cost (City Harvest, 2009, 2010, 2012; Myrtle Avenue Revitalization Project, 2012; GrowNYC, 2012a, 2013a). For some residents living in lower-income neighborhoods, procuring fresh produce might be significantly more difficult without incentive programs in place, which can help ease the financial burden that can sometimes be associated with healthier eating. This financial burden becomes even more pronounced when trying to healthfully feed a family with limited funds (City Harvest, 2009, 2010, 2012; Segal, 2010).

In 2005, to help alleviate financial constraints, the Greenmarkets began accepting Supplemental Nutritional Assistance Program (SNAP) benefits as a method of payment for items purchased at the Greenmarkets. Formerly known as Food Stamps, SNAP benefits are deposited onto an Electronic Benefits Transfer (EBT) card, which functions in the same manner as a debit card (Office of Temporary Disability Assistance, 2015). Customers can swipe their EBT card at

[1] Greenmarkets are seasonal (summer only) by their nature, as they are run by students.

participating vendor stands at the Greenmarkets to make purchases (Baronberg, et al., 2013, GrowNYC, 2013a). The acceptance of EBT payments at participating Greenmarkets is one critical step that has been taken to help connect people with healthful items that are affordably priced, and of a good quality.

The number of Greenmarkets accepting EBT as a form of payment has steadily increased since 2005 (GrowNYC, 2013a). Currently, EBT cards can be used at 48 out of 50 Greenmarkets, an increase from only three markets in 2005. EBT can also be used as a method of payment at all 15 of GrowNYC's Youthmarkets (GrowNYC, 2015a). In some markets, daily EBT sales are estimated to be close to $6,000. Not only a benefit for the customers who use EBT to help purchase produce, EBT has also become a vital supplemental revenue source to the farmers who sell their produce at the Greenmarkets, with some farmers reporting that EBT sales account for approximately 25% to 50% of their total income (GrowNYC, 2012a, 2013a).

When EBT was first accepted as a means of payment at the Greenmarkets in 2005, EBT sales for that year were $952. Eight years later, in 2013, more than $930,000 was spent in EBT transactions at the Greenmarkets (GrowNYC, 2013a, 2015c). The increasing use of EBT benefits at the Greenmarkets affirms that people in lower-income neighborhoods care about eating well, and are using their food assistance benefits to purchase fruits and vegetables.

What began as a pilot test by Greenmarket co-founder Bob Lewis, has revolutionized how shoppers utilize their food assistance benefits, not just in New York City, but across the country, as farmers' markets nationwide have reported increasing sales as a result of accepting EBT cards as a mode of payment (Langholtz, 2014). Table 1.2 illustrates the continued increase in EBT sales at the Greenmarkets for the years 2005-2013.

Table 1.2 EBT Sales at GrowNYC's Greenmarkets (2005–2013)

2005	2006	2007	2008	2009	2010	2011	2012	2013
$952	$14,097	$40,661	$100,072	$251,216	$505,166	$638,140	$831,601	$930,000+

Source: GrowNYC (2013). Healthy Food, Healthy City: Greenmarket EBT 2012 Progress Report. Retrieved November 27, 2013, from http://www.grownyc.org/files/gmkt/EBT/2012EBTReport.pdf

Health Bucks: An Incentive to Help Increase Fruit and Vegetable Consumption

Introduced by the New York City Department of Health and Mental Hygiene in 2007, the Health Bucks Program was created as an incentive program to help bolster the amount of fruits and vegetables that residents in lower-income neighborhoods purchase and consume. Health Bucks are paper vouchers, worth $2 each. For every $5 a customer spends using their EBT benefits, they receive a $2 Health Bucks coupon. The vouchers can be used to purchase fresh fruits and vegetables at the Greenmarkets, while providing a 40% increase in purchasing power, allowing shoppers to purchase more fruits and vegetables. Health Bucks can only be used for fruits and vegetables, further ensuring that people are being connected with fruits and vegetables by helping to reduce cost barriers. The Health Bucks program has been a vital part of the sustained success of Greenmarket's Food Stamp initiatives (GrowNYC, 2012a, 2013a). Table 1.3 provides a borough-by-borough listing of Health Bucks redemption rates. Redemptions have been considerably and consistently high over the years, demonstrating the utility of incentive programs as a means of increasing produce purchasing power for lower-income residents.

Table 1.3 Borough Breakdowns of Health Bucks (EBT Incentive) Redemption Rates by Borough (2008-2012)

Bronx

Redemption Rate %	2008	2009	2010	2011	2012
EBT Incentive	95%	89%	85%	93%	95%

Brooklyn

Redemption Rate %	2008	2009	2010	2011	2012
EBT Incentive	63%	57%	91%	92%	91%

Manhattan (2006-2011)

Redemption Rate %	2008	2009	2010	2011	2012
EBT Incentive	90%	93%	91%	94%	91%

Queens

Redemption Rate %	2008	2009	2010	2011	2012
EBT Incentive	n/a	n/a	93%	97%	94%

Staten Island

Redemption Rate %	2008	2009	2010	2011	2012
EBT Incentive	n/a	n/a	87%	95%	94%

Source: Kasey Holloway, GrowNYC, Personal Communication [email], December 2013.

Akin to the demonstrated increase in EBT sales at the Greenmarkets, Health Bucks redemption rates have also remained consistently high. Tandem usage of EBT/SNAP benefits and Health Bucks can significantly increase procurement of fruits and vegetables (GrowNYC 2012, 2013a). Such incentive programs are particularly important for families with small children, as healthy eating habits can be modeled for children, and reinforced for parents/guardians.

Access Barriers

Despite the overall documented increase in annual EBT sales and Health Bucks redemption rates (GrowNYC, 2013a), the reality is that not all New York City residents are

enjoying equal access to the Greenmarkets. For example, although the majority of GrowNYC's Greenmarkets are in the borough of Manhattan, there are no Greenmarkets or Youthmarkets located directly in Harlem, specifically Central Harlem and East Harlem, two neighborhoods which have exceedingly high rates of Type 2 Diabetes (NYCDOHMH, 2013a).

Residents in lower-income neighborhoods who are not served by Greenmarkets or Youthmarkets are at risk of less frequent fresh fruit and vegetable consumption than residents residing in areas not characterized by poverty (NYCDOHMH, n.d.; Segal, 2010). This is cause for concern, as some of the neighborhoods designated as areas of high need do not have adequate supermarkets or other food outlets where residents can easily purchase affordably priced fresh fruits and vegetables (NYCDOHMH, n.d.; Segal, 2010). The ramifications of this hindered access to fresh produce in under-sourced neighborhoods are evident in the high concentration of diet and nutrition-related health conditions in specific neighborhoods throughout New York City.

Problem Statement

As of January 1, 2015, there are 50 Greenmarkets and 15 Youthmarkets in the five boroughs of New York City, for a total of 65 total GrowNYC markets, which is an increase from 62 GrowNYC markets in 2013. A total of 48 Greenmarkets and all 15 Youthmarkets accept EBT/SNAP benefits as a form of payment, with seven of these markets being located in neighborhoods of *extreme need,* within Central Brooklyn and the South Bronx. It should be noted, however, that these locations operate seasonally (May-November), as opposed to operating on a year-round basis (GrowNYC, 2015a). In contrast to a lack of Greenmarkets in some of the more underserved neighborhoods of New York City, is a number of Greenmarkets in more affluent neighborhoods that operate on a year-round basis, as indicated by the 2015

GrowNYC Greenmarkets location listing[2]. The neighborhoods where these year-round Greenmarkets are located also contain supermarkets and other food outlets that are very likely to offer nutritional foods, which is a very different reality for many lower-income neighborhoods.

Although there might be a farmers' market in a *nearby* neighborhood operating on a year-round basis, in many cases, accessing these markets might necessitate several bus or subway rides (or a combination thereof), and/or a considerable walk. In theory, people can travel to other neighborhoods to use their EBT benefits to purchase items at other Greenmarkets, as there is no Greenmarket restriction on where EBT benefits can be used. However, the degree to which people in underserved neighborhoods travel to other neighborhoods or other boroughs to access the Greenmarkets is not well known (Source: Kasey Holloway, GrowNYC, Personal Communication [email], December 2013). A lack of personal transportation can significantly impair long-distance travel to a supermarket or food outlet outside of one's immediate neighborhood, often leading to a reliance on purchasing less nutritionally sound foods from bodegas/corner stores that are closer to one's home (Kwate, 2009; Segal, 2010; City Harvest, 2009, 2010, 2012). For some residents, convenience takes precedence over quality, resulting in a trade-off that can have serious health implications.

Given the fact that many residents in underserved neighborhoods receive some type of supplemental food assistance benefits, such as SNAP benefits, lower-income neighborhoods can be viable sites for Greenmarket placement, as indicated by increasing annual EBT sales at the Greenmarkets throughout New York City (GrowNYC, 2012a, 2013a). Establishing a presence in lower-income neighborhoods would help bring affordable produce to residents in neighborhoods lacking outlets for produce, while enabling GrowNYC to reach more New Yorkers and their

[2]2015 Year Round Greenmarkets Listing –Appendix item F

families, who can truly benefit from Greenmarket presence.

Race, Place and Class, and the Impact on Health

Reduced Access to Fresh Produce Can Negatively Impact Health Outcomes

The disparity in fruit and vegetable access has far-reaching implications for residents, both adults and children, contending with diet-related health conditions. Of New York City's 42 neighborhoods, the five neighborhoods of East Harlem, Central Harlem, North Brooklyn, Central Brooklyn and the South Bronx had the highest numbers of residents who self-reported that they are in very poor health (NYCDOHMH, 2006b,c,d,e,f) . These neighborhoods all have a relatively lower socioeconomic status, hindered access to healthy and affordable food items, and high rates of adverse health outcomes. Take Care New York, a policy agenda to improve the health of all New York City residents, identified ten key areas, that although preventable through several modes of intervention, cause significant illness and death among residents (NYCDOHMH, 2006b,c,d,e,f).

It was noted that when examined individually, these five specific neighborhoods were below average on a large majority of good health indicators (seven to nine), and were considered to be average on only a few good health indicators (generally two to four). The neighborhoods of Central Brooklyn and East Harlem were not above average on any of the ten health indicators under investigation. Self-reported poor health, heart disease, obesity, and being diabetic are all health indicators in which these five communities have rates that exceed the New York City average and exceed, or come close to exceeding the average for their respective borough (NYCDOHMH, 2006b,c,d,e,f). These findings underscore the need for increased, and ultimately sustained access to healthier food items in underserved communities.

This gap in Greenmarket coverage and access is particularly troubling, as hampered access can pose a significant challenge for residents who need access to fruits and vegetables throughout the year, not only for the sake of eating well for dietary compliance in managing diet-related illnesses, but also for the sake of taking *preventive action* against the onset of adverse diet-related conditions (Horowitz, et al., 2004). Residents living in lower-income neighborhoods may find it extremely challenging, if not impossible to find the nutritive foods required to prevent their condition(s) from worsening. Furthermore, these patterns of reduced accessibility are replicated in several other lower-income neighborhoods in Brooklyn and the South Bronx, which this research will discuss (NYCDOHMH, 2006d,e,f).

Obesity prevalence and its related complications remain disproportionately higher among ethnic and racial minorities (NYCDOHMH, 2013a). This disparity is more pronounced in neighborhoods marked with lower socioeconomic statuses and higher rates of poverty. Of the ten community districts in New York City with the highest rates of diabetes-related mortality, seven community districts are classified as lower-income (NYCDOHMH, 2013a). If not addressed, these disparity gaps will most likely continue to widen, ultimately setting the stage for repeated cycles of chronic disease as the youngest residents in lower-income neighborhoods grow up. Addressing the differential gap in fruit and vegetable consumption among New York City residents can hopefully lead to a reduction in the disparity of diet-related health conditions, thus enabling all residents to enjoy the healthiest life possible.

Environmental Health Disparities in New York City's Lower-Income Neighborhoods

Not only do residents in lower-income neighborhoods have to contend with hindered access to healthful food items, which impacts their health, Frumkin (2002) found that there are

negative environmental factors that are more prevalent in lower socio-economic neighborhoods, leading to increased mortality rates. The effects of lower-income levels, reduced access to healthier foods, and environmental disparities, poor air quality in particular, converge in a negative way and can have a deleterious impact on the health of residents. As Frumkin noted, the poor, and members of minority groups, often bear a disproportionate burden of environmental hazards (Frumkin 2002).

Of note, three of the neighborhoods in New York City that have the highest rates of sub-par air quality are East Harlem, the South Bronx and Williamsburg (North Brooklyn), and are neighborhoods under investigation for this research. These environmental disparities add yet another health challenge for residents in these neighborhoods to contend with (Perera, et al., 2002). Similarly, Sze (2007) found that asthma prevalence, triggered in part by poor air quality, impacts lower-income residents at rates that surpass their more affluent counterparts. These findings underscore Frumkin's assertion regarding the concentration of negative environmental factors on the poor and among members of minority groups (Frumkin, 2002). When combined with inadequate intake of healthy foods, the effects of environmental disparities take an even greater toll on residents living in lower-income neighborhoods, many of whom are racial and ethnic minorities.

Purpose Statement

The purpose of this Gap Analysis is to describe the gap in service with regard to GrowNYC's Greenmarket program. In addition to describing the gap in service reach, potential solutions will be offered that could possibly be a platform for establishing a presence in lower-income neighborhoods of need.

This Gap Analysis will be supplemented with interviews among community-level food justice/food access workers and community leaders, as information is lacking on how seasonal Greenmarket and Youthmarket customers in lower-income neighborhoods *continue* to procure fruits and vegetables when the season has ended and the markets have left the neighborhood for the season. This continuity will be especially important for residents living in neighborhoods without traditional supermarkets or other food outlets from where fresh produce can be purchased. The importance of *maintaining* access to fresh fruits and vegetables becomes particularly important for people who have started making positive changes to improve their eating habits.

Methodological Approach

Gap Analysis will be the methodological approach for this study, and will be undertaken to identify and describe GrowNYC's Greenmarket and Youthmarket service gap. Current program activity will be identified, and the ideal/optimal state will described. This Gap Analysis will also delineate the steps that need to be taken to close the service gap, in order to reach the optimal state of increasing access to fruits and vegetables for residents in lower-income neighborhoods in New York City. Also to be described is the program service gap between neighborhood need for access to fresh fruits and vegetables, and actual reach in several lower-income neighborhoods in New York City.

In addition, interviews with community leaders and food justice advocates will be conducted to give a voice to this service gap. It is anticipated that the findings from this research will help provide a justification for increasing Greenmarket presence in lower-income neighborhoods.

Significance Statement

Seasonal Greenmarkets can be a *temporary* solution in terms of increasing access to fresh fruits and vegetables in neighborhoods lacking supermarkets and other food outlets. Some would argue that seasonal access is better than no access, however, the question is then raised as to how can residents continue to eat healthfully when Greenmarkets and Youthmarkets close for the season, and the neighborhood is devoid of access to fresh produce that is affordably priced?

GrowNYC has a well-established presence, and a wide network of Greenmarkets, some of which are the only markets offering year-round service in New York City (2015a). If expanded into lower-income neighborhoods, GrowNYC's Greenmarket program could very well connect increasingly more underserved neighborhoods with urgently needed access to affordable fruits and vegetables, potentially helping to reverse the trend in regard to increasing numbers of individuals contending with diet-related adverse health conditions.

Without a sustainable solution in place, the numbers of adverse health outcomes and premature deaths will continue to increase, caused by hindered access to fruits and vegetables, with the largest burden of illness continuing to be placed on residents living in lower-income neighborhoods.

Table 1.4 provides a list of definition of terms pertaining to this study.

Definition of Terms

Table 1.4 Definition of Terms

Term	Definition
Borough	When used in reference to New York City, a borough is akin to a county, a political and geographic entity within a state. Boroughs have a relative degree of governmental authority. The five boroughs that comprise the metropolitan New York City area are The Bronx, Manhattan, Brooklyn, Queens and Staten Island.
EBT (Electronic Benefits Transfer)	Electronic Benefits Transfer is the method by which the New York State Office of Temporary and Disability Assistance provides cash and Supplemental Nutrition Assistance Program (SNAP) benefits to New York State's in-need recipient population. Cash and SNAP benefits are deposited into an electronic benefit account, and loaded onto a card that functions similarly to a debit card (New York State Office of Temporary and Disability Assistance, 2015).
Food Desert	Areas devoid of fresh fruit, vegetables, and other healthful whole foods. Food deserts are usually found in impoverished areas. This is largely due to a lack of grocery stores, farmers' markets, and healthy food providers (USDA, n.d.).
Greenmarkets	Under the GrowNYC umbrella, Greenmarket Corporation operates Greenmarkets in each of the five boroughs of New York City. As of January 1, 2015, there are 50 Greenmarkets located throughout the five boroughs in New York City. Of the 50 total Greenmarkets, 23 are open on a year round basis (GrowNYC, 2015a,b).
Health Bucks	Paper vouchers, worth $2 each, developed and distributed by NYC Health Department District Public Health Offices. Health Bucks can be used to purchase fresh fruits and vegetables at participating Greenmarkets and in other produce access programs throughout New York City (GrowNYC, 2012a, 2013a).
SNAP (Supplemental Nutrition Assistance Program)	The Supplemental Nutrition Assistance Program issues monthly electronic benefits that can be used like cash to purchase food at authorized retail food stores. Eligibility and benefit levels are based on household size, income and other criteria (New York State Office of Temporary and Disability Assistance, 2015).
Underserved/ Under-resourced Neighborhoods	Neighborhoods that either have inadequate or completely lack the basic necessities, such as supermarkets that can help sustain a healthy population.
Youthmarkets	Smaller-scale Greenmarkets, located primarily in neighborhoods of need. Youths from underserved neighborhoods of New York City are selected from local community-based organizations to operate Youthmarket stands in their neighborhood. Farmers are generally not present at the Youthmarkets. However, they provide the produce that is to be sold, with oversight by teens and a staff member from a local community-based organization. As of January 1, 2015, there are 15 Youthmarkets located in the Bronx, Manhattan, Brooklyn and Queens (GrowNYC, 2015a).

Conclusion

This chapter provided an overview of the issue of a lack of GrowNYC Greenmarkets in lower-income neighborhoods in New York City, and how that lack in access is impacting the health of residents in these communities. Environmental justice issues, while not a major portion of this research, were acknowledged, as some of the neighborhoods that will be discussed in this thesis are also dealing with environmental health issues that are also impacting the health and wellness of local residents. While there has been growth in Greenmarket presence in some neighborhoods in New York City, there has been a relative absence of Greenmarket presence in several lower-income neighborhoods in New York City. Addressing this service gap can potentially help connect many residents in need to fresh and affordable produce, ultimately helping more New Yorkers live healthier lives.

Chapter II. Review of the Literature

Introduction

This chapter will summarize the sources of literature used to frame this research. Sources include peer-reviewed articles pertaining to access and cost barriers in accessing fruits and vegetables, neighborhood landscapes and their impact on eating habits, Community Food Assessments, and the New York City Department of Health and Mental Hygiene's community health profiles for the neighborhoods that will be examined for this thesis. Community Food Assessments are particularly insightful, as they allow residents, in their own words, to describe the barriers to healthy eating in their neighborhood.

The neighborhood landscape can have a significant impact on the health and wellness profile of a community (Horowitz, et al., 2004; Kwate, et al., 2009; Black, et al., 2010; Segal, 2010; Gordon, et al., 2011). Just as residents in a neighborhood can flourish with the necessary amenities and access to healthy food items, residents living in areas lacking these vital resources can suffer from illness and premature death (NYCDOHMH, 2006b,c,d,e,f). A single intervention or a mix of interventions aimed at reducing inequalities in neighborhood access to fresh fruits and vegetables can be effective in reaching the intended population(s), provided that there is full and *consistent* access to the intervention(s) (City Harvest, 2009, 2012).

The following review of the literature for this research is comprised of research findings from studies conducted in New York City, evaluating neighborhood characteristics of underserved areas, and their impact on diet-related health conditions, specifically obesity and Type 2 diabetes (Buchholz, et al., 2012; Black and Macinko, 2009; Black, et al., 2010; Horowitz, et al., 2004; Gordon, et al., 2011). The literature places lower-income neighborhoods in a context where they can be evaluated in an effort to examine the severity of the problem of hindered

access to fruits and vegetables, due to cost, proximity, and limited, if any, availability of food outlets that sell healthy foods. The consequences of a continued inability to access healthier food items manifest themselves in the form of adverse diet-related health conditions (Horowitz, et al., 2004). The selected literature also consists of findings from the New York City Department of Health and Mental Hygiene's community health profile assessments, which serve to provide a more in-depth examination of the overall health and wellness, in addition to income information for the neighborhoods that will be discussed (NYCDOHMH, 2006a,b,c,d,e,f).

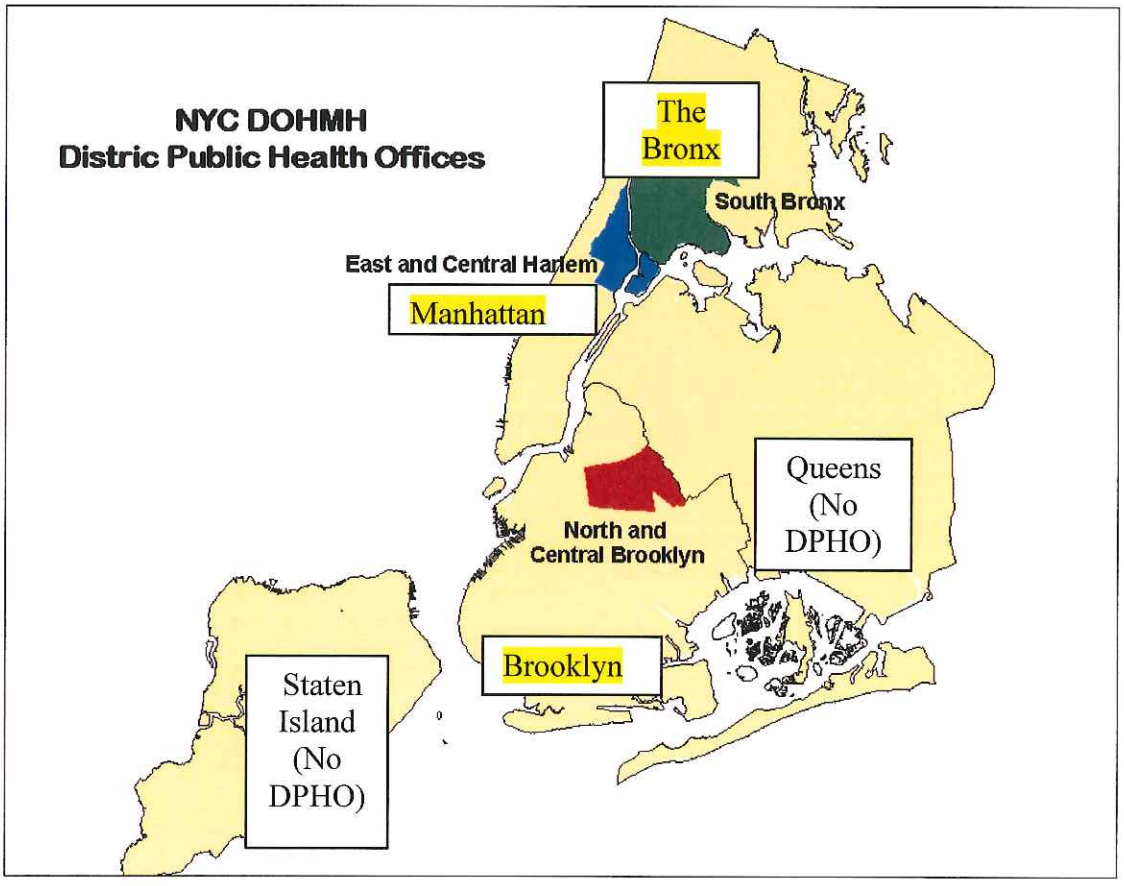
Community Food Assessments also serve as a valuable source of information for this literature review, as they are a viable way to gather community level information on the neighborhood landscape, with respect to accessibility to healthy foods. City Harvest has conducted numerous Community Food Assessments to help give a voice to residents living in lower-income neighborhoods regarding the challenges that they face in procuring fresh and healthful food items in their immediate neighborhood. It is anticipated that an outgrowth of the Community Food Assessments will serve as the foundation for long-term, sustainable solutions to help overcome the challenges residents face in regard to accessing healthful food items. Additional areas of focus for the Community Food Assessments are the overall health and nutritional habits of those in the neighborhoods being assessed.

Also included in the review of literature are findings from three New York City Department of Health and Mental Hygiene District Public Health Offices (Graham, et al., 2006; Gordon, et al., 2007; Kaufman and Karpati, 2007b). Guided by an overarching mission of increasing health equity and reducing disparities among New York City's most vulnerable residents, each District Public Health Office (DPHO) focuses on the pressing public health challenges of a particular neighborhood, and works to conduct local research that can inform and

advance public health policies in an effort to make progress towards improving the overall health profile of a community (NYCDOHMH, 2003, n.d.).

The District Public Health Offices are located in the boroughs of the Bronx, Manhattan and Brooklyn, boroughs with neighborhoods that have some of the highest rates of residents living below the poverty level, residents who are obese, and residents who have diabetes. The five neighborhoods under investigation for this thesis research are all located within the three aforementioned boroughs of the Bronx, Manhattan and Brooklyn. Figure 2.1 illustrates the placement of the three District Public Health Offices.

Figure 2.1 Locations of District Public Health Offices in New York City



Source: New York City Department of Health and Mental Hygiene. District Public Health Offices (2015). Retrieved January 8, 2015, from http://www.nyc.gov/html/doh/html/diseases/dpho-homepage.shtml

Neighborhood Level Determinants Impacting Adverse Health Outcomes

The Neighborhood Landscape: Limited Access to Healthy Foods

The concept of food deserts as a hindrance to accessing and ultimately consuming healthy foods was explored in an evaluation of the New York City Department of Health and Mental Hygiene's initiatives to improve access to healthier foods. Conducted by Segal (2010), the author discussed the negative impact of a neighborhood's lack of healthful food options. Segal further made the connection between non-nutritive food purchase options and subsequent health risks for adverse diet-related health conditions.

One point of interest that Segal raised was that although individuals are responsible for making healthy choices in regard to their food consumption, there also needs to be a concerted effort to help residents in poorer communities gain access to healthy items, and have the necessary tools and resources, such as information on how to prepare and store produce, to create a sustained change (Segal, 2010). In his evaluation of GrowNYC's Greenmarkets program as a food desert eradication initiative, Segal found that there was a considerable access gap in Harlem, with respect to areas completely not being served by the Greenmarkets. Segal's work also focused on analyzing past research conducted by the New York City Department of Health and Mental Hygiene's District Public Health Offices, specifically, the relative absence of traditional supermarkets in areas of need is particularly pronounced in Harlem, where there is an abundance of bodegas and convenience stores, and relatively few supermarkets in comparison (Segal, 2010).

Segal's food desert analysis of East and Central Harlem parallels with a 2007 report issued by the East and Central Harlem DPHO. Similar findings on the lack of traditional supermarkets in poorer areas in Brooklyn were published by the North and Central Brooklyn District Public Health Office in 2006. Although, to date, the South Bronx District Public Health Office has not published results surrounding the lack of traditional supermarkets, a collaborative analysis led by the New York City Department of City Planning (2008), revealed similar findings for the South Bronx, a neighborhood with a considerably low number of supermarkets. In addition, the lack of traditional supermarkets in the South Bronx has also been documented by a Community Food Assessment of the South Bronx conducted by City Harvest (City Harvest, 2012). These findings further underscore the relationship between a lack of supermarket access and adverse health conditions among residents, as the neighborhoods that lack supermarkets and access to healthful items are the same neighborhoods with the highest rates of adverse diet-related conditions such as obesity and Type 2 diabetes (Horowitz, 2004; New York City Department of City Planning, 2008). At the time of Segal's research in 2010, GrowNYC did not have a Greenmarket presence in East or Central Harlem. Although their reach has increased throughout New York City, a noticeable lack of Greenmarket/Youthmarket presence in Harlem still exists in 2015. As the only farmers' market chain throughout New York City that provides year round service, GrowNYC could be a leader in providing access to healthful items in increasing numbers of neighborhoods in New York City, if their service reach is scaled up accordingly.

In a systematic review of 31 published studies analyzing the local food environment, Walker, et al., (2010), classified the selected studies into nine measures that were utilized to assess neighborhood food access. The measures were: (1) surveys, (2) questionnaires, (3)

inventories to measure *perceptions* of food access, (4) interviews with participants, (5) GIS technology and census data and (6) Food use inventories. The remaining measures were: (7) food store assessments, (8) focus groups and (9) business lists/directories and census data (Walker, et al., 2010).

The selected studies were published between January 2008–January 2010, and with this set of articles, the authors identified two gaps in the current literature, first and foremost noting that there is a lack of information on the role that shopping at *other food venues*, such as bodegas plays in the decision-making of residents living in a food desert. Additionally, the influencing factor of personal preferences as an indicator for healthful eating has not been studied. The authors posed the question as to whether or not people will *automatically* choose healthier options if a supermarket was in close proximity. The authors found that people make food choices based on the available food outlets in one's neighborhood, an assertion that has been reaffirmed by several New York City based Community Food Assessments (Myrtle Avenue Revitalization Project, 2012; City Harvest, 2009, 2010, 2012).

Finally, the authors noted that racial and ethnic minorities are the groups most likely to be adversely impacted by a lack of neighborhood supermarkets. Similar disparities were highlighted in research conducted by New York City Department of Health and Mental Hygiene District Public Health Office (DPHO) workers. In a collaborative effort of DPHO staff from the East and Central Harlem DPHO and the North and Central Brooklyn DPHO, Gordon, et al. (2011), examined the availability of supermarkets in two neighborhoods in Manhattan; East and Central Harlem, in addition to examining the availability of supermarkets in North and Central Brooklyn. Through the use of Census data from the year 2000 in regard to the proportions of African-

American, Latino and white residents, in addition to median household income, the authors created a Food Desert Index, and undertook a block-by-block analysis of food establishments in these four neighborhoods.

Establishments in the analysis by Gordon, et al., were supermarkets, fast food restaurants and small "healthy" bodegas, with the authors making the distinction between both unhealthy and healthy food outlets (Gordon, et al., 2011). The three accessibility measures, which each had a maximum score of three, for a total possible high score of nine, examined three criteria: (1) the total number of supermarkets within a quarter mile walking distance of the block's group center point, (2) the proportion of "healthy" bodegas (out of all bodegas) within a quarter mile walking distance of the block's group center point and (3) the proportion of fast food restaurants, (out of all restaurants). The higher the overall score, the more opportunities there were to access healthy food items and fewer opportunities to obtain unhealthy items. The lowest possible overall score is a three, indicating that each accessibility measure was scored a one, indicating no supermarkets within the designated distance from the block's center, minimal healthy bodegas, and numerous fast food establishments (Gordon, et al., 2011). The cumulative effects of these food access disparities can potentially have a negative impact on one's health, and in time, can have a significantly negative impact on the overall health and wellness of communities also, leading to concentrated pockets of illness within neighborhoods.

When correlated with median household income, the authors found that neighborhoods with higher minority populations and lower median incomes, such as East and Central Harlem North and Central Brooklyn, and the South Bronx had lower food index scores, indicating decreased opportunity to purchase healthful items. The opposite was found to be true for the

comparator neighborhood of the Upper East Side, which was selected due to a lower minority population and higher median incomes. Establishments on the Upper East Side had higher food index scores, indicating greater opportunity to purchase healthier food items (Gordon, et al., 2011).

Undertaking this collaborative analysis of healthful food access in four of New York City's underserved neighborhoods by DPHO staffers is encouraging, given their efforts to shed light on the inequality of food access based on neighborhood location. Such analyses underscores and remains in line with the DPHO's founding principles of focusing on public health challenges adversely impacting underserved neighborhoods, while conducting local research that can inform and advance public health policies to improve the overall health profile of communities in need (New York City Department of Health and Mental Hygiene, 2015). Not only are these neighborhoods challenged by poverty and high rates of illness and poor health, these are some of the same communities that have been recognized as neighborhoods in great need of access to healthier food interventions (City Harvest, 2015).

In several of the neighborhoods under investigation for this research, Greenmarkets are not available on a year-round basis in lower-income neighborhoods. Seasonal access to a Greenmarket, while some might argue is better than no access, can potentially have a negative impact on residents in high need areas, as they might risk having to go without fruits and vegetables until the Greenmarket returns in the spring. Such an occurrence can potentially be disruptive to any newly established healthy eating habits that might have been acquired.

The quality of food establishments is another area that warrants attention when discussing access to healthful food items. A neighborhood food availability survey conducted by Horowitz,

et al. (2004), revealed that it is not necessarily a matter of *the number* of food markets in a neighborhood; rather it is *the quality* of the food markets that is important. In an assessment that examined the food markets in both East Harlem and the Upper East Side, survey findings revealed that although East Harlem had 173 food markets compared to 151 in the Upper East Side, the Upper East Side food markets were not only more desirable in terms of the overall items sold, but food markets in this particular neighborhood were 3.2 times more likely to sell all five of the recommended foods that are in compliance with a diabetic diet (Horowitz, et al., 2004). This was found to be the case for 58% of food outlets in the Upper East Side. With approximately 18% doing so, the food markets in East Harlem were less likely to carry all five of the recommended items, which include low-carbohydrate or high-fiber bread, low- or nonfat milk, fresh fruit, fresh green vegetables and diet or club soda (Horowitz, et al., 2004).

Given their close geographical proximity, the stark differences between the health outcomes reported by residents of the Upper East Side and East Harlem further illustrate the potential harm that can come from inequitable access to healthy foods, including the disproportionate number of residents in poorer and minority neighborhoods contending with obesity, cardiovascular disease, diabetes and other chronic health conditions associated with one's diet. Additionally, findings identified the lack of access to quality foods in these neighborhoods as contributing to an obesogenic environment (Kwate, et al., 2009; Gordon, et al., 2011).

As demonstrated in the literature, residents living in neighborhoods that have a greater number of corner stores and fewer, if any supermarkets tend to have higher rates of obesity, as illustrated in Table 2.1.

Table 2.1 Comparison of Neighborhood Bodega/Corner Store Prevalence and Obesity Rates

	Upper East Side*	East Harlem	Central Harlem	North Brooklyn	Central Brooklyn	South Bronx
Supermarkets (full service)	26[3]	21	19	10	12	4[4]
Bodegas/corner stores	46	174	153	131	176	NA[5]
Percent of obese children	6.9-16.8%[6]	23.1-26.5%	21.4-23%	23.1-26.5%	21.4-23%	23.1-26.5%
Percent of obese adults	7.2-19.7%[7]	31-41.9%	19.8-23.6%	31-41.9%	31-41.9%	31-41.9%

Sources: Adapted from AECOM. NYC Full Service Grocery Store Analysis. Prepared for the New York City Department of Health and Mental Hygiene. (2008). Retrieved June 30, 2013, from http://www.nyc.gov/html/misc/pdf/nyc_store_analysis.pdf;
Buchholz N., Resnick S., Konty K. (2012). The New York City Community Health Survey Atlas, 2010. The New York City Department of Health and Mental Hygiene. Retrieved May 9, 2013, from http://www.nyc.gov/html/doh/downloads/pdf/epi/nyc_comhealth_atlas10.pdf;
Gordon, C., Ghai, N., Purciel, M., Talwalkar, A., and Goodman, A. (2007). Eating Well in Harlem: How Available is Healthy Food? New York City Department of Health and Mental Hygiene. Retrieved July 6, 2013, from http://www.nyc.gov/html/doh/downloads/pdf/dpho/dpho-harlem-report2007.pdf; and
Graham, R., Kaufman, L., Novoza, Z., and Karpati, A. (2006). Eating In, Eating Out, Eating Well: Access to Healthy Food in North and Central Brooklyn. New York City Department of Health and Mental Hygiene. Retrieved July 6, 2013, from http://www.nyc.gov/html/doh/downloads/pdf/dpho/dpho-brooklyn-report2006.pdf

*Although the Upper East Side is not one of the neighborhoods under investigation for this study, supermarket information is being provided to underscore the contrast in neighborhood availability of supermarkets, in addition to the saturation of bodegas and the differences in obesity rates for children and adults in these neighborhoods.

The Neighborhood Landscape: Price as a Barrier to Fresh Fruits and Vegetables

Another factor impacting decreased fruit and vegetable consumption among lower-income residents is cost (Baronberg, et al., 2013; Payne, et al., 2013). For some residents living in lower-income neighborhoods, procuring fresh produce might be significantly more difficult

[3] Not a neighborhood under investigation for this research, the Upper East Side will serve as a comparator, as this neighborhood is affluent and has many resources that are lacking in lower-income neighborhoods.
[4] Estimation based on AECOM's 2008 Grocery Store Analysis.
[5] Figure not available.
[6] Obesity figures for children in the Upper East Side are believed to be closer to the lower end of the range.
[7] Obesity figures for adults in the Upper East Side are believed to be closer to the lower end of the range.

without pricing incentive programs in place. The reality of living in neighborhoods where fresh produce is scarce, if at all available, combined with the possibility of paying a higher price point for fresh produce can lead to decreased consumption of fruit and vegetables for many lower-income residents (Baronberg, et al., 2013; Payne, et al., 2013). The issue of cost as a barrier to healthful eating can become magnified when feeding an entire family on a limited budget.

Community Food Assessments are critical in underscoring the role of cost as a barrier to healthier eating among New York City's lower-income residents. Driven by phenomena in the local neighborhoods, Community Food Assessments can help shed light on food access issues impacting a community and its residents. As noted by City Harvest (2009, 2010, 2012), Community Food Assessments create a platform to help improve access, demand and availability of healthy and affordable foods (City Harvest, 2009, 2010, 2012).

Table 2.2 provides a summary of the main findings for five Community Food Assessments. These findings have been integral in identifying some of the barriers that residents face in regard to accessing and procuring fresh produce. Most importantly, community members themselves are able to express their concerns about an issue that is directly impacting their health and well-being, and can begin taking action to advocate for change.

Table 2.2 Findings of Community Food Assessments (2008-2012)

Neighborhood(s) Assessed	Organization Conducting Food Assessment	Year	Main Findings
Fort Greene and Clinton Hill (North Brooklyn)	Myrtle Avenue Revitalization Project	2011	• Affordable, quality food items are limited • Local residents are interested in nutritional awareness and education • The local food environment limits access to healthy foods as a result of a lack of supermarkets, many bodegas
Bedford Stuyvesant (Central Brooklyn)	City Harvest	2009-2010	• A dearth of supermarkets has diminished local access to fresh produce • Overall, fresh and healthy food is lacking, and residents often spend more for subpar quality food items
South Bronx	City Harvest	2012	• Residents are cognizant that any type of lasting change in improving access to healthier foods and ultimately their health begins with them • A heavy concentration of fast food establishments makes it more difficult to secure healthy food options, despite best intentions
Stapleton and Park Hill (Staten Island)[8]	City Harvest	2008-2009	• There is a pervasive perception that preparing meals is time-consuming, leading to reliance on fast food • Teenagers are especially susceptible to the wide range of fast food establishments and bodega food
Washington Heights and Inwood (Northern Manhattan)[9]	City Harvest	2012	• Acculturation can negatively impact dietary habits among immigrant populations • Residents cited preventing obesity and/or diet-related illnesses as a motivation for wanting to eat healthier

Source: Adapted from Myrtle Avenue Revitalization Project. (2013). 2011 Community Food Assessment. Retrieved August 8, 2014, from http://www.myrtleavenue.org/wp-content/uploads/2014/02/GET-FRESH-2011-Fort-Greene-Clinton-Hill-Community-Food-Assessment-with-2012-updates_high-res.pdf;
City Harvest (2011). Community Food Assessment: Bed-Stuy, 2009-2010. Retrieved July 6, 2013, from http://hungercenter.wpengine.netdna-cdn.com/wp-content/uploads/2011/06/Community-Food-Assessment_Bed-Stuy-Zahilay.pdf;
City Harvest Community Food Assessment: South Bronx Update 2012;
City Harvest Community Food Assessment: Stapleton and Park Hill; and
City Harvest Community Food Assessment: Washington Heights/Inwood 2012

[8] While Stapleton and Park Hill were not neighborhoods under investigation for this research, they are very similar to the neighborhoods under investigation (percentage of residents living below the poverty line, higher rates of minority residents, and an overall lack of healthful food outlets in the neighborhood).
[9] While Washington Heights and Inwood were not neighborhoods under investigation for this research, they are very similar to the neighborhoods under investigation (percentage of residents living below the poverty line, higher rates of minority residents, and an overall lack of healthful food outlets in the neighborhood).

The Neighborhood Landscape: the Obesogenic Environment

The obesogenic environment as described by Kwate, et al., (2009) is a neighborhood that is characterized by a considerably high number of fast food establishments in comparison to supermarkets, reliance on corner stores/bodegas as primary sources for food purchases, and a lack of safe places and spaces for physical and recreational activity. Generally speaking, residents living in obesogenic neighborhoods earn less than residents living in other neighborhoods, and are often faced with the decision of spending less money for a greater quantity of energy dense (fast) food, or spending a little more money for healthier food items (Kwate, et al., 2009; Segal, 2010).

Neighborhoods lacking green spaces, parks, or other recreational facilities hinder opportunities for physical activity for adults and children. Similarly, if there are no sidewalks, or if there is a general feeling of being unsafe in one's neighborhood, it might not be feasible for residents to incorporate outdoor spaces into an exercise regimen (Kwate, et al., 2009; Black, et al., 2010). In some lower-income neighborhoods, these concerns are a reality that residents, young and old, must contend with.

When combined, one's culture and the local food environment can have a significant impact on the type and quality of food items that are purchased and consumed. In an innovative undertaking by Kaufman and Karpati (2007a), an eight month ethnographic study was conducted in the Bushwick neighborhood of North Brooklyn, to get a better understanding of the impact that one's culture and maintaining cultural patterns has in regard to shaping habits surrounding food consumption, ultimately impacting childhood obesity. Using a mix of participant interviews and participant observation, the authors discerned how culture and the local food store

environment, consisting of the types of food stores, their location, the price of food items, and their quality, can impact food consumption habits. Their research sought to fill a gap by combining interviews with in-home observations, to gain a better insight into how fluctuating financial resources, availability of local food stores, and subsequent food purchasing patterns converge and impact childhood obesity (Kaufman and Karpati, 2007a). What was revealed included a keen observation of the "monthly food cycle" in which the first of the month is symbolized by the usage of food assistance benefits to purchase groceries, and as the month wanes, so too does the abundance of food. This is further exacerbated when families rely on other family members for meals when their food supply runs out for the month, in essence, more mouths have to be fed on fewer dollars (Kaufman and Karpati, 2007a).

Study findings also revealed that selectivity gives way to convenience as the month progresses. Balancing the constraints of the local environment, familial traditions and expectations, in addition to being acculturated to the norms of the local neighborhood, can involve multiple roles and realities. To see firsthand that food is used as a reward, used to express love and used to pacify a child, provided the authors with an intimate look at the sociocultural roots of childhood obesity in Bushwick, which is particularly important, as childhood obesity impacts Hispanics at higher rates in certain neighborhoods, as opposed to others (Kaufman and Karpati, 2007a,b).

By engaging in this ethnographic work, the researchers were able to better understand the coping strategies used by the families in the study to navigate the intertwined relationship of socioeconomic status, food assistance benefits and scarcity of food. A total of 60 Hispanic participants, comprising 12 extended families and their friends, were the study population (Kaufman and Karpati, 2007a).

One similarity between the authors' research and my intended work is an interest in coping strategies of residents living in lower-income neighborhoods, in regard to accessing healthful food items, even if it involves navigating through multiple systems. Understanding the *why* behind a person's actions and immersing yourself in their reality can help a researcher be better equipped to understand their choices.

The very act of balancing multiple roles and identities was an undercurrent throughout the article, in addition to the manner in which seemingly unrelated events, such as food shopping trips, food sharing and the monthly food cycle all intersect to create sociocultural roots of obesity (Kaufman and Karpati, 2007a). Although all of the study participants were Hispanic, there was a diverse population of participants in regard to their country of origin, which most likely added another layer of depth to the experiences of the participants.

Similarly, the significant impact of the monthly food cycle is an important finding in the Community Food Assessment for the Fort Greene and Clinton Hill neighborhoods of Brooklyn, with the greatest burden being placed on women and children living in poverty. Findings also revealed that families living in poverty are more prone to adverse health outcomes, reinforcing the need for programs to help increase access to, and affordability of healthy food items (Myrtle Avenue Revitalization Project, 2011).

Park, et al. (2011) undertook a study with Hispanic immigrant women to ascertain how their level of acculturation, the process by which immigrants adopt the cultural norms of the host country, in this case, the United States, served as a mediating factor in obesity. The authors noted a lack in the current literature regarding the impact of the local environment on food consumption habits. A sample of 28 foreign-born Hispanic women took part in an interview, to

share their perspective on how the built environment has shaped their physical activity and dietary patterns. Their work serves as a complement to Kaufman and Karpati's 2007 study.

The findings by Park, et al. were particularly insightful, as they underscored the fact that the local environment does contribute to the shaping of food consumption habits. Furthermore, the qualitative nature of the interviews allowed for the respondent's experiences to be captured in their own words. As one respondent noted, dietary habits from one's native country were slowly being cast aside by the more prevalent habits in their local neighborhood. Familiar customs and eating habits that originated from the respondents' country of origin were being overshadowed by fare that was inexpensive, non-nutritive and conveniently pervasive (Park, et al. 2011). As the Latina immigrants made their home in the United States and took on more of the local eating customs, the possibility of *future generations* being acculturated to foods that are unhealthy became increasingly real. This possibility is greatly increased if the family lives in a neighborhood characterized by high poverty rates, and an abundance of bodegas/corner stores, a sentiment expressed also by Kaufman and Karpati (2007a,b).

The Neighborhood Landscape: Increasing Rates of Obesity in Underserved Neighborhoods

Equally jarring is the fact that in the poorer neighborhoods of New York City, rates of overweight, obesity and the negative impacts of diet-related health conditions continue to rise, and in some cases, do so quickly surpassing the rise in rates of chronic health conditions in more affluent neighborhoods (Buchholz, et al., 2012). In a study conducted by Black and Macinko (2010a), the authors found that during the period from 2003-2007, obesity rates for all of New York City increased on average, 1.6% each year. However, when individual neighborhoods were

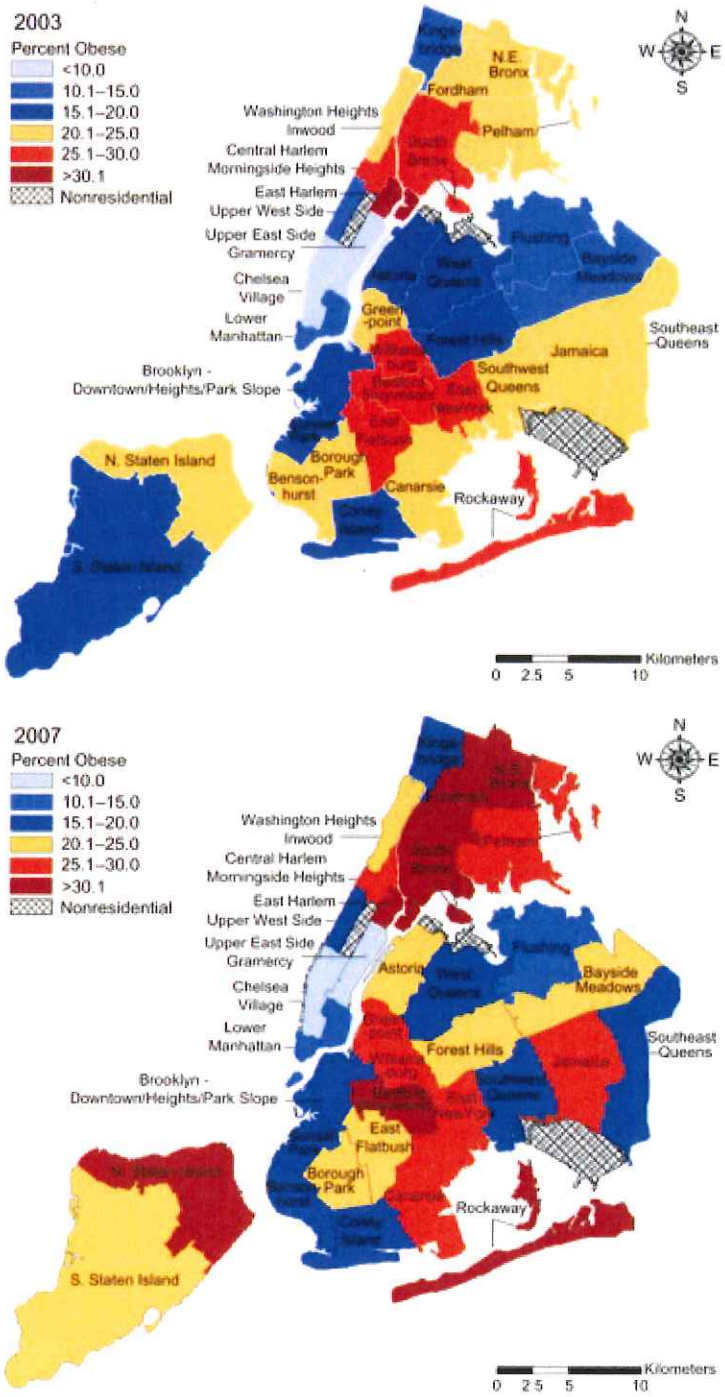
examined, a truer sense of the disparity of obesity rates is seen. Individual-level data from 48,506 adults who responded to the Community Health Survey was combined with neighborhood health measures to illustrate the change in obesity levels among 34 neighborhoods within New York City. While the Upper East Side in Manhattan maintained a relatively stable level of obesity of less than 10% for all years from 2003 and 2007 (Black and Macinko, 2010a), the obesity rate increased substantially in several other neighborhoods within New York City. The authors found that in 2003, East Harlem was the only neighborhood with obesity prevalence greater than 30%. Four years later, in 2007, six neighborhoods surpassed the 30% prevalence rate. Many of these unfavorable gains were made in some of the poorer neighborhoods of New York City, among them, East Harlem, the South Bronx and Central Brooklyn (Black and Macinko, 2010a). The continued increase and change in obesity prevalence identified by Black and Macinko mirrored national trends identified by the Centers for Disease Control and Prevention (CDC) in which the number of states experiencing obesity prevalence rate spikes increased in several states within the two decade span of 1990-2000 and 2000-2010 (Centers for Disease Control and Prevention, 2012b, 2013).

Among the more salient findings from the authors was that neighborhood of residence, income level, access to amenities such as physical activity outlets and access to supermarkets are significantly associated with decreased levels of obesity. Black and Macinko's findings were particularly novel, as their study was one of only a few studies that sought to examine whether how, or why neighborhood obesity rates have changed. Their work is particularly insightful, given the extremes of wealth and poverty in New York City, and is illustrated with the respective obesity prevalence rate of 8.43% for the Upper East Side and a 29.82% obesity prevalence rate

for East Harlem. Particularly concerning is the fact that geographically, these two neighborhoods are coterminous.

Figure 2.2 illustrates the change in neighborhood obesity rates during the years of 2003-2007. As depicted in the figure, obesity rates in many lower-income neighborhoods in New York City have increased during this five year period. However, obesity rates for the Upper East Side have remained the same, at less than ten percent.

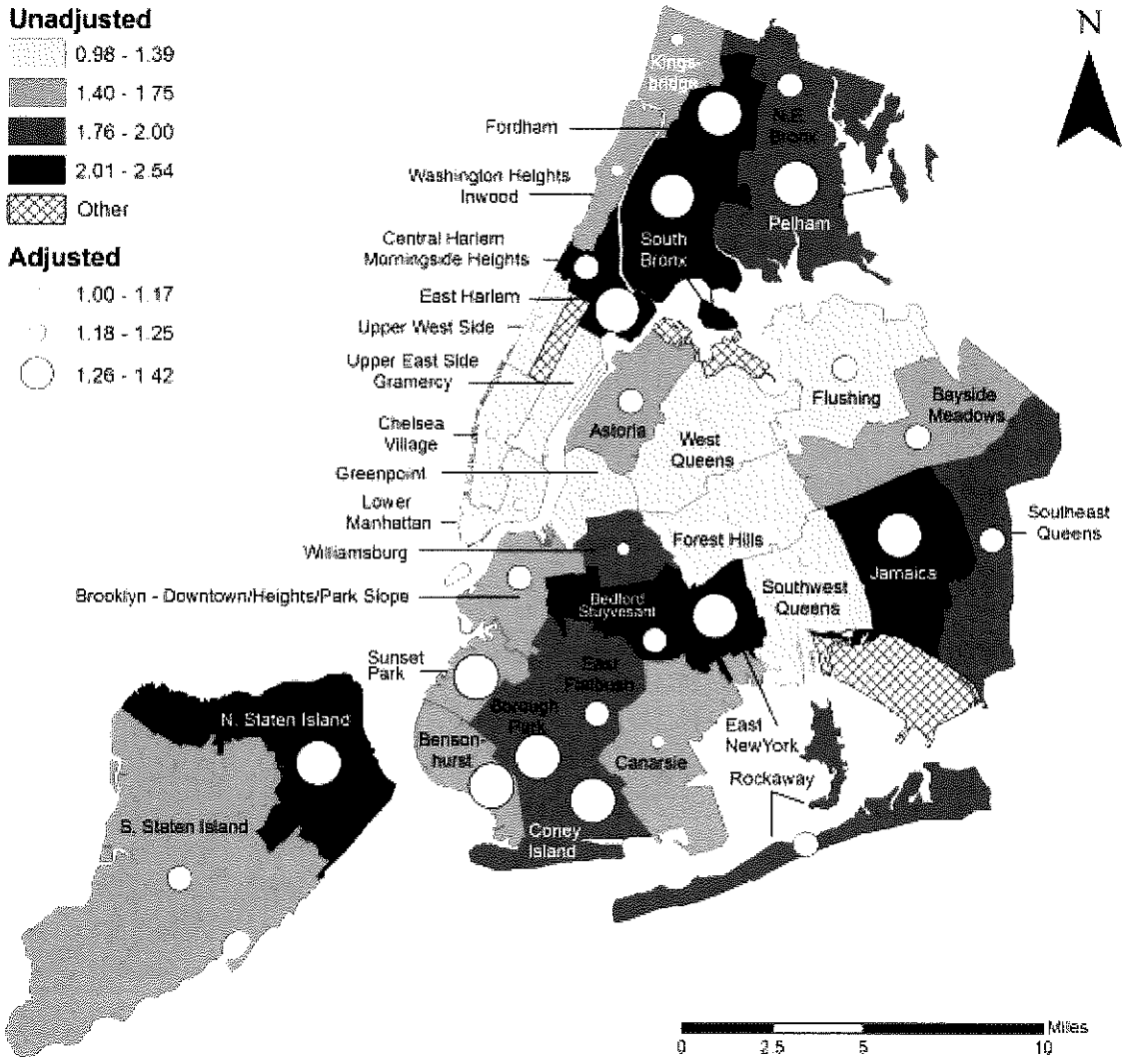
Figure 2.2 Changes in obesity prevalence by New York City neighborhood in 2003 and 2007



Source: Black, JL., and Macinko, J. (2010b). The Changing Distribution and Determinants of Obesity in the Neighborhoods of New York City, 2003-2007. Retrieved March 24, 2013, from http://aje.oxfordjournals.org/content/171/7/765.full.pdf

In 2010, while obesity prevalence in New York City continued to increase in lower-income neighborhoods, the obesity prevalence for the Upper East Side continued to remain relatively low, as illustrated in Figure 2.3.

Figure 2.3 Obesity prevalence in New York City by neighborhood, 2010[10]



Source: Black, JL., Macinko, J., Dixon LB., Fryer, GE. (2010). Neighborhoods and Obesity in New York City, 2003-2007. Retrieved March 24, 2013, from http://www.sciencedirect.com.proxy.library.emory.edu/science/article/pii/S1353829209001518

[10] As indicated by the authors, darker areas reflect higher (unadjusted) levels of obesity prevalence. The larger the white circle in an area, the higher the adjusted levels of obesity prevalence. Hence, a large white circle in an area with dark shading represents a greater obesity prevalence.

New York City Health Indicator Information

Take Care New York Health Reports

In 2004, the New York City Department of Health and Mental Hygiene launched *Take Care New York*, a citywide health policy designed to improve the health of New York City residents. By focusing on the leading preventable causes of illness and death for New York City residents, and identifying ten key priority areas that comprise significant disease burden in New York City, steps have been taken to help reverse the negative trajectory that if not addressed, will cause additional loss of life due to illnesses that might otherwise be prevented (NYCDOHMH, 2006a). Overweight, obesity, cardiovascular disease and being diabetic are among the diet-related conditions that are particularly prevalent in many underserved neighborhoods within New York City (Buchholz, et al., 2012; NYCDOHMH, 2006b,c,d,e,f). In 2006, a comprehensive series of 42 neighborhood profiles was assembled, to provide a better picture of the overall health of New York City's 42 neighborhoods.

Building on the 2003 version of the neighborhood profiles, additional challenges were identified as health disparities were highlighted within the various neighborhoods. Table 2.3 lists the ten health indicators that have become priority issues under the Take Care New York health policy initiative.

Table 2.3 Health Indicators Targeted for Improvement Under Take Care New York

1.Have a regular doctor	6.Live free of alcohol and drugs
2.Be tobacco free	7.Get checked for cancer
3.Keep your heart healthy	8.Get the immunizations you need
4.Know your HIV status	9.Make your home safe and healthy
5.Get help for depression	10.Have a healthy baby

Source: Olson EC, Van Wye G, Kerker B, Thorpe L, Frieden, TR. (2006a). Take Care Upper East Side. NYC Community Health Profiles, Second Edition; 2006; 21 (42): 1-16. Retrieved July 9, 2013, from http://www.nyc.gov/html/doh/downloads/pdf/data/2006chp-305.pdf,

Neighborhood Profiles

Tables 2.4-2.9 provide an overview of each of the neighborhoods under investigation for this thesis. Each table provides an overview of the top health challenges for each neighborhood, health indicator rankings, and the percentage of residents living below the poverty level. Other items of information in each table include the percentage of residents who self-reported being in fair or poor health, childhood and adult obesity percentages, and the avoidable hospitalizations rate for that neighborhood, whereby the higher the number between one and 42, is indicative of reduced access to health care in a community. All of the neighborhoods under investigation for this thesis have poor rakings for this measure of access to health care. As noted, East Harlem's avoidable hospitalization rate was 42nd among New York City's 42 neighborhoods. In contrast, the avoidable hospitalization rate for the Upper East Side was 2nd.

While the Upper East Side is not a neighborhood under investigator for this thesis, this neighborhood serves as a comparator to illustrate the differences in poverty levels, obesity levels and health indicator rankings, when compared to lower-income neighborhoods. Most concerning is the vastly different health profiles for the Upper East Side and East Harlem, as these neighborhoods are adjacent in their proximity to one another.

Table 2.4 Neighborhood Profile for the Upper East Side

<table>
<tr><td colspan="2">Neighborhood Profile: Upper East Side* (within the borough of Manhattan)
Neighborhood(s) included: Gramercy</td></tr>
<tr><td colspan="2">Health challenges for the Upper East Side:

1. The primary cause of potential years of life lost in this neighborhood is cancer.
2. Upper East Side residents are 35% more likely to engage in binge drinking, compared to New York City residents as a whole.
3. Hip-related fractures due to falls, are most common among older adults in this neighborhood, compared to any other neighborhood in New York City.</td></tr>
<tr><td>Percent of residents living below the poverty level on Upper East Side:

• Upper East Side: 7
• Manhattan: 20
• New York City: 21</td><td>Take Care New York Health Indicator Rankings for the Upper East Side:

• Below Average: 0
• Average: 2
• Above Average: 8</td></tr>
<tr><td>Percentage of residents who report being in fair or poor health:

• Upper East Side: 6
• Manhattan: 18
• New York City: 21</td><td>Percentage of obese children (Upper East Side):

6.9 - 16.8 (2010 estimate)

Percentage of obese adults (Upper East Side):

7.2 – 19.7 (2010 estimate)</td></tr>
</table>

* The Upper East Side is not one of the neighborhoods under examination for this research, the Upper East Side is a comparator, to illustrate the differences in overall neighborhood health profiles, when compared to the other neighborhoods that will be discussed.

Sources: Adapted from Olson EC, Van Wye G, Kerker B, Thorpe L, Frieden, TR. (2006a). Take Care Upper East Side. NYC Community Health Profiles, Second Edition; 2006; 21 (42): 1-16. Retrieved July 9, 2013, from http://www.nyc.gov/html/doh/downloads/pdf/data/2006chp-305.pdf; and

Buchholz N., Resnick S., Konty K. (2012). The New York City Community Health Survey Atlas, 2010. The New York City Department of Health and Mental Hygiene. Retrieved May 9, 2013, from http://www.nyc.gov/html/doh/downloads/pdf/epi/nyc_comhealth_atlas10.pdf

Table 2.5 Neighborhood Profile for East Harlem

Neighborhood Profile: East Harlem (within the borough of Manhattan) **Neighborhood(s) included: East Harlem/Spanish Harlem**	
Health challenges for East Harlem: 1. Almost two thirds of adults in East Harlem are overweight or obese, with black and Hispanic residents more likely to be obese when compared to other residents. 2. The avoidable hospitalizations rate in East Harlem ranks 42nd out of New York City's 42 neighborhoods. The avoidable hospitalizations rate for the Upper East Side is 2nd out of New York City's 42 neighborhoods. 3. Self-reported rates of overweight, obesity and being diabetic are all considerably higher among residents in East Harlem, when compared to other neighborhoods.	
Percent of residents living below the poverty line: • East Harlem: 38 • Manhattan: 20 • New York City: 21	**Take Care New York Health Indicator Rankings for East Harlem:*** • Below Average: 8 • Average: 2 • Above Average: 0
Percentage of residents who report being in fair or poor health: • East Harlem: 31 • Manhattan: 18 • New York City: 21	**Percentage of obese children (East Harlem):** 23.1-26.5 (2010 estimate) **Percentage of obese adults (East Harlem):** 31 – 41.9 (2010 estimate)

*Indicator rankings are the complete opposite for the Upper East Side.

Sources: Adapted from Olson EC, Van Wye G, Kerker B, Thorpe L, Frieden, TR. (2006b). Take Care East Harlem. NYC Community Health Profiles, Second Edition; 2006; 23 (42): 1-16. Retrieved July 9, 2013, from http://www.nyc.gov/html/doh/downloads/pdf/data/2006chp-303.pdf; and

Buchholz N., Resnick S., Konty K. (2012). The New York City Community Health Survey Atlas, 2010. The New York City Department of Health and Mental Hygiene. Retrieved May 9, 2013, from http://www.nyc.gov/html/doh/downloads/pdf/epi/nyc_comhealth_atlas10.pdf

Table 2.6 Neighborhood Profile for Central Harlem

<table>
<tr><td colspan="2">Neighborhood Profile: Central Harlem (within the borough of Manhattan)
Neighborhood(s) included: Morningside Heights</td></tr>
<tr><td colspan="2">Health challenges for Central Harlem:

1. More than one in four adults in Central Harlem currently smokes; more than 40% higher than the proportion in NYC overall.
2. Although decreasing during the past decade, the death rate due to HIV in Central Harlem remains more than double the HIV-related death rates in Manhattan and New York City overall.
3. The avoidable hospitalizations rate for Central Harlem is 35th out of New York City's 42 neighborhoods.</td></tr>
<tr><td>Percent of residents living below the poverty line

• Central Harlem: 35
• Manhattan: 20
• New York City: 21</td><td>Take Care New York Health Indicator Rankings for Central Harlem

• Below Average: 4
• Average: 6
• Above Average: 0</td></tr>
<tr><td>Percentage of residents who report being in fair or poor health

• Central Harlem: 22
• Manhattan: 18
• New York City: 21</td><td>Percentage of obese children (Central Harlem):

21.4 – 23 (2010 estimate)

Percentage of obese adults (Central Harlem):

19.8 – 23.6 (2010 estimate)</td></tr>
</table>

Sources: Adapted from Olson EC, Van Wye G, Kerker B, Thorpe L, Frieden, TR. (2006c). Take Care Central Harlem. NYC Community Health Profiles, Second Edition; 2006; 20(42):1-16. Retrieved July 9, 2013, from http://www.nyc.gov/html/doh/downloads/pdf/data/2006chp-302.pdf; and

Buchholz N., Resnick S., Konty K. (2012). The New York City Community Health Survey Atlas, 2010. The New York City Department of Health and Mental Hygiene. Retrieved May 9, 2013, from http://www.nyc.gov/html/doh/downloads/pdf/epi/nyc_comhealth_atlas10.pdf

Table 2.7 Neighborhood Profile for North Brooklyn

<table>
<tr><td colspan="2">Neighborhood Profile: North Brooklyn (within the borough of Brooklyn)
Neighborhood(s) included: Bushwick, Williamsburg, Fort Greene and Clinton Hill</td></tr>
<tr><td colspan="2">Health challenges for North Brooklyn:

1. Access to health care is poor in Bushwick and Williamsburg compared to NYC overall, as nearly one in three adults without a regular doctor and an increase in the uninsured between 2002 and 2004.
2. Although death rates due to HIV disease have decreased during the past decade in Bushwick and Williamsburg, the HIV-related death rate remains higher than in Brooklyn and NYC overall.
3. The avoidable hospitalizations rate for North Brooklyn is 38th out of New York City's 42 neighborhoods.</td></tr>
<tr><td>Percent of residents living below the poverty line:

• North Brooklyn: 38
• Brooklyn: 25
• New York City: 21</td><td>Take Care New York Health Indicator Rankings for North Brooklyn:

• Below Average: 7
• Average: 3
• Above Average: 0</td></tr>
<tr><td>Percentage of residents who report being in fair or poor health:

• North Brooklyn: 35
• Brooklyn: 23
• New York City: 21</td><td>Percentage of obese children (North Brooklyn):

23.1 – 26.5 (2010 estimate)

Percentage of obese adults (North Brooklyn):

31 – 41.9 (2010 estimate)</td></tr>
</table>

Sources: Adapted from Olson EC, Van Wye G, Kerker B, Thorpe L, Frieden, TR. (2006d). Take Care Bushwick and Williamsburg. NYC Community Health Profiles, Second Edition; 2006; 18(42):1-16. Retrieved July 9, 2013, from http://www.nyc.gov/html/doh/downloads/pdf/data/2006chp-211.pdf; and

Buchholz N., Resnick S., Konty K. (2012). The New York City Community Health Survey Atlas, 2010. The New York City Department of Health and Mental Hygiene. Retrieved May 9, 2013, from http://www.nyc.gov/html/doh/downloads/pdf/epi/nyc_comhealth_atlas10.pdf

Table 2.8 Neighborhood Profile for Central Brooklyn

<table>
<tr><td colspan="2">Neighborhood Profile: Central Brooklyn (within the borough of Brooklyn)
Neighborhood(s) included: Bedford-Stuyvesant and Brownsville</td></tr>
<tr><td colspan="2">Health challenges for Central Brooklyn:

1. Three out of ten residents in Central Brooklyn do not have a regular doctor.
2. In addition to high rates of HIV, Central Brooklyn has elevated rates of other sexually transmitted infections, such as Chlamydia and gonorrhea.
3. The avoidable hospitalizations rate for Central Brooklyn is 37th out of New York City's 42 neighborhoods.</td></tr>
<tr><td>Percent of residents living below the poverty line

• Central Brooklyn: 31
• Brooklyn: 25
• New York City: 21</td><td>Take Care New York Health Indicator Rankings for Central Brooklyn

• Below Average: 5
• Average: 5
• Above Average: 0</td></tr>
<tr><td>Percentage of residents who report being in fair or poor health

• Central Brooklyn: 21
• Brooklyn: 23
• New York City: 21</td><td>Percentage of obese children (Central Brooklyn):

21.4 – 23 (2010 estimate)

Percentage of obese adults (Central Brooklyn):

31 – 41.9 (2010 estimate)</td></tr>
</table>

Sources: Adapted from Olson EC, Van Wye G, Kerker B, Thorpe L, Frieden, TR. (2006e). Take Care Central Brooklyn. NYC Community Health Profiles, Second Edition; 2006; 10 (42):1-16. Retrieved July 9, 2013, http://www.nyc.gov/html/doh/downloads/pdf/data/2006chp-203.pdf; and

Buchholz N., Resnick S., Konty K. (2012). The New York City Community Health Survey Atlas, 2010. The New York City Department of Health and Mental Hygiene. Retrieved May 9, 2013, from http://www.nyc.gov/html/doh/downloads/pdf/epi/nyc_comhealth_atlas10.pdf

Table 2.9 Neighborhood Profile for the South Bronx

<table>
<tr><td colspan="2">Neighborhood Profile: The South Bronx (within the borough of the Bronx)
Neighborhood(s) included: Hunts Point and Mott Haven</td></tr>
<tr><td colspan="2">Health challenges for the South Bronx:

1. Hunts Point and Mott Haven residents experience more barriers to health care access than those in NYC, as more than one third of residents are without a regular doctor and visit the emergency department for routine health care.
2. Diabetes is extremely prevalent in the neighborhoods of Hunts Point and Mott Haven, as these neighborhoods have among the highest proportion of adults with diabetes in the city (17%).
3. The avoidable hospitalizations rate for the South Bronx is 41st out of New York City's 42 neighborhoods.</td></tr>
<tr><td>Percent of residents living below the poverty line

• The South Bronx: 45
• The Bronx: 31
• New York City: 21</td><td>Take Care New York Health Indicator Rankings for the South Bronx

• Below Average: 7
• Average: 2
• Above Average: 1</td></tr>
<tr><td>Percentage of residents who report being in fair or poor health

• The South Bronx: 43
• The Bronx: 28
• New York City: 21</td><td>Percentage of obese children (South Bronx):

23.1 – 26.5 (2010 estimate)

Percentage of obese adults (South Bronx):

31 – 41.9 (2010 estimate)</td></tr>
</table>

Sources: Adapted from Olson EC, Van Wye G, Kerker B, Thorpe L, Frieden, TR. (2006f). Take Care Hunts Point and Mott Haven. NYC Community Health Profiles, Second Edition; 2006; 7(42):1-16. Retrieved July 9, 2013, from http://www.nyc.gov/html/doh/downloads/pdf/data/2006chp-107.pdf; and

Buchholz N., Resnick S., Konty K. (2012). The New York City Community Health Survey Atlas, 2010. The New York City Department of Health and Mental Hygiene. Retrieved May 9, 2013, from http://www.nyc.gov/html/doh/downloads/pdf/epi/nyc_comhealth_atlas10.pdf

Research undertaken by the New York City Department of Health and Mental Hygiene District Public Health Offices has identified the lack of healthful food options in these neighborhoods (New York City Department of Health and Mental Hygiene, 2006, 2007), underscoring the need for interventions with greater reach, so as to take purposeful steps towards ending the cycle of negative health outcomes, chronic illness and preventable deaths exacerbated by poor diet in underserved neighborhoods. The neighborhoods under investigation for this research have several similarities, among them, high rates of self-reported resident poor health and higher rates of residents living below the poverty level, in addition to higher than average rates of obesity and diabetes. Additionally, the majority of residents living in these neighborhoods are racial or ethnic minorities. With the exception of the Upper East Side, the avoidable hospitalizations rates for the neighborhoods under investigation are extremely high.

The Upper East Side, while not one of the neighborhoods under examination for this research, is serving as a comparator neighborhood for this research, to illustrate the stark differences in regard to neighborhood amenities, access to healthy food items, and a relatively high socioeconomic status. The health and economic profile of the Upper East Side is quite different than the health and economic profiles for other neighborhoods within New York City, specifically the five neighborhoods of the East Harlem, Central Harlem, North Brooklyn, Central Brooklyn, and the South Bronx (NYCDOHMH 2006b,c,d,e,f).

The health profile for East Harlem is greatly, and gravely different from that of the Upper East Side. Moving forward to close the healthy food access gap will hopefully begin to break the cycle of chronic disease, so as to help reduce the burden placed on future generations. The most striking difference is in regard to childhood obesity, as the rates in East Harlem are among the highest within New York City. In contrast, childhood obesity rates for the Upper East Side are

among the lowest in New York City (Buchholz, et al., 2012). The differences in the local food environments for these two proximal neighborhoods not only impacts access to quality food items, but also has a significant impact on the health of the residents living in these neighborhoods. The geographical adjacency of the Upper East Side and East Harlem and the significantly different health profiles of residents in those neighborhoods underscore the impact of the local food environment as a protective factor for good health outcomes.

Table 2.10 provides a summary of the Take Care New York Report Card, a comparative neighborhood assessment of poverty levels, obesity rates and diabetes rates. The figures provided examine rates of the aforementioned variables at the local neighborhood level, the borough level and for New York City as a whole.

Table 2.10 Take Care New York Report Card: Comparison of Health Indicator Rankings by Selected Neighborhoods (2006)

Neighborhood	Percentage of Adult Residents who are Obese in this Neighborhood, Compared to New York City Overall	Percentage of Adult Residents with Diabetes in this Neighborhood, Compared to New York City Overall	Percentage of Residents living Below the Poverty Level in this Neighborhood, Compared to New York City Overall	Overall Number of Indicators (Ranked as Above Average)	Overall Number of Indicators (Ranked as Average)	Overall Number of Indicators (Ranked as Below Average)
Upper East Side	8% Upper East Side 20% New York City	3% Upper East Side 9% New York City	7% Upper East Side 21% New York City	8 out of 10	2 out of 10	0 out of 10
East Harlem*	31% East Harlem 20% New York City	13% East Harlem 9% New York City	38% East Harlem 21% New York City	0 out of 10	2 out of 10	8 out of 10
Central Harlem	27% Central Harlem 20% New York City	12% Central Harlem 9% New York City	35% Central Harlem 21% New York City	0 out of 10	6 out of 10	4 out of 10
North Brooklyn	28% North Brooklyn 20% New York City	14% North Brooklyn 9% New York City	38% North Brooklyn 21% New York City	0 out of 10	3 out of 10	7 out of 10
Central Brooklyn	29% Central Brooklyn 20% New York City	12% Central Brooklyn 9% New York City	31% Central Brooklyn 21% New York City	0 out of 10	5 out of 10	5 out of 10
South Bronx	24% South Bronx 20% NYC	11% South Bronx 9% NYC	22% South Bronx 21% NYC	1 out of 10	8 out of 10	1 out of 10

Source: Adapted from Olson EC, Van Wye G, Kerker B, Thorpe L, Frieden, TR. (2006a). Take Care Upper East Side. NYC Community Health Profiles, Second Edition; 2006; 21 (42): 1-16. Retrieved July 9, 2013, from http://www.nyc.gov/html/doh/downloads/pdf/data/2006chp-305.pdf;
Olson EC, Van Wye G, Kerker B, Thorpe L, Frieden, TR. (2006b). Take Care East Harlem. NYC Community Health Profiles, Second Edition; 2006; 23 (42): 1-16. Retrieved July 9, 2013, from http://www.nyc.gov/html/doh/downloads/pdf/data/2006chp-303.pdf;
Olson EC, Van Wye G, Kerker B, Thorpe L, Frieden, TR. (2006c). Take Care Central Harlem. NYC Community Health Profiles, Second Edition; 2006; 20(42):1-16. Retrieved July 9, 2013, from http://www.nyc.gov/html/doh/downloads/pdf/data/2006chp-302.pdf;
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Olson EC, Van Wye G, Kerker B, Thorpe L, Frieden, TR. (2006e). Take Care Central Brooklyn. NYC Community Health Profiles, Second Edition; 2006; 10 (42):1-16. Retrieved July 9, 2013, http://www.nyc.gov/html/doh/downloads/pdf/data/2006chp-203.pdf; and
Olson EC, Van Wye G, Kerker B, Thorpe L, Frieden, TR. (2006f). Take Care Hunts Point and Mott Haven. NYC Community Health Profiles, Second Edition; 2006; 7(42):1-16. Retrieved July 9, 2013, from http://www.nyc.gov/html/doh/downloads/pdf/data/2006chp-107.pdf

In September 2013, a five-year progress report on the Take Care New York initiative was released. While there is indication that some progress has been made, considerable work is still needed in several areas, most notably, improving poverty disparity rates, which ultimately impact access to healthier food items and rates of diet-related adverse health conditions (Mortezazadeh, et al., 2013).

New York City Department of Health and Mental Hygiene Health Disparities Report (2010)

Expanding on the relationship between race and poverty, a 2010 report issued by the New York City Department of Health and Mental Hygiene found that poverty is concentrated in neighborhoods with the highest proportions of African American and Hispanic residents (New York City Department of Health and Mental Hygiene, 2010; Myers et al., 2010). The report also noted that although the overall death rate declined in New York City, death rates were estimated to be approximately 30% *higher* in the poorest neighborhoods of New York City, as compared to more affluent neighborhoods in New York City. Life expectancy was also found to be shorter, on average for residents living in New York City's poorer neighborhoods (New York City Department of Health and Mental Hygiene, 2010; Myers et al., 2010). These findings are similar to reports issued by the New York City Department of Health and Mental Hygiene in 2004 (NYCDOHMH, 2004; Karparti, et al., 2004).

Specifically, there is a significant disparity in regard to diabetes-related mortality in New York City. In a report issued in June of 2013, The New York City Department of Health and Mental Hygiene noted that that there was a nine-fold difference when comparing one of Manhattan's wealthiest neighborhoods, Murray Hill, with one of the poorest neighborhoods, the Brownsville neighborhood in Central Brooklyn (New York City Department of Health and

Mental Hygiene, 2013). In addition, it was also found that when racial and ethnic minority status was examined in conjunction with poverty rates, diabetes mortality rates were 2.7 times higher among individuals living in neighborhoods that are classified as very high-poverty neighborhoods.

New York City Community Health Survey (2010)

In 2010, the NYCDOHMH conducted the New York City Community Health Survey, a cross-sectional survey that sampled adults ages 18 and over from all five boroughs of New York City. Modeled after the National Behavioral Risk Factor Surveillance System (BRFSS) conducted by the Centers for Disease Control and Prevention, self-reported survey data were collected covering a range of health topics, among them fruit and vegetable consumption, distance to purchase fresh fruit and vegetables, and self-reported health status (New York City Department of Health and Mental Hygiene, 2012). This survey is particularly important as it provides neighborhood level information for the 42 defined neighborhoods in New York City, including the five neighborhoods that are the focus of this research.

Summary of Current Problem and Study Relevance

Residents living in neighborhoods lacking healthy and nutritious food items face inherent challenges in maintaining a healthful diet. The cumulative effects of limited financial resources, traveling distances to purchase healthy foods, and having to pay more money for healthier foods can take a toll on the health of residents in a community. In addition, the convenience of corner stores, with their unhealthy and sub-standard food items, adds to the challenge of eating healthier. Hindered access to fresh produce can be detrimental to the health of residents in two

significant ways. For residents currently diagnosed with a diet-related condition, such as Type 2 diabetes, diminished access to healthy and "diabetic friendly" foods can only exacerbate their condition. Residents who are *at risk* for developing adverse health conditions also stand to be negatively impacted by living in a food desert, as the foods that one might need to help *prevent* an onset of a chronic health condition are not available.

Efforts have been made to help increase access to fruits and vegetables for residents living in underserved neighborhoods within New York City. Although GrowNYC has emerged with a considerably wide network of Greenmarkets and Youthmarkets to meet the need of residents without access to fruits and vegetables in their immediate neighborhood, many of the Greenmarkets and all of the Youthmarkets operate on a seasonal, as opposed to a year-round schedule. In addition, there are no Greenmarkets or Youthmarkets in any part of Harlem, which has been designated by the New York City Department of Health and Mental Hygiene as an area of need, given its rates of diabetes and other chronic health conditions (NYCDOHMH, 2013).

When seasonal markets leave the neighborhood for the season, with no alternative food outlet for fruit and vegetable procurement, a gap in access emerges. If an individual is able to change their eating habits, there needs to be a provision in place so that their efforts can *continue*, without being hindered. This is particularly important in neighborhoods that are heavily populated with bodegas and lack traditional supermarkets or similar places where people can purchase affordable healthful items.

Conclusion

The literature reviewed in this chapter provides a framework for the neighborhoods under investigation for this research. As a supplement to the Community Health Profiles that were reviewed, the 2010 New York City Community Health Survey was also analyzed, and found to be extremely useful, as it provided neighborhood level information on a range of health and wellness measures. It is this neighborhood specific information that will be most useful in describing the adverse health effects of hindered access to fruits and vegetables. Combining the Community Food Assessments with the neighborhood-level data, revealed trends of adverse health outcomes, and when income was also examined, the relationship between poverty and race became magnified.

Chapter III. Methodology

Introduction

This chapter will discuss the rationale for conducting a program Gap Analysis of GrowNYC's Greenmarket program. This chapter also outlines the steps that were undertaken to conduct the gap analysis, including the resources that were used to help arrive at the recommended solutions to help close the access gap. The Key Informant interview process, specifically the population for the interviews, research design, and procedures is also discussed.

Rationale for a Program Gap Analysis

Although GrowNYC has successfully increased availability of fresh and affordably priced fruits and vegetables throughout New York City through its Greenmarkets and Youthmarkets, the reality is that not all residents, particularly those living in lower-income neighborhoods, are enjoying this access.

One significant limitation of the literature review was a lack of information on lower-income residents' experiences on accessing and maintaining fruits and vegetables when relying on seasonal Greenmarkets/Youthmarkets and other food outlets in one's neighborhood. Such information would be valuable, and could, quite possibly, be a catalyst for a possible Greenmarket expansion into lower-income neighborhoods. The extent to which people are traveling to Greenmarkets located in other neighborhoods to access produce is not well known, as confirmed by a GrowNYC staffer. This information would also be worthwhile, given the steady rise in annual EBT sales since EBT became an accepted form of payment at the Greenmarkets (GrowNYC, 2013). This information could help inform GrowNYC with respect

to possible locations for Greenmarket placement, based on customer demand and neighborhoods of residence.

Additionally, although GrowNYC surveyed customers in 2011 and 2012, it was acknowledged that there were limitations with the resulting data. Eight Greenmarkets, representing the Bronx, Brooklyn and Manhattan, were selected as sites for customer surveys; however, there was no randomization with regard to market selection for surveying (GrowNYC, 2011 and 2012b). As a result, the data were not well suited for generalization, as would be the case if randomization of survey sites had occurred. In addition, GrowNYC acknowledged that selection bias was a factor, in that the customers who agreed to take the survey might be different from the general population of Greenmarket shoppers.

While the current literature surrounding the various food access initiatives created by GrowNYC and the New York City Department of Health and Mental Hygiene is encouraging in its potential for expanding fruit and vegetable access to increasing numbers of people, *sustaining* access to healthful items is needed to help ensure that any new healthful eating habits can be maintained long-term. As such, while short-term initiatives are a start to increasing access to fresh produce, a more sustainable solution is needed to help ensure *continuity* of access to fresh and affordable produce.

Program Gap Analysis

A program Gap Analysis was undertaken to help underscore the need for, and importance of, a year-round GrowNYC Greenmarket presence in lower-income neighborhoods in New York City. The program Gap Analysis also highlighted the areas in which the current Greenmarket program could be scaled up for greater reach and effectiveness.

The program Gap Analysis was comprised of three main components:

I. State Descriptions
   a. Current state of GrowNYC's Greenmarket program
   b. Future state of GrowNYC's Greenmarket program

II. How to Bridge the Gap
   a. Description of GrowNYC's Greenmarket current service gap
   b. Actionable steps to close GrowNYC's Greenmarket service gap

III. Factors and Remedies
   a. Factors possibly responsible for the gap
   b. Remedies, actions and proposals to help eliminate the Greenmarket service gap

This Gap Analysis also provided an insight into the neighborhoods in which access to fresh produce is limited, and concludes with suggestions in regard to how GrowNYC can establish a presence in lower-income neighborhoods. It is anticipated that the knowledge gained from this program Gap Analysis will provide a foundation for an increased GrowNYC Greenmarket presence in neighborhoods of need. The Scope of this thesis is a program Gap Analysis, and is not considered to be Research per Federal guidelines, thus not requiring Institutional Review Board oversight per Emory's Institutional Review Board. A determination letter confirming this was provided by the Institutional Review Board.

Interviews with Key Informants

In addition to the program Gap Analysis of GrowNYC's Greenmarket program, interviews with Key Informants were conducted to gain an insight in terms of a lack of a GrowNYC presence in underserved neighborhoods, and sought to provide an insight into the challenges and barriers that residents in lower-income neighborhoods face in accessing healthy food items, specifically fruits and vegetables. I also explored how residents in lower-income neighborhoods procured fresh fruits and vegetables when seasonal Greenmarkets and Youthmarkets close for the season.

Brief telephone interviews were conducted with individuals involved in food access/food justice work at the local level. In addition, I met informally with a Community Board leader in Washington Heights, a neighborhood just north of Harlem, on a prior trip to New York City. I also met with a New York City Department of Health District Public Health Office (DPHO) staff member in East Harlem. Other important Key Informants included a Community Health Advocate in Central Brooklyn, a Columbia University Medical Center Government and Community Affairs representative (in Washington Heights), a Community Board member (in the Bedford-Stuyvesant neighborhood in Central Brooklyn). These individuals were valuable Key Informants, as many of the informants live directly in the neighborhood in which they are working to effect change surrounding an increase in awareness of the need for, and access to affordable and healthful food options.

Although the neighborhoods of Washington Heights and Inwood were not the focus of this research, speaking with staffers working in these neighborhoods was important, as these neighborhoods are contending with the same food access problems as food access workers working in the neighborhoods that are under investigation for this research. However, residents

in Washington Heights and Inwood also contend with a hilly topography that poses a physical barrier for the elderly and mobility impaired residents in accessing one of the neighborhood's supermarkets.

Speaking with community leaders and food justice workers provided an insight into the barriers that residents in lower-income neighborhoods face in regard to accessing healthy food items. The findings that stand to be gained can help give a voice to residents in lower-income neighborhoods in regard to wanting fresh and affordable food items in their neighborhood.

Population and Sample for Key Informant Interviews

My research plan allowed individuals involved in food access work at the community level, in their own words, to share their perspective on their neighborhood, and what local residents have expressed wanting in regard to fresh and affordable food items. Key Informants lived and/or worked in the aforementioned boroughs of interest (the Bronx, Manhattan, and Brooklyn). Although I was unable to talk with local residents directly, the community activists/food justice workers provided a unique perspective into their respective neighborhoods and the challenges that residents faced in regard to purchasing healthful food items in their neighborhood.

Research Design

A preliminary interview guide was drafted, and pilot-tested among four community-based workers in the South Bronx and Brooklyn, via a brief telephone interview. The literature review helped inform the questions that were created for the interview guide, as the aim of the Key Informant interview is to learn about the specific barriers to procuring produce and other

healthy items at the local level. Pilot-testing helped in the re-wording of questions that might not be clear, and also helped to eliminate duplicate questions

Two of the community-based workers with whom the interview guide was pilot-tested provided the names of people involved in food access initiatives to contact for their perspective and insight on food access challenges in lower-income neighborhoods in New York City. Additional Key Informants were located by identifying food justice/food access organizations and contacting key personnel. Community-based organizations serving residents in lower-income neighborhoods were also a source of Key Informants. For all of the Key Informants, initial contact was made via email, which included an introduction of who I am, why I am undertaking this thesis research, and what I hope to learn as a result. If a participant was interested in sharing their insights, they could reply to my message to set up a time to speak by phone. If no response was heard after two attempts to reach out to a potential informant, they were not contacted again.

Once the Key Informant agreed to participate in an interview, the questions were read to the respondent, and notes were taken as they answered each question. Questions that were asked were both ontological, as they addressed the nature of participants' realities and also epistemological, as some of the questions sought to learn more about the phenomenon of interest (Saldana, 2012), in this case, how residents navigate procuring fresh fruits and vegetables in neighborhoods where produce is lacking. Where possible, direct quotes from the participants were used to ground the analysis from their perspective.

Procedures

To maintain the integrity of the interviews, processing the interview notes began immediately upon the conclusion of the interview, while the content of the interview was still fresh in my mind. Interview notes were kept in a secured location, accessible only by me.

Research Questions

A desire to learn about the food landscape and access to healthy foods at the local level in the various neighborhoods under investigation led to the selection of five main issues to be explored during the interviews with Key Informants. Specifically, I wanted to learn about the availability of supermarkets or grocery stores in the local neighborhood. Additionally, as neighborhoods such as East Harlem and the South Bronx have high percentages of residents with Type 2 diabetes and cardiovascular disease, I wanted to learn about the availability of, if any, of heart healthy and sugar-free food items in these neighborhoods. As this thesis is a gap analysis of GrowNYC's Greenmarket and Youthmarket programs, I also wanted to learn about other sources of produce procurement when any seasonal Greenmarkets and/or Youthmarkets have left the neighborhood for the season. Furthermore, while the current literature does address local food environments for some of these neighborhoods, I wanted to speak with Key Informants directly, in order to hear their thoughts and perspectives, in their own words, on the challenges that are impacting local residents.

Some of the overarching issues covered during the interviews were: (1) Neighborhood snapshot: supermarkets in the neighborhood (number, size and type), (2) Learning about other

places where residents might purchase fruits & vegetables (i.e., mobile produce carts, also known as Green Carts, etc.), (3) Learning about the level of awareness of the Greenmarket and Youthmarket programs, compared to utilization of the markets, (4) Learning about residents' views on the need for eating healthier, and a desire to seek out healthier food items, and (5) Learning about the local availability of fresh and affordable food items. Other points of interest emerged during the interview process, which added to the overall findings.

The primary questions of interest asked of respondents were:

1. How do residents in lower-income neighborhoods procure fresh fruits and vegetables when seasonal Greenmarkets or Youthmarkets close for the season?
2. What are some are the barriers that prevent residents from utilizing Greenmarkets and Youthmarkets?
3. What are some of the major obstacles to eating healthy in lower-income neighborhoods?

Plans for Data Analysis

Interviews notes were analyzed and Grounded theory was the guiding framework for data analysis. A content analysis of the interview notes was conducted. Open Coding allowed the identification of core patterns and themes, both major and minor, regarding the experiences of the interview participants (food access workers) (Saldana, 2012). In-Vivo Coding allowed the sentiments of the Key Informants to be captured in their own words. In doing so, it was anticipated that the barriers faced at the local level in regard to accessing fresh produce in one's neighborhood would be revealed.

Limitations and Delimitations of this Research

Potential Limitations of this Research

One limitation of my research was the constant evolution of GrowNYC as an organization. At the start of this research undertaking, there were a few initiatives being undertaken in some of the lower-income neighborhoods discussed in this thesis. However, as recently as mid-July 2014, a large community garden opened in the South Bronx. While this might have been a limitation of my research, it was also a positive step forward for GrowNYC, one which will ultimately be of benefit to residents living in this neighborhood where access to fresh and affordable food items is considerably limited.

Potential Delimitations of this Research

One delimitation of my research was not speaking directly to residents who have to navigate between seasonal Greenmarket/Youthmarket use and possibly no other access to fruits and vegetables upon the end of the Greenmarket/Youthmarket season. This was a real concern as currently, none of the neighborhoods under investigation have year-round GrowNYC market access.

Although I did not speak directly to residents most affected by a lack of access to fresh and affordable fruits and vegetables, I was introduced to several people who are actively involved in food access/food justice work. These advocates provided a unique perspective in regard to the neighborhood landscape, and how that landscape impacts residents in terms of healthful eating options. Some of the individuals that I have met have provided me with the

names of other people who provided additional insight and information regarding food access work in underserved neighborhoods in New York City.

In addition, I did not speak to any farmers who are involved in market activity exclusively for Greenmarket. Hearing from the farmers would have been insightful, as doing so would have afforded me the opportunity to hear their perspective and learn about any concerns that they might have in regard to establishing a presence in lower-income neighborhoods.

Conclusion

Despite not being able to speak directly to residents living in underserved neighborhoods to learn more about how they personally navigate across several systems to access fresh produce, Key Informant interviews with food justice workers and community representatives provided an insight into the barriers that residents in lower-income neighborhoods face. Many of the informants live in the neighborhood that they are advocating for, which further legitimizes their concerns.

Chapter IV. Results

Introduction

This chapter will summarize the results of the program Gap Analysis of GrowNYC's Greenmarket program, and concludes with information from Key Informants who shared their perspective on their local food environment. When combined, both sources of information are powerful tools in illustrating the impact of the lack of Greenmarket presence in lower-income neighborhoods. Analysis findings also offer solutions for taking the initial steps for increasing Greenmarket presence in neighborhoods of need while possibly slowing down new presence in neighborhoods that already have year-round market access and traditional and/or specialty supermarkets within the same neighborhood.

A secondary analysis of GrowNYC publications helped frame this program gap analysis, which was undertaken to (1) Describe the current state of GrowNYC's Greenmarket program (2) Describe the gap in service with regard to Greenmarket placement, and (3) Identify factors that are possibly responsible for the gap in service, while offering possible solutions to reduce, if not eliminate service gaps. To augment the findings from the program gap analysis, interviews and informal discussions with individuals involved with food access/food justice work helped give a voice to the residents living in the neighborhoods discussed in this thesis work.

Findings

Summary of Program Gap Analysis Findings

Analyzing and synthesizing secondary data sources, such as GrowNYC's Annual Reports and annual EBT reports, Greenmarket customer survey reports, various Community Food Assessments and neighborhood profile information provided by the New York City Department of Health and Mental Hygiene provided a framework for the suggestions to help scale up GrowNYC's Greenmarket program. In addition, Key Informant interviews also helped in framing the solutions for steps that can be taken to close this access gap.

With regard to the future state of GrowNYC's Greenmarket Program and the actionable steps to close GrowNYC's service gap, the rationale for the proposed suggestions was the need for more Greenmarkets in underserved neighborhoods, which could be achieved by possibly slowing market expansion in neighborhoods that already have several markets traditional or specialty grocery stores. By taking this approach, there might be a more equitable distribution of market resources, ultimately connecting more people who truly need access to fruits and vegetables.

Regarding the suggested remedies, actions and proposals, community need was one theme that helped formulate long-term suggestions for closing the Greenmarket service gap. As noted in Community Food Assessments and in speaking with Key Informants, there is a clear desire for residents to learn how to prepare and store produce. Making better use of collected data can also help in closing the Greenmarket gap. As noted in email correspondence from Kasey Holloway, a GrowNYC staffer, the degree to which people in underserved neighborhoods travel to other neighborhoods or other boroughs to access the Greenmarkets is not well known. It might be worthwhile to collect zip code information from *all* Greenmarket shoppers at *all* Greenmarket locations to see which neighborhoods they are coming from to access the markets. This would be

especially useful if collected at the larger year-round markets (Union Square, Inwood, and Columbia University). Zip code information could also be collected at the seasonal Youthmarkets.

Collaboration to help improve perception is another theme that helped formulate long-term suggestions for closing the gap. Given that there are few Greenmarkets in underserved neighborhoods, one might wonder if there are concerns surrounding the viability of a Greenmarket in a lower-income neighborhood. If such concerns exist, it might be worthwhile to address these concerns by way of focus groups involving GrowNYC farmers and community food advocates. As previously mentioned, steadily rising EBT redemptions show that people are using their EBT benefits to purchase fruits and vegetables at the Greenmarkets. In addition, in some markets, daily EBT sales are estimated to be close to $6,000.

Education to acclimate local residents to the Greenmarket system and in-market product demonstrations can be helpful in possibly dismantling some of the cost and time commitment perceptions regarding purchasing and preparing healthier foods.

Tables 4.1-4.3 detail the resulting findings from the Greenmarket program gap analysis. Table 4.1 provides an overview of the current state of the Greenmarket program, and follows with a proposed future "ideal" state, which reflects how the Greenmarket program will look in five years. Table 4.2 describes the Greenmarket service gap, and follows with preliminary steps that can be taken now to begin to close the service gap. Table 4.3 identifies possible reasons that have attributed to the Greenmarket service gap, and concludes with proposed actions that can be taken which can permanently close the service gap.

Tables 4.1-4.3 Program Gap Analysis of GrowNYC's Greenmarket Program

Table 4.1 State Descriptions of GrowNYC's Greenmarket Program

Current State of GrowNYC's Greenmarket Program	Future State of GrowNYC's Greenmarket Program
As of January 1, 2015, there are a total of 23 year-round Greenmarkets in New York City (there are 50 total Greenmarkets).	By January 1, 2018, there will be **five new year-round Greenmarkets** (one in each of the neighborhoods of need under investigation for this research). Possibly start out small, securing an indoor space, such as in a school or possibly in a community center. Consider expansion as needed and based on local demand. If possible, these neighborhoods should be locations for priority Greenmarket placement. Greenmarkets will be added based on a neighborhood's need, taking into account community health profile information and input from local residents that support bringing a Greenmarket to the neighborhood. There will be slow Greenmarket expansion in neighborhoods that *already* have Greenmarkets and supermarkets with an ample supply of fresh produce.
As of January 1, 2015, there are a total of 27 seasonal Greenmarkets in New York City.	By January 1, 2018, there will be **five new seasonal Greenmarkets** (one in each of the neighborhoods under investigation for this research).

Program Gap Analysis of GrowNYC's Greenmarket Program (Continued)

Table 4.2 Service Gap Description of GrowNYC's Greenmarket Program

Description of GrowNYC's Service Gap	Actionable Steps to Close GrowNYC's Service Gap
There are no year-round Greenmarkets in lower-income neighborhoods, and seven seasonal Greenmarkets in lower-income neighborhoods. Lack of year-round Greenmarket presence is pronounced in several lower-income neighborhoods, while at the same time, multiple year-round markets, or a mix of year-round and seasonal markets are located in neighborhoods that *already* have full-service supermarkets and/or specialty grocery stores, such as Whole Foods Market (as	Prioritization to scale-up Greenmarket placement should be need-based, as rates of chronic illness are exceedingly high in the lower-income neighborhoods discussed in this work. GrowNYC has added two new Youthmarkets in Central Brooklyn. While the addition of two Youthmarkets in one neighborhood is a significant step in scaling up access in Central Brooklyn, the Youthmarkets by their nature are seasonal, and once the season ends, residents who have grown accustomed to purchasing produce might be faced

is the case with the Upper East Side).	with the reality of losing their only viable source of fresh and affordable produce.

Program Gap Analysis of GrowNYC's Greenmarket Program (Continued)

Table 4.3 Possible Factors Responsible for, and Remedies to Address GrowNYC's Greenmarket Program Service Gap

Factors Possibly Responsible for the Service Gap	Remedies, Actions and Proposals
Speculative concerns that Greenmarkets will not be viable in lower-income neighborhoods	GrowNYC can undertake an assessment to help understand farmers' specific concerns, with regard to establishing markets in neighborhoods of need. GrowNYC has undertaken in-depth assessments for Greenmarket farmers in the past, and would be equipped to undertake a similar assessment. Possible collaboration with local organizations and individuals involved with food justice work to begin a dialogue from both entities. GrowNYC can collect zip code and EBT purchase amount data at *all* Greenmarkets and Youthmarkets to have a better idea as to where customers reside, so that trends can be identified regarding the need for an increased GrowNYC presence in lower-income neighborhoods. EBT figures and zip code data can affirm that people living in lower-income neighborhoods are using their food benefits on produce at Greenmarkets and Youthmarkets. Mobile markets: produce vans could be driven by GrowNYC staffers and manned by volunteers and staffers or farmers. Vans could sell produce in neighborhoods of need. This will enable farmers to see firsthand the need for and desire for fresh produce in these neighborhoods. Greenmarket farmers could connect with other farmers who are successful in selling produce in under-resourced neighborhoods (for example, the farmers at the Bushwick farmers' markets)
Consumers' concerns and perceptions that Greenmarkets are expensive, that the foods offered at the Greenmarkets require a lot of preparation and cooking time, and are "bland".	Continue with outreach efforts and activities at community centers, medical facilities, social service agencies and other places where residents receive services. Outreach to raise awareness of the advantages of utilizing the Greenmarkets, and the range of incentive programs that can offer additional savings. Continue with cooking demonstrations and nutrition education workshops that can help improve residents' capacity in learning to prepare healthier meals. Cooking demonstrations with information on how to add seasoning to

	food without adding salt can help with these concerns.

Table 4.4 lists the Key Informants who spoke with me about food access issues in their respective neighborhoods, and also lists the neighborhood they work in to help bring about more equitable access to healthier foods.

> "People don't stop eating in November (when the market season ends)." – TT, farmers' market worker and Food Justice Advocate.

Table 4.4 List of Key Informants

Name	Connection to Food Justice Issues	Neighborhood Represented
Carol Ban	Isabella Senior Citizen Facility/YUM produce site manager	Washington Heights
Tanya Fields	Founder, The BLK Project	The South Bronx
Sandra Harris	Community Affairs Representative – Columbia University Medical Center	Washington Heights
Robert Henry Jones	The Partnership for a Healthier Brooklyn	Bedford Stuyvesant (Central Brooklyn)
Rebecca Lee	New York City Department of Health and Mental Hygiene District Public Health Office staffer	East Harlem
Giselle Mejia	City Harvest	Washington Heights/Inwood
Sonya Simmons	Farmers' market worker/food justice activist	Harlem
Ebenezer Smith	Community Board 11 (Manhattan) leader	Washington Heights
Travis Tench	Farmers' market worker/food justice activist	Bushwick (North Brooklyn)
Kelly Verel	Partnership for Public Spaces (previously provided technical assistance to farmers' markets in Brooklyn)	Bedford Stuyvesant (Central Brooklyn)
Tremaine Wright	Community Board 3 (Brooklyn) member	Bedford Stuyvesant (Central Brooklyn)

Summary of Key Informant Interview Findings

1. For some under-resourced neighborhoods within New York City, few options exist for the procurement of fresh fruits and vegetables when seasonal markets leave the neighborhood. An increased Greenmarket presence can help fill this void.

SH, a Key Informant, noted that people purchase produce from unlicensed street vendors and some local grocery stores/bodegas. The absence of seasonal markets can make a difference regarding fruit and vegetable intake. TT acknowledged that there are few options available when the market season ends. Some locals go to the large, year-round Greenmarket located in Union Square in Manhattan, while others "make do with what's available." TT reported that survey data collected at his farmers' market revealed requests for a year-round market presence in Bushwick. A larger number of people want year-round markets with longer hours, as "people don't stop eating in November." Similar to the Brownsville neighborhood in Brooklyn, characterized by a lack of outlets for healthy food options, thus the need for two seasonal Youthmarkets in one neighborhood, Bushwick has four seasonal markets in its neighborhood, in addition to a satellite market (they are not GrowNYC markets). Like GrowNYC's markets, farmers who sell their produce at the Bushwick Farmers' Markets report 40% - 50% of their income is derived from incentive programs, such as HealthBucks and the Farmers' market Nutrition Program (FMNP) to help shoppers maximize their spending power at the markets.

2. The availability of healthy food that is affordable in lower-income neighborhoods is considerably limited, and varies by neighborhood. Low-fat and low-sugar foods for people who already have health conditions, such as cardiovascular disease or Type 2 diabetes, is difficult to find in some neighborhoods.

SH, a community affairs representative noted that in her neighborhood where she works, the availability of affordably priced healthy food items is "very limited." An increase in days of operation of a seasonal Greenmarket "has made some inroads in improving the availability of vegetables. Finding low-fat, low-sugar healthy food items can be challenging, based on one's neighborhood." As SH noted, "these items are not affordable and there are few establishments that carry these items. The majority of the population with prevalent health conditions do not shop at these establishments because of costs and because they are not familiar with, and do not know how to prepare the healthy foods available." CB noted "I believe it's improving in the local supermarkets (access to healthy foods), but it's inconsistent and the variety isn't there. Lack of space may also present a problem. Bodegas/corner stores tend not to carry these (healthy) items at all."

Gentrification came up in two interviews. GM commented that "with gentrification, stores are finding a new population of shoppers. Prices are going up. It's harder and more difficult (for people) to stretch themselves with rising prices and rents." GM also noted that stores are making significant changes in their merchandise. While in the past, a store might not have carried organic items, this is changing to meet the demand of new residents moving into the neighborhood. Of note, Washington Heights has sections where the rents are relatively low, however, there are also co-ops and condominiums that are purchased by more affluent people,

who have greater incomes and are requesting healthier and organic items to be stocked in local food outlets.

According to SH "The community (Washington Heights -Inwood) is presently experiencing gentrification, with high cost of housing making the community attractive to middle and upper income families. This has resulted in increased local markets, restaurants and other establishments catering to the new arrivals."

3. In some lower-income neighborhoods, quality of produce is questionable, both in local stores and among vendors who sell produce from mobile carts.

SS, a food justice worker who lives and works in Harlem, spoke about the concerns that local residents expressed in regard to being able to access affordable fruits and vegetables. A large Pathmark supermarket in East Harlem does carry produce, but shoppers must take care in purchasing produce, as many of the products spend several days (sometimes close to a week) in transit to New York City via truck, resulting in produce that might not be as fresh as it would be if sourced locally. In addition, these products are sprayed with chemicals to help preserve their appearance. Unlicensed street vendors offer produce that is less expensive than what is found in a supermarket, but can have questionable quality, as some vendors were known to have their products "rotting in the sun," putting in long hours with the mobile cart, and not "switching out" produce.

With regard to fresh fruits and vegetables in the local grocery stores in the neighborhood where CB works, it was affirmed that "the choices are limited and the quality is mediocre." SH

described the quality of produce in her neighborhood as "average", and affordability and accessibility were rated as "poor." GM acknowledged that you have to "go and look for quality items."

SH further added "At this time, some supermarkets complain they have opted not to stock their stores with fruits and vegetables because of increasing number of illegal vendors in front of their establishments. These vendors are not licensed by the State Department of Health and the quality of the fruits and vegetables is very poor given the inappropriate refrigeration and storage. Many sell these fruits of from a van parked on the sidewalk."

4. There is a demand for year-round market access in under-resourced neighborhoods.

Despite the perception that people in lower-income neighborhoods do not care about their eating habits, SS acknowledged that there is a demand for local produce in her neighborhood. TT, a food justice activist who works in the Bushwick neighborhood of Brooklyn, noted that some customers "have lamented that there are no year-round markets in the neighborhood." SH described GrowNYC's presence in Northern Harlem as being "very limited", when compared to their presence in other neighborhoods.

KV noted that community buy-in is extremely important. In her work with markets in Central Brooklyn, it was noted that one market in particular was not very successful, "but there was a sense of local and neighborhood ownership that helps sustain the market." Another market in Central Brooklyn grew from having one community farmer at its inception thirteen years ago, to having over 20 community farmers. Buy-in at this market is "excellent."

RHJ noted that while there might not be year-round farmers' markets in the immediate neighborhood, a new Super Foodtown supermarket recently opened, and has been very heavily shopped among local residents. In-store healthy eating demonstrations and supermarket tours are held several times a month in this full–scale supermarket, and are advertised in the community, at RHJ's site, the Partnership for a Healthier Brooklyn, and are also advertised on the organization's Facebook page.

5. The food landscape in lower-income neighborhoods is negatively impacting the health or residents, both young and old.

One Key Informant (SS) spoke of the increase in the number of children with high blood pressure and Type 2 diabetes. Inexpensive and unhealthy food items, such as "dollar pizza" are widely prevalent and contribute to these adverse health outcomes in their local neighborhood of Harlem. SS noted, "This is a chain that needs to be broken, as the foods that are consumed are not healthy, leading to high blood pressure and the need for medication to treat the high blood pressure. If the foods leading to the adverse health outcomes are not changed, neither will the need for medication to treat the adverse health outcomes." Bodegas were noted to outnumber the number of traditional/full service supermarkets in this neighborhood. "On average there are two to three bodegas within a two block radius throughout the community." There are one to two supermarkets within a 10-20 block radius, as SH noted in a description of the local food environment. As ES shared, "Quality can be costly," and also noted that "price is a determinant" in terms of what people choose to eat. In addition to cost concerns is the issue of time. Fast foods are generally favored over "slow cooked" foods in North Harlem. GM acknowledged that seniors are the group that has the biggest challenge with grocery shopping, due to mobility issues and

limited transport to help facilitate trips to the supermarket. CB works in a senior citizen facility, and there is an onsite produce market at the center, which serves as a source for produce all year. CB also recalled how one of the residents in the facility takes a shopping cart with produce to each floor, so that the residents who are unable to leave their apartment to purchase produce in the lobby can still be connected with produce.

SH also acknowledged "Challenges for lower-income populations are the limited availability of healthy food options as well as lack of nutrition and health education orienting residents about the importance of choosing healthier food options. Financial resources are also a great impediment for residents in the community to access healthy foods as many live at or below the poverty rate."

Overview of Other GrowNYC Initiatives

With its wide range of programs encompassing Greenmarkets, gardening, recycling and educational programs, GrowNYC is considered to be the leading chain of farmers' markets in the United States. Although this was a program Gap Analysis, designed to bring attention to areas in which GrowNYC's Greenmarket program can be can improved upon, I would be remiss in not acknowledging the recent initiatives that GrowNYC has undertaken to connect residents with its Youthmarkets program, specifically the opening of two seasonal Youthmarkets in the Brownsville section of Brooklyn. This is worth noting, as Brownsville is considered to be one of New York City's poorest neighborhoods in New York City (New York Times, 2014a). With a median income of $11,220 per year and dearth of supermarkets with healthy food items,

Brownsville is considered to be located in a food desert. As there are five Youthmarkets serving the entire borough of Brooklyn, this concentration is reflective of Brownsville's great need for affordable interventions to connect residents with fresh produce.

Not to be overlooked, the innovative use of wireless electronic terminals to process EBT card payments has been virtually instrumental in helping to increase access to fresh produce among consumers who might otherwise not have this access. GrowNYC's Greenmarket program is considered to be a national model for its use of wireless terminals to facilitate EBT transactions at Greenmarkets in New York City. This innovation was especially beneficial in the wake of Superstorm Sandy in 2013, when power outages in many neighborhoods throughout New York City would have rendered cable-based EBT machines useless. With the wireless technology in use, customers were still able to make purchases at the Greenmarkets, helping to ensure continued access to fresh items (GrowNYC, 2014).

The Fresh Food Box is one new piloted initiative, designed to increase access to fruits and vegetables. During the months of July–November, residents are able to purchase pre-packed boxes of seven to nine assorted fruits and vegetables. For this modified take on Community Supported Agriculture (CSA), boxes of produce can be ordered and picked up at 16 designated community centers within New York City. While traditional CSA purchases might cost hundreds of dollars for the season, the Fresh Food Box pilot program has boxes of produce for $10 each, which can be purchased on a weekly basis with EBT as an accepted method of payment. While it might be too soon to assess results, it is anticipated that this pilot program will be another way to help connect fresh and healthful items to people living in under-resourced neighborhoods (GrowNYC, 2014).

Another newly introduced program, the Grow Your Garden with EBT program, allows consumers to purchase seeds to grow their own vegetables, fruits and herbs. Currently, seeds can be purchased at 44 Greenmarkets. In the same vein as the Fresh Food Box program, EBT cards can be used to purchase these seeds, ultimately giving residents greater control over their access to fresh produce (GrowNYC, n.d.). While these efforts are a noble start, they are at best a partial solution to the problem of a lack of sustained year-round Greenmarket presence in lower-income neighborhoods.

Other Findings

Awareness of the Importance of Fruit and Vegetable Consumption

Over the course of several recent trips to New York City, I had the opportunity to visit several of the large year-round Greenmarkets (Union Square, 79th Street, Columbia University, and Ft. Washington [located at Columbia Presbyterian Medical Center]). I also had the opportunity to observe a Youthmarket in the Bronx (West 225th Street and Broadway). Although this particular Youthmarket was not in the South Bronx, it was however, located directly across the street from a public housing complex, comprised of 12 apartment buildings. While there is a supermarket directly across the street from the housing complex, where the produce is "very good", this particular Youthmarket had a stream of customers for the period of my observation, which was 2.5 hours. There is another supermarket a bit further away, within walking distance, or a very short bus ride away. This supermarket was described as having "good produce, that's kind of expensive". The teens operating this particular Youthmarket were truly engaged in telling shoppers about the range of vegetables being offered, in addition to providing cooking demonstrations and samples. One Youthmarket worker, a Hispanic female teenager, easily

transitioned from speaking with customers in English to Spanish, to meet the language needs of the customers at this particular Youthmarket.

The Intersection between Food Justice and Environmental Justice

While undertaking this research, it was enlightening to learn more about the intersection between food justice activism and environmental justice activism. There is a network of food justice workers who are also actively involved in environmental justice issues, as both are pressing concerns negatively affecting lower-income communities and disproportionately impacting racial and ethnic minorities. It is encouraging to know that some of the key players in both arenas are actively working to make changes in two of the greatest areas of health concern for lower-income residents. This is particularly true for the Williamsburg neighborhood in Brooklyn, East Harlem in Manhattan, and the South Bronx, where there are several polluting facilities, incinerators, and solid waste transfer stations housed in these neighborhoods (Sze, 2007).

It was noted in City Harvest's 2012 Community Food Assessment for the South Bronx that there is a common sentiment that any real and lasting change in regard to improving the local food environment and subsequently the overall health profile of the community, must begin at the community level, from a "bottom-up" approach, as opposed to a "top-down" approach (City Harvest, 2012). In addition, it was mentioned that community members should continue to have a vested interest in their community, this is a sentiment that was also pervasive in the environmental justice community organizing that began in the South Bronx in the 1990's (Sze, 2007).

Care Must be Taken When Reporting and Generalizing Data

In correspondence with the District Manager of Brooklyn's Community Board 2, which covers the Fort Greene and Clinton Hill neighborhoods in Brooklyn, it was noted that reported income figures can be used in such a way that can ultimately keep vital programs out of neighborhoods in need. Community Board 2 is generally well-off financially, but does have pockets of poverty. However, the reporting of *aggregated* data, taking into account the majority of affluent residents, in essence prevented Green Cart (mobile produce) vendors from being allowed to operate in the district, despite the fact that there are pockets of poverty interspersed with neighborhoods of affluence (Source: Robert Perris, Personal Communication [email], December 2013). The under (or non)-reporting of lower-incomes obscures the pockets of poverty in these neighborhoods. It is for this reason that community food assessments are a critical tool in raising awareness as to the true needs of a neighborhood, especially as residents in underserved neighborhoods risk not having their voice heard otherwise. As noted in the Community Food Assessment for the Fort Greene and Clinton Hill neighborhoods in Brooklyn, the relatively high income figures for the more affluent sections of Fort Greene and Clinton Hill were reported in aggregate form, which overshadowed the significantly lower-incomes of those who were living below the poverty line (Myrtle Avenue Revitalization Project, 2012).

A similar sentiment was expressed by a Community Board 3 member in Brooklyn. Comprised primarily of elderly residents and residents living on a fixed income, Community Board 3 covers the neighborhood of Bedford-Stuyvesant in Central Brooklyn. With recent waves of gentrification, reported increasing income levels can distort what services are provided to the community, as it is assumed that those with higher incomes do not necessarily need programs to

help increase their access to healthful food items. This is particularly concerning, as the above-average income of a few residents can eclipse the needs of a significant number of residents living below the poverty level, who risk inadequate intake of nutritive foods. This is a concern that warrants attention in many neighborhoods that are undergoing gentrification.

Raising Awareness on Food Access Inequality at the Local Level

Local organizations are doing their part to raise awareness of the disparities lower income residents face in accessing healthful food items. Community Food Assessments are one way to bring attention to this disparity. City Harvest's 2012 Community Food Assessment for the Washington Heights and Inwood neighborhoods sought the help of teenage volunteers to administer surveys to local residents to learn more about the local food environment and how it impacts eating habits among residents. Drawing upon teen volunteers not only helps facilitate data collection, but also engages a new generation of potential community advocates, who will be equipped to increase consciousness surrounding important issues, particularly those impacting their local neighborhood. This approach was used in the environmental justice movement in the South Bronx in the late 1990's and helped to bring attention to environmental concerns and issues facing the local community (Sze, 2007).

Summary

As a result of several innovations, GrowNYC's Greenmarket program is considered to be a model market system. While GrowNYC endeavors to reach New Yorkers who lack access to fresh and affordable produce, there are some neighborhoods that are completely devoid of a Greenmarket presence. These are neighborhoods in which there are few outlets for fresh and

affordable produce. Seasonal access is a start, however residents in lower-income neighborhoods can be adversely impacted when the market season is over, particularly if there is no alternative means of procuring fresh produce. The impact is magnified for residents who need to maintain a healthful diet to either prevent the onset of, or prevent the worsening of diet-related health conditions.

To help close the gap in service, with regard to a lack of Greenmarket presence in under-resourced neighborhoods, it would be worthwhile for GrowNYC staffers to consider focus groups with Greenmarket farmers who have concerns about establishing markets in lower-income neighborhoods, to better understand their concerns. Follow-up focus groups could be held between GrowNYC staffers and community leaders and food justice advocates to learn more about the needs of communities that could benefit from a Greenmarket presence.

Conclusion

Findings from the Key Informant interviews in this chapter provided an insight into the challenges and barriers facing residents in lower-income neighborhoods with regard to procuring fresh produce. Engaged community activists and food justice workers are vital in efforts at the local level, as they are in a key position to collaborate with Greenmarket farmers to learn about any potential concerns in establishing markets in lower-income neighborhoods. Similarly, community leaders could also collaborate with GrowNYC staffers to share their concerns with regard to a lack of Greenmarket presence in their neighborhood. A similar approach of

community-level activism was used in the environmental justice movement in the South Bronx in the late 1990's and early 2000's (Sze, 2007).

Chapter V. Conclusions, Implications and Recommendations

Introduction

This chapter provides an overview of the conclusions drawn from the program Gap Analysis of GrowNYC's Greenmarket program, which was framed with the help of an analysis of GrowNYC and Greenmarket publications. To supplement the program gap analysis, interviews and informal discussions with individuals involved with food access/food justice work helped shed light on the challenges that residents in lower-income neighborhoods face in accessing and maintaining access to fresh produce. Community health profiles for the neighborhoods discussed helped provide an insight into the overall health and wellness for lower-income neighborhoods. This chapter concludes with recommendations for communities, GrowNYC/Greenmarket, and also policy recommendations.

Summary of Study

Summary of the Problem

For a significant number of lower-income residents in New York City, lack of access to, and unaffordability of fresh fruits and vegetables are the two most common causes for reduced produce consumption. Many New Yorkers living in under-resourced neighborhoods are unable to benefit from the positive health outcomes associated with consistent fruit and vegetable intake, to the detriment of their health. This is the result of an inability to afford healthier food items due to cost constraints, and/or as a result of living in neighborhoods in which the majority of the food outlets offer low, or non-nutritive food items.

In an effort to remedy this disparity, GrowNYC established a city-wide chain of farmers'

markets, known as Greenmarkets, with locations throughout New York City. Established to help connect New Yorkers with fresh produce and other healthy items, the number and presence of Greenmarkets has increased since the chain's inception, almost 40 years ago. One major advantage of Greenmarkets compared to other farmers' markets is the year-round service that Greenmarkets provides at a considerable number of its 50 current locations. As of January 1, 2015, there are 23 year-round Greenmarkets.

Despite this increased presence in the overall the number of Greenmarkets, there is a lack of year-round Greenmarket presence in several lower-income neighborhoods, while at the same time, multiple year-round markets, or a mix of year-round and seasonal markets are located in neighborhoods that *already* have full-service supermarkets and/or specialty grocery stores. Although some lower-income neighborhoods might have a seasonal Greenmarket, the reality is that when the season ends, residents who might have grown accustomed to purchasing fruits and vegetables at the market risk not having continuity of access to fresh produce in the off season. As one Key Informant noted "People don't stop eating, just because it's November" (when the market season ends).

This gap in access has an adverse impact on the health and wellness of individual residents, ultimately impacting entire neighborhoods. The disparity in adverse outcomes is sobering, as evidenced by the neighborhood health profiles for the neighborhoods previously discussed.

Methodology

A program Gap Analysis of GrowNYC's Greenmarket program was undertaken to describe the Greenmarket program as it is now, and ideally how it should be. The Gap Analysis

then sought to first describe the service gap, and then offer preliminary short-term actionable steps that can be taken to help close the gap. Finally, remedies, actions and proposals to eliminate the Greenmarket service gap were identified.

To complement the program gap analysis, informal discussions and interviews were held with individuals involved with food access/food justice work in various lower-income neighborhoods throughout New York City, to help shed light on the challenges that residents in underserved neighborhoods face in accessing and maintaining access to fresh produce with reduced or no access to a Greenmarket.

Summary of Results (Gap Analysis)

Two major areas of concern for both farmers and residents were identified that have possibly either led to, or exacerbated the Greenmarket service gap:

- There are speculative concerns that Greenmarkets will not be viable in lower-income neighborhoods.

- There are consumers' concerns that Greenmarkets are expensive, and that the foods offered at the Greenmarkets require a lot of preparation and cooking time. This came out during a Key Informant interview with a Community Board leader, with regard to why some residents are hesitant to shop at the Greenmarkets, and might be feeding into famers' initial concerns. A desire to maintain one's cultural identity and familial traditions through meals was noted.

Summary of Results (Key Informant Interviews)

Several sentiments emerged during the Key Informant interviews, which helped frame some of the challenges that residents in lower-income neighborhoods face, in regard to accessing healthy foods on a continual basis.

- For some under-resourced neighborhoods within New York City, few options exist for the procurement of fresh fruits and vegetables when seasonal markets leave the neighborhood
- The availability of healthy food that is affordable in under-resourced neighborhoods is considerably limited, and varies by neighborhood. Low-fat and low-sugar foods for people who already have diet-related health conditions such as cardiovascular disease or Type 2 diabetes are hard to find in some neighborhoods
- In some under-resourced neighborhoods, the quality of produce is questionable, both in local stores and among vendors who sell produce from mobile carts
- There is a demand for year-round market access in under-resourced neighborhoods
- The food landscape in lower-income neighborhoods is negatively impacting the health of residents, both young and old, as bodegas far outweigh the number of traditional supermarkets and grocery stores in several of the neighborhoods discussed previously
- Oftentimes bodegas are less likely to sell fresh and healthy items, and in spite of this, still remain a convenience for residents, despite an abundance of non-nutritive food items

Conclusions

To help close the gap in service with regard to a lack of Greenmarket presence in under-resourced neighborhoods, it would be worthwhile for GrowNYC staffers to consider focus groups with Greenmarket farmers who have concerns about establishing a presence in lower-income neighborhoods, to better understand their concerns. Follow-up focus groups could be held between GrowNYC staffers and community leaders and food justice advocates to learn more about the needs of communities that could benefit from a Greenmarket presence. Focus

groups could also be conducted by food access/justice workers to hear residents' concerns regarding lengthy amounts of preparation time and higher costs for purchasing healthful items at Greenmarkets. These focus groups could also be used as a means to provide residents with information on market incentives, such as Health Bucks and acceptance of EBT as a form of payment, to help alleviate skepticism about shopping at a Greenmarket due to cost concerns. Alternatively, Greenmarket workers who have experience with recipe demonstrations could also be on hand to show the residents, via product demonstrations, that meals can be prepared without having to spend a great deal of time, as this could be a significant concern for single parent households. Starting these conversations and addressing the concerns of the residents are the critical first step towards working to close the Greenmarket service gap.

Recommendations

Community Level Recommendations

Community activism is one way to help bring about change at the local level in regard to improving healthful food access. In addition to disparities in access to healthy and affordable food items, residents living in the South Bronx and East Harlem also contend with environmental health disparities. There is an active contingent of involved citizens who are working at the intersection between these two critical concerns that greatly impact health and well-being.

Community Food Assessments and neighborhood-level health assessments are two powerful tools that illustrate the interconnected relationship between healthful food access, dietary habits and health outcomes. Community food assessments help give a voice to residents living in under-resourced neighborhoods, enabling them to advocate for themselves, with regard to issues that are of importance to them. Community health assessments are equally important, as

they provide self-reported health information, which helps identify neighborhood populations that are at risk for adverse health outcomes. When these two reporting systems are used in tandem, a true sense of the connection between a lack of access to healthy foods, and the subsequent impact on health outcomes can be seen. As both of these assessment types generally include information on the percentage of residents living below the poverty level, the inextricable relationship between poverty, food access and health outcomes is further magnified.

GrowNYC/Greenmarket Recommendations

As an organization, GrowNYC is undoubtedly a leader in the farmers' market arena. As the only farmers' market chain throughout New York City that provides year-round service, GrowNYC is undoubtedly poised to be a leader in providing access to quality produce items in increasingly more neighborhoods in New York City. Other significant innovations include being the first network of farmers' markets to be equipped to process EBT cards for market purchases. With a 45-year history, GrowNYC's Greenmarket program is considered to be a national leader among farmers' markets, to the extent that GrowNYC offers technical assistance to new farmers.

The GrowNYC staff is akin to a bridge between farmers and the local neighborhood where Greenmarkets are located. Holding a series of focus groups with Greenmarket farmers to learn firsthand what the possible thoughts/concerns are in regard to operating farm stands in lower-income neighborhoods would be invaluable. The first focus group could be comprised of farmers and GrowNYC staffers who work closely with the farmers. Keeping the GrowNYC staff attendees limited to those who work closely with farmers might result in the farmers being more candid in regard to their concerns. To follow up, Greenmarket farmers, GrowNYC staff and community activists could possibly meet for an open dialogue and guidance on moving forward

in a way that would be of benefit to both the community and the farmers. Collecting zip code information at *all* of the Greenmarkets to see what neighborhoods customers are coming from would be beneficial, and can also be a step towards bridging the access gap, as it can become evident from which neighborhoods shoppers are coming from to access the Greenmarkets, possibly leading the way for market placement in neighborhoods of need.

Policy Level Recommendations

Young children, adolescents, immigrants and native residents all have circumstances that influence their healthy eating habits. To help meet the diverse needs of these groups, targeted and tailored community-based programs and interventions could be of help in meeting their needs in regard to establishing and maintaining healthy eating habits. Community advocates/food justice workers can be the vital key in helping to secure funding to implement programs in neighborhoods of need. The programs could be school-based for young children and community-based for adolescents, immigrants and native residents. As food justice is a current issue, funding can be sought to help bring such programs to lower-income neighborhoods.

Given the grassroots nature of food access/food justice work, perhaps funding can also be secured to help establish indoor markets in underserved neighborhoods. Locations such as community centers and churches would be viable central locations. Possibly having the markets in a more central location might be of help in connecting residents to produce locally. Depending on the success of the indoor market, expansion could be considered. Mobile produce vans could also be a potential way of connecting more lower-income residents with fresh produce. The van could be stationed near medical facilities or other agencies where residents are likely to receive services.

The manner in which income is reported, and the subsequent impact on programs and services, is an issue that was acknowledged by a Community Board member in Brooklyn, and was also acknowledged in the 2012 Community Food Assessment for the Fort Greene and Clinton Hill neighborhoods of Brooklyn. One way to help ensure that programs reach areas of true need is to report income levels on a neighborhood basis, as opposed to aggregating income information for coterminous neighborhoods. Aggregating income levels can obscure pockets of poverty, and ultimately shift needed programs and other resources such as supermarkets and mobile produce carts away from neighborhoods that can benefit from their presence.

Conclusions

GrowNYC's Greenmarket program is at scale in regard to ensuring that *cost* is not a deterrent for people visiting their markets. By accepting SNAP/EBT benefits as a form of payment, in addition to a range of incentive programs to help shoppers maximize their funds, the Greenmarkets are functioning at capacity in this regard.

In regard to addressing the barrier of *access,* GrowNYC's initiatives could be scaled up considerably, for optimal results in reaching those who are most in need. While seasonal initiatives can be a nice *complement* to year-round initiatives, an area of prioritization for GrowNYC's Greenmarket program should be increasing modes of year-round access to fruits and vegetables, particularly in neighborhoods where access to healthful items is considerably limited. There is a clear need for, and interest in increased access, as demonstrated by secondary data including community food assessments, and has also been acknowledged via discussions with Key Informants for this thesis.

Diet-related conditions are impacting poorer New Yorkers at increasing rates. While the Greenmarkets program has had tremendous successes throughout its history, the critical challenge is scaling up and establishing a sustained presence in lower-income neighborhoods, thereby allowing residents to fully enjoy the benefits of fresh produce. Another positive outgrowth of growing market presence to full capacity, is the potential for the improvement of community health profiles. One of Greenmarkets' founding principles is to increase access to fresh produce for *all* New Yorkers. Scaling up access would be the first step towards accomplishing this worthy goal, and would put Greenmarkets' goals in congruence with its original mission statement.

Despite a considerably large number of markets under the GrowNYC umbrella, Greenmarket presence is virtually nonexistent in several lower-income neighborhoods in New York City. While there is a clear presence in more affluent neighborhoods, there is no such presence in underserved neighborhoods. To further add to the problem, in more affluent neighborhoods where there is already a Greenmarket, there are also supermarkets and/or specialty grocery stores that already carry fresh produce. The placement of markets in neighborhoods already containing supermarkets might come at the expense of markets being placed in neighborhoods of true need, essentially perpetuating an access barrier to fresh fruits and vegetables.

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List of Appendices

[11] The 2015 Greenmarket location map will be updated later this spring to include the locations and operation times of the Youthmarkets

Interview Guide

Can you describe the local food environment in this neighborhood, i.e., the approximate number **of supermarkets (traditional/full service)**, the approximate number of number of **bodegas**, and the approximate number of **small grocery stores** in this neighborhood?

What was the local food environment five years ago in this neighborhood? What are some of the main changes? What are some of the gaps/barriers in regard to healthy eating?

How would you describe/rate the ***quality*** of fruits and vegetables in this neighborhood?

How would you describe/rate the ***affordability*** of fruits and vegetables in this neighborhood?

How would you describe/rate the ***accessibility*** of fruits and vegetables in this neighborhood?

How many Grow NYC Greenmarkets and/or Youthmarkets are in or adjacent to this neighborhood?

How would you describe GrowNYC's presence in this neighborhood on a year-round basis, compared to their presence in other neighborhoods?

From what you've seen in other neighborhoods, how well-attended are the GrowNYC markets?

For people who buy fresh fruits and vegetables at seasonal farm stands, where do people buy fresh fruits and vegetables from when the farm stand has left the neighborhood for the season?

People might not eat the suggested/recommended amount of fruit and vegetables every day. Why do you think this is?

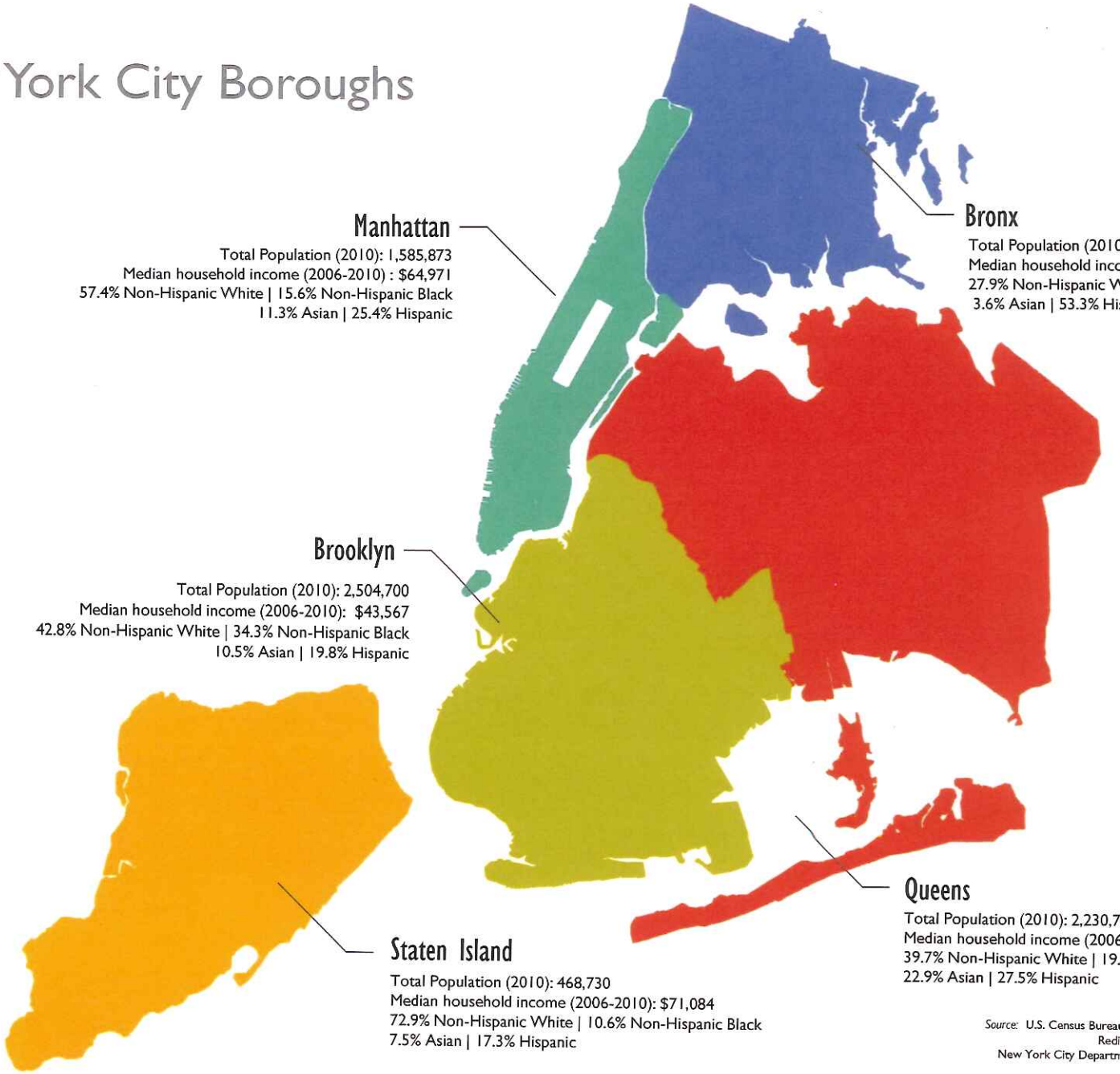
What are some of the more pressing/prominent health issues in this community – among children and among adults? Obesity, asthma, diabetes, hypertension, high cholesterol, etc. Do you see a direct relationship between these health conditions and eating habits?

Can you describe the difficulty that people with health conditions such as high blood pressure, high cholesterol, diabetes, etc., have in regard to eating healthy in this neighborhood? Is healthy eating possible in this neighborhood?

Can you tell me about any problems that people might have in finding low-fat, low-sugar healthy food items in this neighborhood? Are these items affordable and easy to find?

What can or should be done to help improve access to fruits and vegetables for people living in this neighborhood?

New York City Boroughs



Manhattan

Total Population (2010): 1,585,873
Median household income (2006-2010) : $64,971
57.4% Non-Hispanic White | 15.6% Non-Hispanic Black
11.3% Asian | 25.4% Hispanic

Bronx

Total Population (2010): 1,385,108
Median household income (2006-2010) : $34,264
27.9% Non-Hispanic White | 36.5% Non-Hispanic Black
3.6% Asian | 53.3% Hispanic

Brooklyn

Total Population (2010): 2,504,700
Median household income (2006-2010): $43,567
42.8% Non-Hispanic White | 34.3% Non-Hispanic Black
10.5% Asian | 19.8% Hispanic

Staten Island

Total Population (2010): 468,730
Median household income (2006-2010): $71,084
72.9% Non-Hispanic White | 10.6% Non-Hispanic Black
7.5% Asian | 17.3% Hispanic

Queens

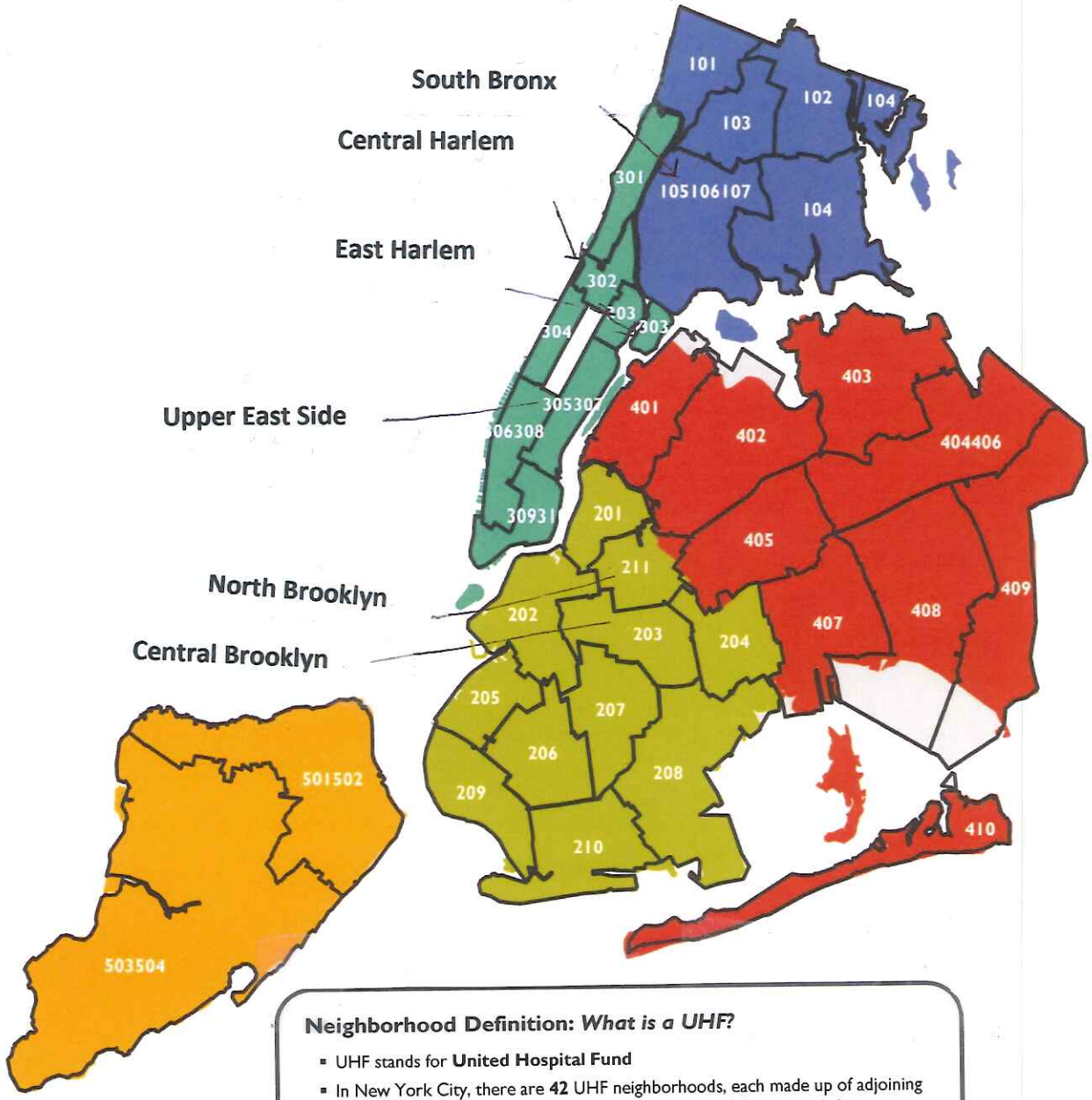
Total Population (2010): 2,230,722
Median household income (2006-2010): $55,291
39.7% Non-Hispanic White | 19.1% Non-Hispanic Black
22.9% Asian | 27.5% Hispanic

Source: U.S. Census Bureau, 2010 Census. Public Law 94-171 Redistricting Files. Population Division.
New York City Department of City Planning (March 2011)
ACS 2006-2011.

Appendix B

Neighborhood Index: United Health Hospital Fund (UHF)

UHF Code	UHF Neighborhood	Borough
101	Kingsbridge - Riverdale	Bronx
102	Northeast Bronx	Bronx
103	Fordham - Bronx Park	Bronx
104	Pelhem - Throgs Neck	Bronx
105106107	South Bronx	Bronx
201	Greenpoint	Brooklyn
202	Downtown - Heights - Slope	Brooklyn
203	Bedford Stuyvesant	Brooklyn
204	East New York	Brooklyn
205	Sunset Park	Brooklyn
206	Borough Park	Brooklyn
207	East Flatbush - Flatbush	Brooklyn
208	Canarsie - Flatlands	Brooklyn
209	Bensonhurst - Bay Ridge	Brooklyn
210	Coney Island - Sheepshead Bay	Brooklyn
211	Williamsburg - Bushwick	Brooklyn
301	Washington Heights - Inwood	Manhattan
302	Central Harlem - Morningside	Manhattan
303	East Harlem	Manhattan
304	Upper West Side	Manhattan
305307	Upper East Side-Gramercy	Manhattan
306308	Chelsea-Village	Manhattan
309310	Union Square, Lower Manhattan	Manhattan
401	Long Island City - Astoria	Queens
402	West Queens	Queens
403	Flushing - Clearview	Queens
405	Ridgewood - Forest Hills	Queens
407	Southwest Queens	Queens
408	Jamaica	Queens
409	Southeast Queens	Queens
410	Rockaway	Queens
404406	Bayside-Meadows	Queens
501502	Northern SI	Staten Island
503504	Southern SI	Staten Island

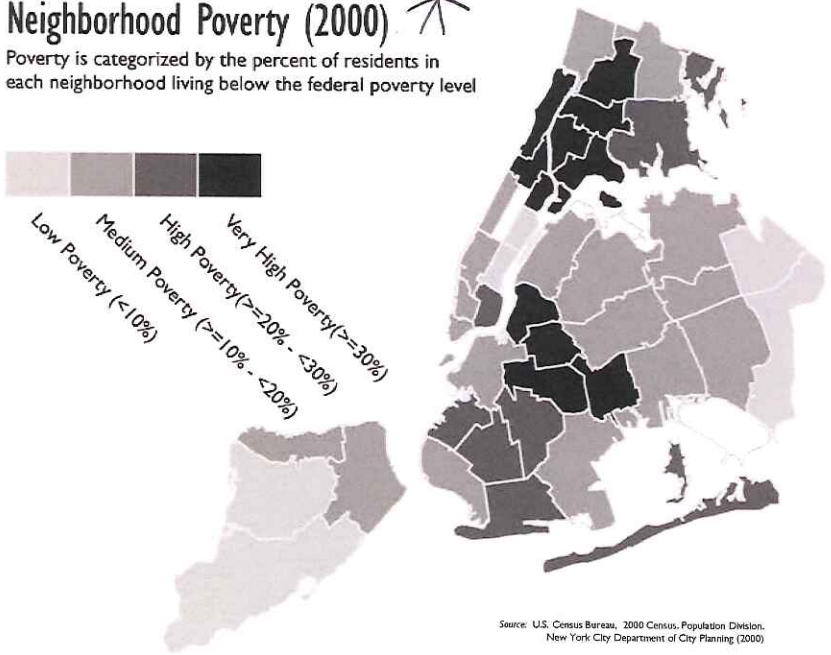


Neighborhood Definition: *What is a UHF?*

- UHF stands for **United Hospital Fund**
- In New York City, there are **42** UHF neighborhoods, each made up of adjoining zip codes *(see pages 6-7 for maps and a list of UHFs and their zip codes)*
- **34** neighborhoods are shown in this report (several neighborhoods were combined to increase statistical power)

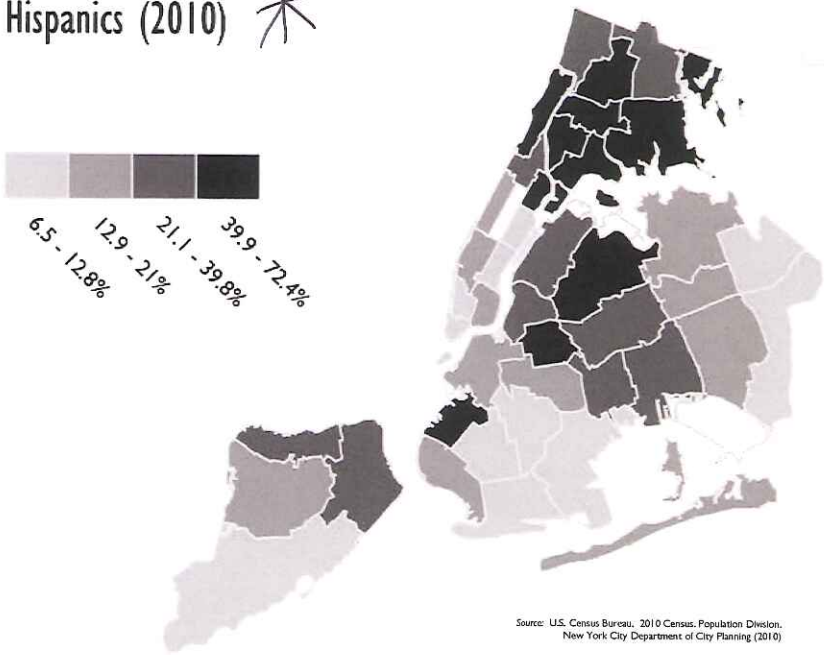
Neighborhood Poverty (2000)

Poverty is categorized by the percent of residents in each neighborhood living below the federal poverty level



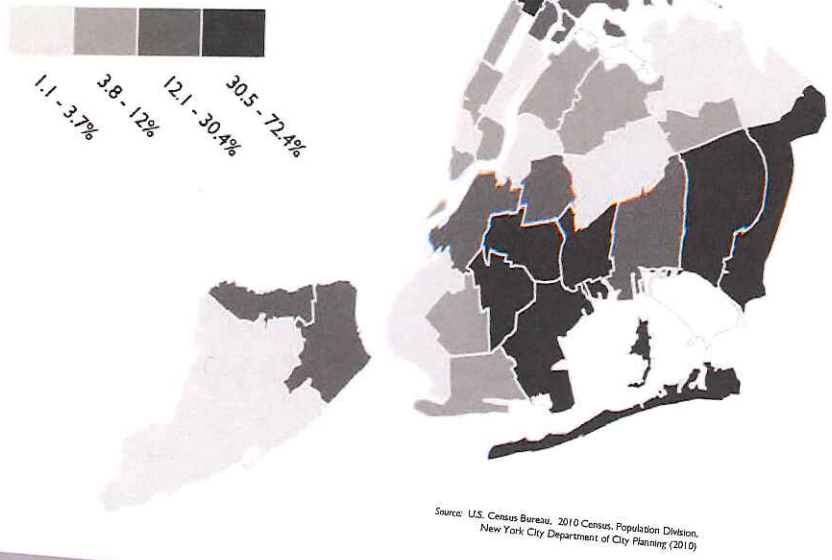
Source: U.S. Census Bureau, 2000 Census. Population Division. New York City Department of City Planning (2000)

Hispanics (2010)



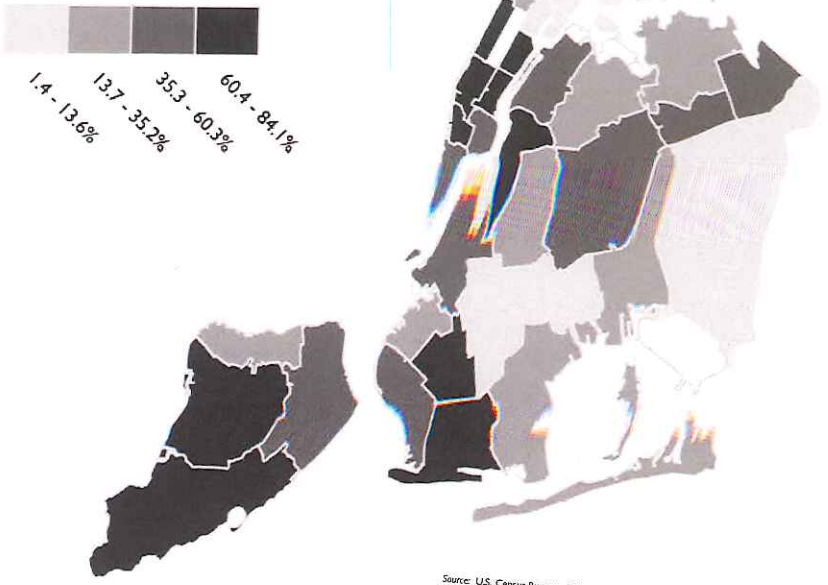
Source: U.S. Census Bureau, 2010 Census. Population Division. New York City Department of City Planning (2010)

Non-Hispanic Blacks (2010)



Source: U.S. Census Bureau, 2010 Census. Population Division. New York City Department of City Planning (2010)

Non-Hispanic Whites (2010)

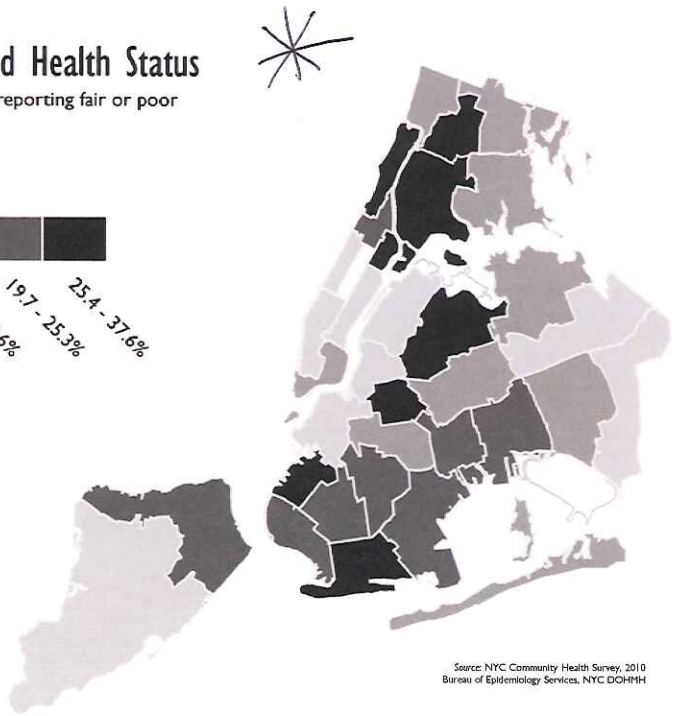


Source: U.S. Census Bureau, 2010 Census. Population Division. New York City Department of City Planning (2010)

Self-Reported Health Status

Percent of adults reporting fair or poor general health

8.8 - 15.4%
15.4 - 19.6%
19.7 - 25.3%
25.4 - 37.6%



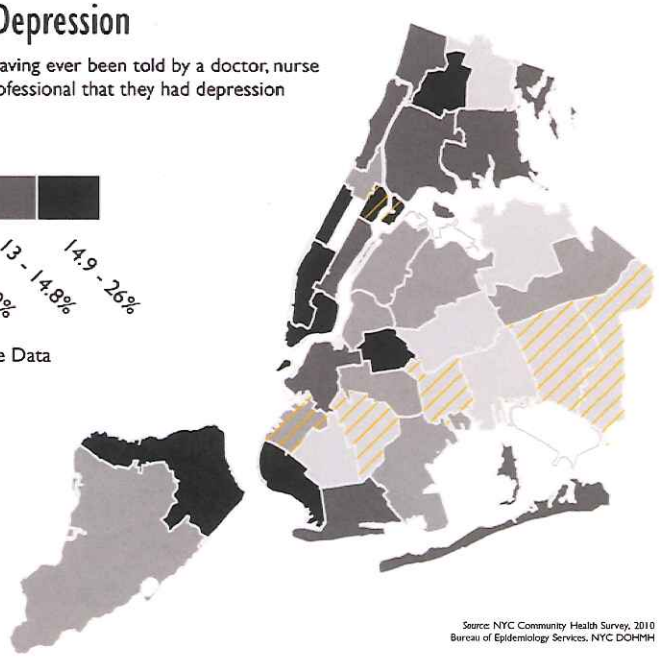
Source: NYC Community Health Survey, 2010
Bureau of Epidemiology Services, NYC DOHMH

History of Depression

Percent of adults having ever been told by a doctor, nurse or other health professional that they had depression

4.8 - 9.1%
9.2 - 12.9%
13 - 14.8%
14.9 - 26%

Unreliable Data



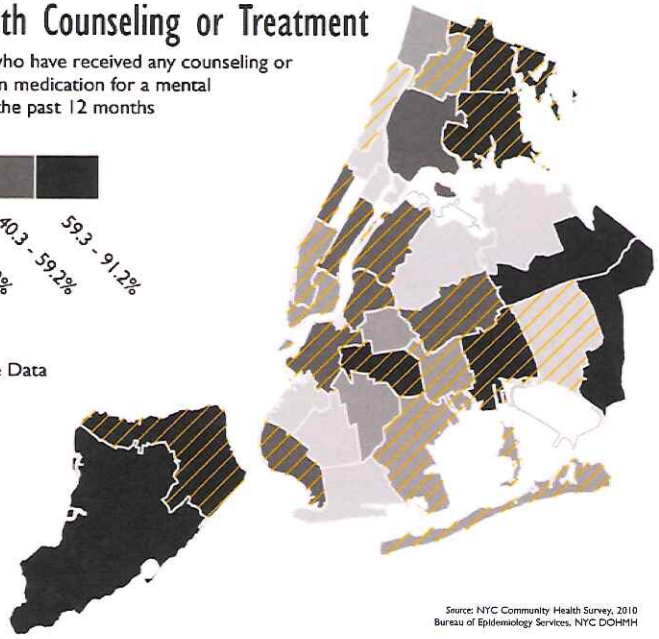
Source: NYC Community Health Survey, 2010
Bureau of Epidemiology Services, NYC DOHMH

Mental Health Counseling or Treatment

Percent of adults who have received any counseling or taken a prescription medication for a mental health problem in the past 12 months

8.1 - 22.7%
22.8 - 40.2%
40.3 - 59.2%
59.3 - 91.2%

Unreliable Data



Source: NYC Community Health Survey, 2010
Bureau of Epidemiology Services, NYC DOHMH

History of Depression & Counseling

History of Depression

Percent of adults having ever been told by a doctor, nurse or other health professional that they had depression

4.8 - 9.1%
9.2 - 12.9%
13 - 14.8%
14.9 - 26%

Mental Health Counseling or Treatment

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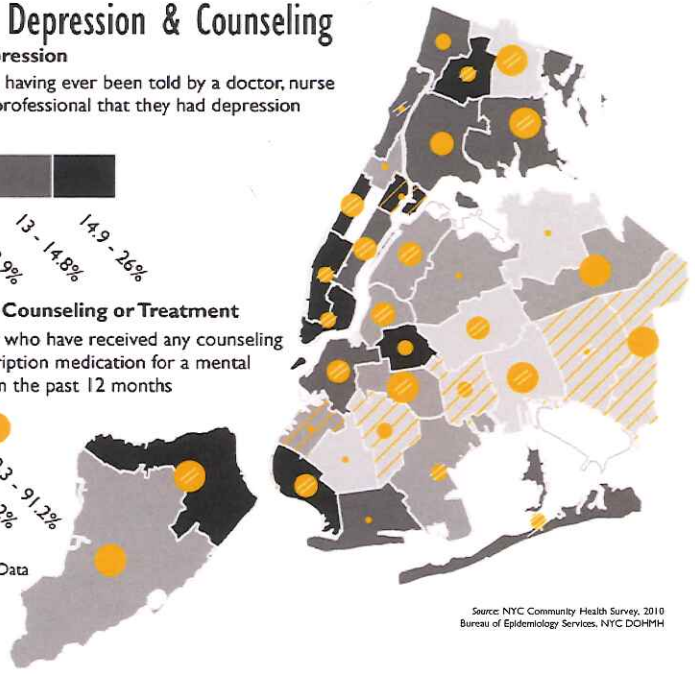


Source: NYC Community Health Survey, 2010
Bureau of Epidemiology Services, NYC DOHMH

Obesity

Percent of adults who have a BMI (Body Mass Index) of 30 or greater

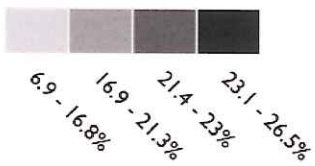
* Body Mass Index (BMI) was calculated based on percent of adults' self-reported weight and height. A BMI between 25.0 and 29.9 is classified as overweight, and a BMI of 30 or greater is classified as obese.

Source: NYC Community Health Survey, 2010
Bureau of Epidemiology Services, NYC DOHMH

Childhood Obesity

Percent of children aged 5-14 classified as obese, school year 2010-2011

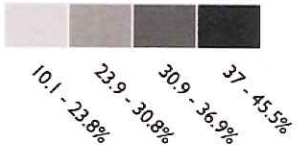
* Children are classified as obese if they have a BMI percentile >=95% and/or a BMI >=25. Age and gender specific BMI percentiles were calculated based on year 2000 CDC growth charts (http://www.cdc.gov/growthcharts/clinical_charts.htm) from height and weight.



*FITNESSGRAM data, Grades: K-8, Ages 5-15, 2010-2011 school year
NYC Department of Education & NYC Department of Health and Mental Hygiene,
Bureau of Epidemiology Services

Sugar-Sweetened Beverage (SSB) Consumption

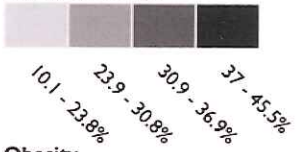
Percent of adults drinking one or more 12 oz. sugar-sweetened beverage (sodas, ice tea, sports drinks, etc.) per day on average



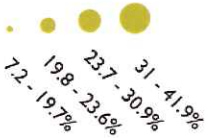
Source: NYC Community Health Survey, 2010
Bureau of Epidemiology Services, NYC DOHMH

SSB Consumption & Obesity

SSB Consumption
Percent of adults drinking one or more 12 oz. sugar-sweetened beverage (sodas, ice tea, sports drinks, etc.) per day on average



Obesity
Percent of adults who have a BMI of 30 or greater



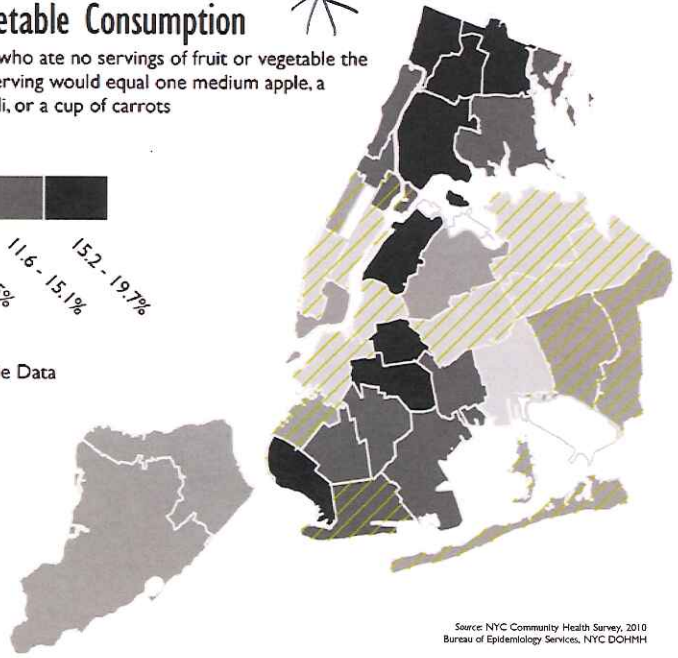
Source: NYC Community Health Survey, 2010
Bureau of Epidemiology Services, NYC DOHMH

Fruit & Vegetable Consumption

Percent of adults who ate no servings of fruit or vegetable the previous day. A serving would equal one medium apple, a handful of broccoli, or a cup of carrots

4.4 - 8.3%
8.4 - 11.5%
11.6 - 15.1%
15.2 - 19.7%

Unreliable Data



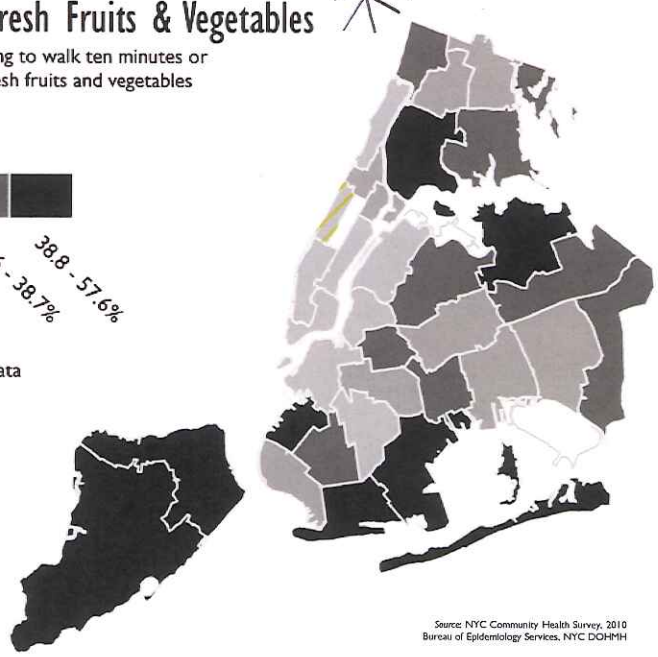
Source: NYC Community Health Survey, 2010
Bureau of Epidemiology Services, NYC DOHMH

Distance to Fresh Fruits & Vegetables

Percent of adults having to walk ten minutes or longer to purchase fresh fruits and vegetables

6.3 - 28.7%
28.8 - 34.5%
34.6 - 38.7%
38.8 - 57.6%

Unreliable Data



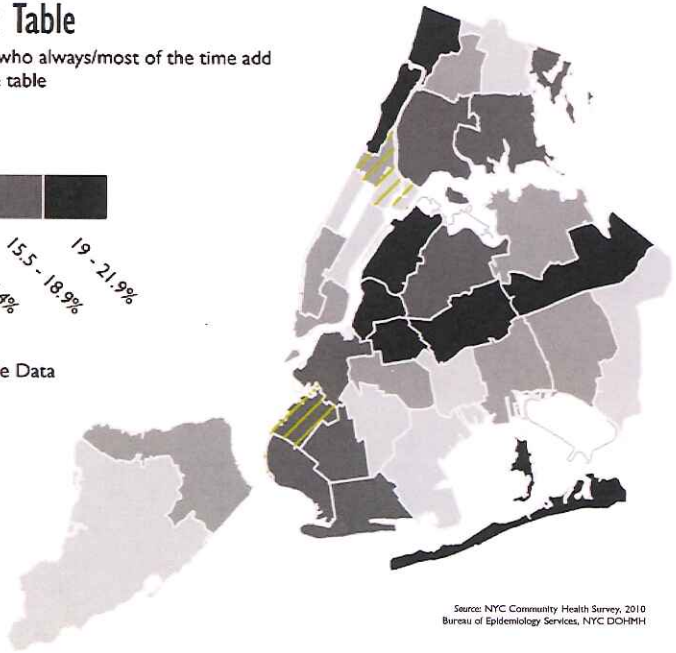
Source: NYC Community Health Survey, 2010
Bureau of Epidemiology Services, NYC DOHMH

Add Salt at Table

Percent of adults who always/most of the time add salt to food at the table

9.1 - 12.3%
12.4 - 15.4%
15.5 - 18.9%
19 - 21.9%

Unreliable Data



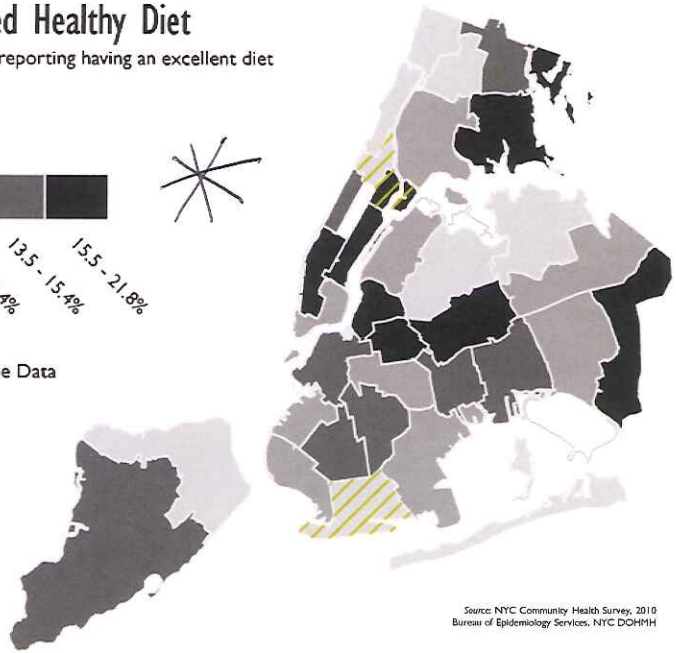
Source: NYC Community Health Survey, 2010
Bureau of Epidemiology Services, NYC DOHMH

Self-Reported Healthy Diet

Percent of adults reporting having an excellent diet

6.3 - 10.4%
10.5 - 13.4%
13.5 - 15.4%
15.5 - 21.8%

Unreliable Data

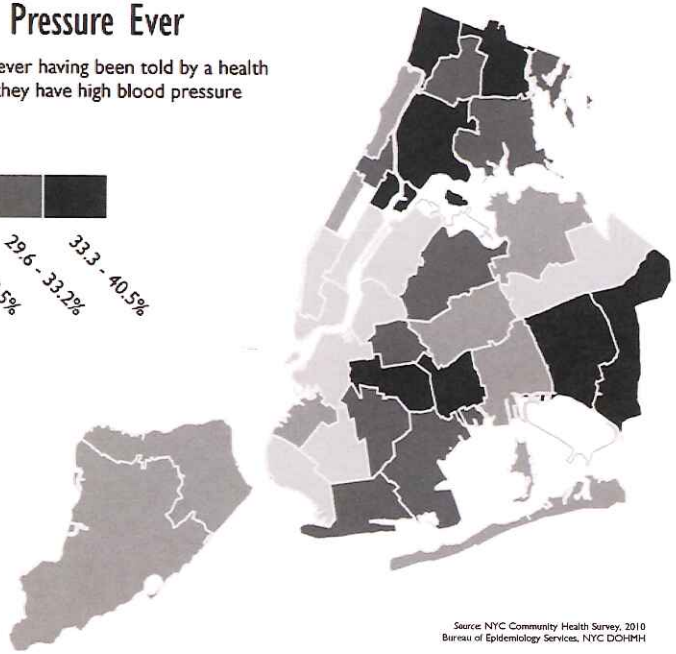


Source: NYC Community Health Survey, 2010
Bureau of Epidemiology Services, NYC DOHMH

High Blood Pressure Ever

Percent of adults ever having been told by a health professional that they have high blood pressure

16.8 - 23.5%
23.6 - 29.5%
29.6 - 33.2%
33.3 - 40.5%



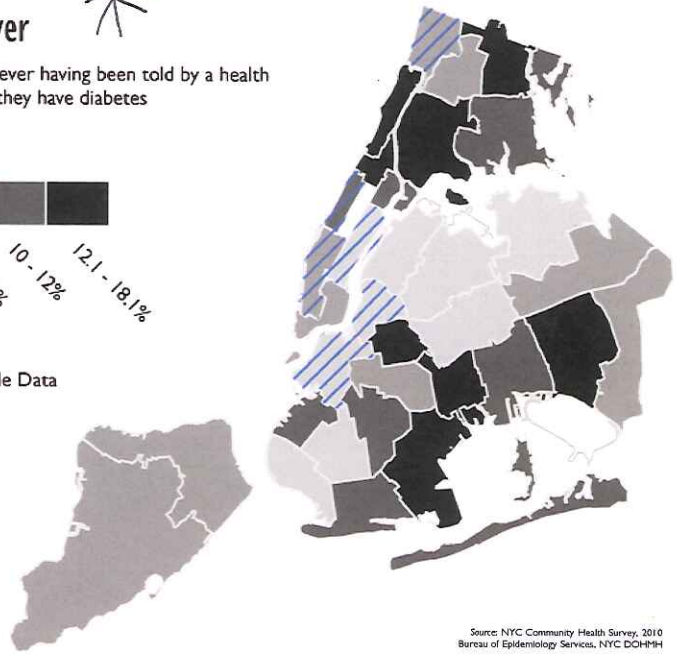
Source: NYC Community Health Survey, 2010
Bureau of Epidemiology Services, NYC DOHMH

Diabetes Ever

Percent of adults ever having been told by a health professional that they have diabetes

4.5 - 6.2%
6.3 - 9.9%
10 - 12%
12.1 - 18.1%

Unreliable Data



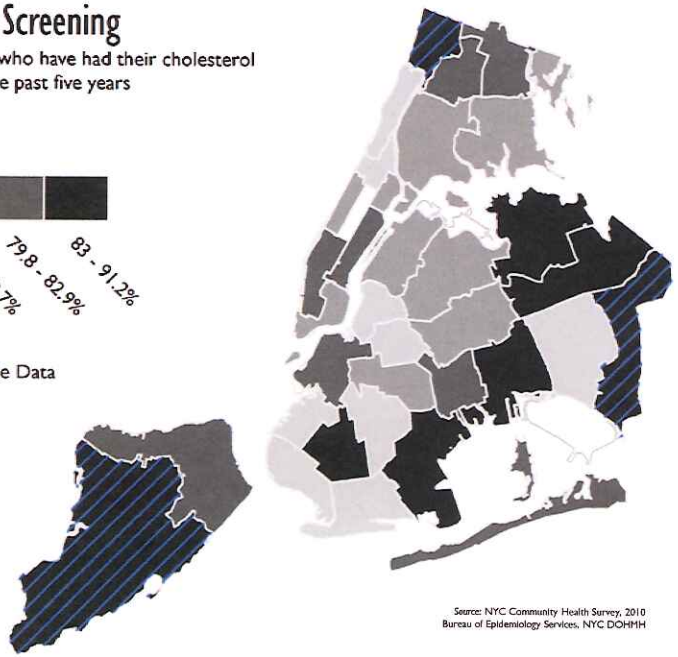
Source: NYC Community Health Survey, 2010
Bureau of Epidemiology Services, NYC DOHMH

Cholesterol Screening

Percent of adults who have had their cholesterol checked within the past five years

68.9 - 77.2%
77.3 - 79.7%
79.8 - 82.9%
83 - 91.2%

Unreliable Data



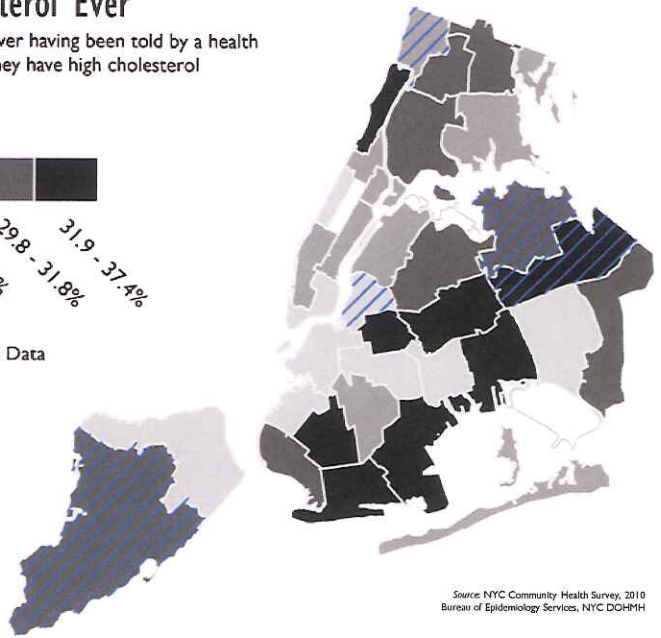
Source: NYC Community Health Survey, 2010
Bureau of Epidemiology Services, NYC DOHMH

High Cholesterol Ever

Percent of adults ever having been told by a health professional that they have high cholesterol

19.8 - 26.9%
27 - 29.7%
29.8 - 31.8%
31.9 - 37.4%

Unreliable Data



Source: NYC Community Health Survey, 2010
Bureau of Epidemiology Services, NYC DOHMH

YEAR ROUND GREENMARKETS 2015

KEY E Accepts EBT / Food Stamps · T Textiles Recycling · C Compost Drop-off · B Rechargable Battery Recycling

*Markets open on multiple days during the week only accept textiles and food scraps on select days and during specific hours, Visit grownyc.org/compost and grownyc.org/clothing for a complete schedule.

YEAR ROUND GREENMARKETS

GrowNYC's Greenmarket program promotes regional agriculture and ensures a continuing supply of fresh, local produce for New Yorkers. Greenmarket has organized and managed open-air farmers markets in New York City since 1976. Greenmarket supports farmers and preserves farmland for the future by providing regional small family farmers with opportunities to sell their fruits, vegetables and other farm products to New Yorkers.

Select Greenmarkets allow New York City residents to recycle textiles, compost and rechargeable batteries. Refer to the map for program avaliability at your market. Please note collection times may differ from market times. Contact 212.788.7964 for more information.

Youthmarket is a network of urban farm stands operated by neighborhood youth, supplied by local farmers, and designed to bring fresh fruits and vegetables to communities throughout New York City. These markets accept EBT.

212-788-7476
WWW.GROWNYC.ORG

MANHATTAN	DAYS OPEN	PROGRAMS
1. Staten Island Ferry/Whitehall Year Round 4 South Street (inside terminal) Tues & Fri 8 - 7	T F	E
2. Bowling Green Year Round Broadway & Battery Place Tues & Thurs 8 - 5 Compost Collections Tues Only, 8 - 2	T T	E C*
3. Tribeca Year Round Greenwich & Chambers Sat 8 - 3 Compost Collections, 8 - 1 & Textile Recycling, 8 - 1:30	S	E T C B
4. Tompkins Square Year Round E 7 St & Ave A Sun 8 - 6 (EBT 9 - 4) Compost Collections, 8 - 1 & Textile Recycling, 8 - 1:30	S	E T C B
5. Abingdon Square Year Round W12 St & 8th Ave Sat 8 - 2 Compost Collections & Textile Recycling, 8 - 1	S	E T C B
6. Union Square Year Round E 17 St & Broadway M/W/F/Sat 8 - 6 (EBT 9 - 4) Compost Collections, M/W/F/Sat 8 - 5 Textile Recycling, Mon & Sat Only, 8 - 4	M W F S	E C B T*
7. Dag Hammarskjold Plaza Year Round E 47 St & 2 Ave Wed 8 - 4 Compost Collections & Textile Recycling, 8 - 3	W	E T C B
8. Tucker Square Year Round, Thurs & Sat W 66 St & Columbus Market 8 - 5 (EBT 9 - 4) Compost Collections, Sat Only 8 - 1	T S	E C B*
9. 79th Street Year Round Columbus - W 78 & 81 Sts Sun 9 - 5 Compost Collections & Textile Recycling, 9 - 1	S	E T C B
10. 82nd Street Year Round E 82 St - 1st & York Ave Sat 9 - 2 Compost Collections, 9 - 1 & Textile Recycling, 9 - 2	S	E T C B
11. 97th Street Year Round W 97 St & Columbus Fri 8 - 2 Compost Collections & Textile Recycling, 8 - 2	F	E T C B
12. Columbia University Year Round Broadway - W 114 & 115 Sts Thurs & Sun 8 - 5 Thurs Compost Collections & Textile Recycling, 8 - 3 Sun Compost Collections, 8 -1 & Textile Recycling, 8 - 3	S T	E T C B*
13. Inwood Year Round Isham St - Seaman & Cooper Sat 8 - 3 Compost Collections, 8 - 1 & Textile Recycling, 8 - 3	S	E T C B
QUEENS	**DAYS OPEN**	**PROGRAMS**
14. Sunnyside Year Round Skillman - 42 & 43 Sts Sat 8 - 3 Compost Collections, 10 - 1	S	E C B
15. Jackson Heights Year Round 34 Ave - 77 & 78 Sts Sun 8 - 2 Compost Collections, 9 - 1 & Textile Recycling, 8 - 1:30	S	E T C B
16. Forest Hills Year Round 70 Ave & Queens Blvd Sun 8 - 3 (EBT 8 -2) Compost Collections, 10 - 12 & Textile Recycling, 8:30 - 1	S	E T C B
BROOKLYN	**DAYS OPEN**	**PROGRAMS**
17. Greenpoint - McCarren Park Year Round Union - Driggs & N12th St Sat 8 - 3 (EBT 8 - 2) Compost Collections & Textile Recycling, 8 - 2	S	E T C B
18. Fort Greene Park Year Round Washington Pk & Dekalb Sat 8 - 4 (EBT 8 - 2) Compost Collections & Textile Recycling, 8 - 3	S	E T C B
19. Bklyn Borough Hall Year Round, T/Th/Sat Court & Montague Market 8 - 6 (EBT 8 - 1) Thurs Compost Collections & Textile Recycling, 8 - 2 Sat Compost Collections & Textile Recycling, 8 - 4	T T S	E T C B*
20. Carroll Gardens Year Round Carroll - Smith & Court Sun 8 - 3 (EBT 8 - 2) Compost Collections, 8 - 1 & Textile Recycling, 8 - 2	S	E T C B
21. Grand Army Plaza Year Round Flatbush & Prospect Pk W Sat 8 - 4 (EBT 8 - 2) Compost Collections, 8 - 3:30 & Textile Recycling, 8 - 4	S	E T C B
22. Bartel-Pritchard Year Round Prospect Park W & 15 St Wed 8 - 3	W	
23. Cortelyou Year Round Cortelyou & Rugby Rds Sun 8 - 4 (EBT 8 - 2) Compost Collections, 8 - 1 & Textile Recycling, 8 - 3	S	E T C B

GREENMARKET 2015

GREENMARKET MAP 2015

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WWW.GROWNYC.ORG

GREENMARKET 2015

KEY — E Accepts EBT / Food Stamps · T Textiles Recycling · C Compost Drop-off · B Rechargable Battery Recycling

MANHATTAN

		DAYS OPEN	PROGRAMS
1. Staten Island Ferry/Whitehall 4 South Street (inside terminal)	Year Round Tues & Fri 8 - 7	T F	E
2. Bowling Green Broadway & Battery Place	Year Round Tues & Thurs 8 - 5	T T	E C*
3. Water Street Water St at Coenties Slip	July 2 - Nov 19 Thurs 8 - 6		
4. City Hall Park Broadway & Chambers	March 4 - Dec 22 Tues & Fri 8 - 4	T F	E
5. Tribeca Greenwich & Chambers	Wed, March 12 - Dec 24, 8 - 3 Sat, Year Round, 8 - 3	W S	E T C B*
6. Tompkins Square E 7 St & Ave A	Year Round Sun 9 - 6	S	E T C B
7. St. Mark's Church E 10 St & 2 Av	June 2 - Nov 24 Tues 8 - 6	T	T C
8. Stuyvesant Town 14 St loop & Ave A (in the Oval)	May 17 - Nov 22 Sun 9:30 - 4	S	E
9. Abingdon Square W 12 St & 8th Ave	Year Round Sat 8 - 2	S	E T C B
10. Union Square E 17 St & Broadway	Year Round Mon, Wed, Fri, Sat 8 - 6	M W F S	E C B T*
11. Dag Hammarskjold Plaza E 47 St & 2 Ave	Year Round Wed 8 - 4	W	E T C B
12. Rockefeller Center Rockefeller Plaza - 50 St	Dates TBD Wed, Thurs, Fri 8 - 5	W T F	
13. 57th Street W 57 St & 9 Ave	May 6 - Dec 23 8 - 5 Wed & Sat 8 - 5	W S	E T C B*
14. Tucker Square W 66 St & Columbus	Year Round Thurs & Sat 8 - 5	T S	E C B*
15. 79th Street W 79 & Columbus	Year Round Sun 9 - 5	S	E T C B
16. 82nd Street E 82 St - 1st & York Aves	Year Round Sat 9 - 2:30	S	E T C B
17. 92nd Street E 92 St & 1st Ave	Jun 28 - Nov 22 Sun 9 - 4	S	E C B
18. 97th Street W 97 St - Columbus & Amsterdam	Year Round Fri 8 - 2	F	E T C B
19. Mount Sinai Hospital E 99 St & Madison Ave	Jun 24 - Nov 25 Wed 8 - 5	W	E T C B
20. Columbia University W 114 St & Broadway	Year Round Thurs & Sun 8 - 5	S T	E T C B
21. Ft. Washington 168 St & Ft. Washington	Jun 2 - Nov 24 Tues 8 - 4	T	E T C B
22. 175th Street W 175 St & Wadsworth Ave	Jun 25 - Nov 19 Thurs 8 - 5	T	E T C B
23. Inwood Isham St - Seaman & Cooper	Year Round Sat 8 - 3	S	E T C B

BRONX

		DAYS OPEN	PROGRAMS
24. Lincoln Hospital 149 St - Park & Morris Aves	Jun 26 - Nov 24 Tues & Fri 8 - 3	T F	E
25. Bronx Borough Hall W 161 St & Grand Concourse	Jun 2 - Nov 24 Tues 8 - 4	T	E T C B
26. Poe Park E 192 St & Grand Concourse	June 30 - Nov 24 Tues 8 - 3	T	E T C B
27. NY Botanical Garden Mosholu Gate on Southern Blvd btw Mosholu Pkwy & Bedford Pk Blvd	Jun 17 - Nov 25 Wed 9 - 3	W	E
28. Parkchester/Virginia Pk Westchester Ave & White Plains Rd	Jun 12 - Nov 20 Fri 8 - 4	F	E T C B

QUEENS

		DAYS OPEN	PROGRAMS
29. Socrates Sculpture Park Vernon Blvd & Broadway	Jun 6 - Nov 21 Sat 8 - 4	S	E C B
30. Astoria 14 St - 31 Ave & 31 Rd	Jul 1 - Nov 18 Wed 8 - 3	W	E
31. Sunnyside Skillman - 42 & 43 Sts	Year Round Sat 8 - 3	S	E C B
32. Jackson Heights 34 Ave & 78 St	Year Round Sun 8 - 3	S	E T C B
33. Corona 103 St & Roosevelt Ave	Jul 3 - Nov 20 Fri 8 - 3	F	E B
34. Elmhurst Hospital 41 Ave - 80 & 81 Sts	Jun 2 - Dec 22 Tues 8 - 4	T	E
35. Forest Hills 70 Ave & Queens Blvd (Post Office)	Year Round Sun 8 - 3	S	E T C B

BROOKLYN

		DAYS OPEN	PROGRAMS
36. McCarren Park/Greenpoint Driggs & Union	Year Round Sat 8 - 3	S	E T C B
37. Williamsburg Taylor & Lee	Jul 9 - Nov 19 Thurs 8 - 4	T	E T C B
38. Fort Greene Park Washington Pk & Dekalb	Year Round Sat 8 - 4	S	E T C B
39. Brooklyn Borough Hall Court & Montague	Year Round Tues, Thurs, & Sat 8 - 6	T T S	E T C B*
40. Carroll Gardens Carroll - Smith & Court	Year Round Sun 8 - 3	S	E T C B
41. Grand Army Plaza Flatbush & Prospect Park W	Year Round Sat 8 - 4	S	E T C B
42. Bartel-Pritchard Square Prospect Pk W & 15 St	Year Round Wed 8 - 3	W	E B
43. Windsor Terrace-PS154 11 Ave - Sherman & Windsor Pl	May 10 - Dec 20 Sun 9 -3	S	E T C B
44. Cortelyou Cortelyou - Argyle & Rugby Rds	Year Round Sun 8 - 3	S	E T C B
45. Boro Park 14 Ave - 49 & 50 Sts	Jul 9 - Nov 19 Thurs 8 -3	T	E T C B
46. Sunset Park 59 St & 4 Ave	Jul 11 - Nov 21 Sat 8 - 3	S	E C B
47. Bay Ridge 95 St & 3 Ave	May 9 - Nov 21 Sat 8 - 3	S	E C B
48. Bensonhurst 81 St & 18 Ave	Jun 7 - Nov 22 Sun 9-4	S	E

STATEN ISLAND

		DAYS OPEN	PROGRAMS
49. St. George Location TBD	May 2 - Dec 26 Sat 8 - 2	S	E C B
50. Staten Island Mall Richmond Ave Entrance (Parking Lot)	Jun 13 - Nov 21 Sat 8 - 3	S	E C B

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*Markets open on multiple days during the week only accept textiles and food scraps on select days and during specific hours, visit grownyc.org/compost and grownyc.org/clothing for a complete schedule.

Hours when EBT/FoodStamps/Debit/Credit and food scraps/textiles are accepted vary, check individual market webpages for details.