

SHARING IS CARING:

An Analysis of Citi Bike's Discounted Program for NYCHA Residents

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**Sharing is Caring:
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Chapter One: Introduction

1.1 Issue Statement

According to 2013 American Communities Survey data, cycling in New York City has grown considerably in popularity since 2008, showing a growth of nearly 58% (about 1% of the total population) in those that commute by bicycle. This growth may in part be attributed to the more than 200 miles of bike lanes that have been built throughout the city over the same span of time, and the more recent launch of a bike share program, Citi Bike, that debuted in late May 2013 (NYC DOT, 2013). Since the launch of Citi Bike, over 4,300 bikes placed in 330 stations, have been ridden more than 25,000,000 miles over the course of about 14,000,000 trips, and has sold more than 120,000 annual memberships (Citi Bike, 2014).

While Citi Bike has succeeded in many ways, to date the program, has underperformed in engaging low-income communities through the Citi Bike discounted membership program. As of July 2014, the program, which originally provided a 35%¹ discount (about \$60) for those living in the New York City Housing Authority (NYCHA) buildings as well as members of three participating community credit unions, has garnered around 1,000 memberships as of the end of September 2014 (NYC Bicycle Share Employee, personal communication, September 12, 2014). Citi Bike does not keep records determining whether discounted memberships are purchased by NYCHA residents or Credit Union members due to overlap in membership and the difficulty of tracking individuals from NYHCA that have

¹ The program has increased its annual membership cost to \$150 per year, making the discount 60% for NYCHA residents.

purchased a membership at full price, but may have received a refund for the difference in membership costs. Experts on cycling in New York have forwarded a number of possibilities for why NYCHA residents are not taking part in the program. Many, for example, gesture to cost and lack of access to credit/debit accounts as the chief culprit due to problems seen in other bike sharing programs. To date, no official effort has been made to survey NYCHA residents about their knowledge, perceptions, or experiences with Citi Bike, nor has there been critical geospatial or demographic research on NYCHA's population and the location of its campuses in relation to Citi Bike locations.

1.2 Goals and Objectives

This thesis will describe deterrents to the Citi Bike program for NYCHA residents in New York City using a survey distributed to NYCHA residents, interviews with policy experts, and a demographic analysis in an attempt to answer the following questions:

-What are NYCHA residents' opinions of the Citi Bike program?

-If residents have used Citi Bike, how was their experience using the program?

-If residents have not used Citi Bike, what social, physical, or monetary impediments might they be facing?

-What types of measures would be most effective in getting non-users to become members?

1.3 Literature Review

Bike sharing as an urban mobility strategy has been a much-discussed and debated topic within the disciplines of city and transportation planning in recent years. Bike sharing is defined as the shared use of a bicycle fleet, allowing users self-serviced, short-term access, on an as-needed basis. These programs are typically situated in urban settings with a number of stations and allow members or short-term users to pick up and drop off bicycles (Shaheen 2012, 184). Beyond this basic definition, bike share programs throughout the world have evolved in a number of different ways over time in an attempt to meet the unique physical, social, and political challenges of the cities in which they exist. Although numerous studies have looked at the various challenges facing such programs, few have focused on the topic of transportation equity and even fewer have looked specifically at New York City's Citi Bike Program. This literature review will provide a context for better understanding why the Citi Bike discounted program has underperformed, reviewing news articles and scholarly work that explores issues of gender, race, ethnicity, class, infrastructural deterrents, and planning inadequacies.

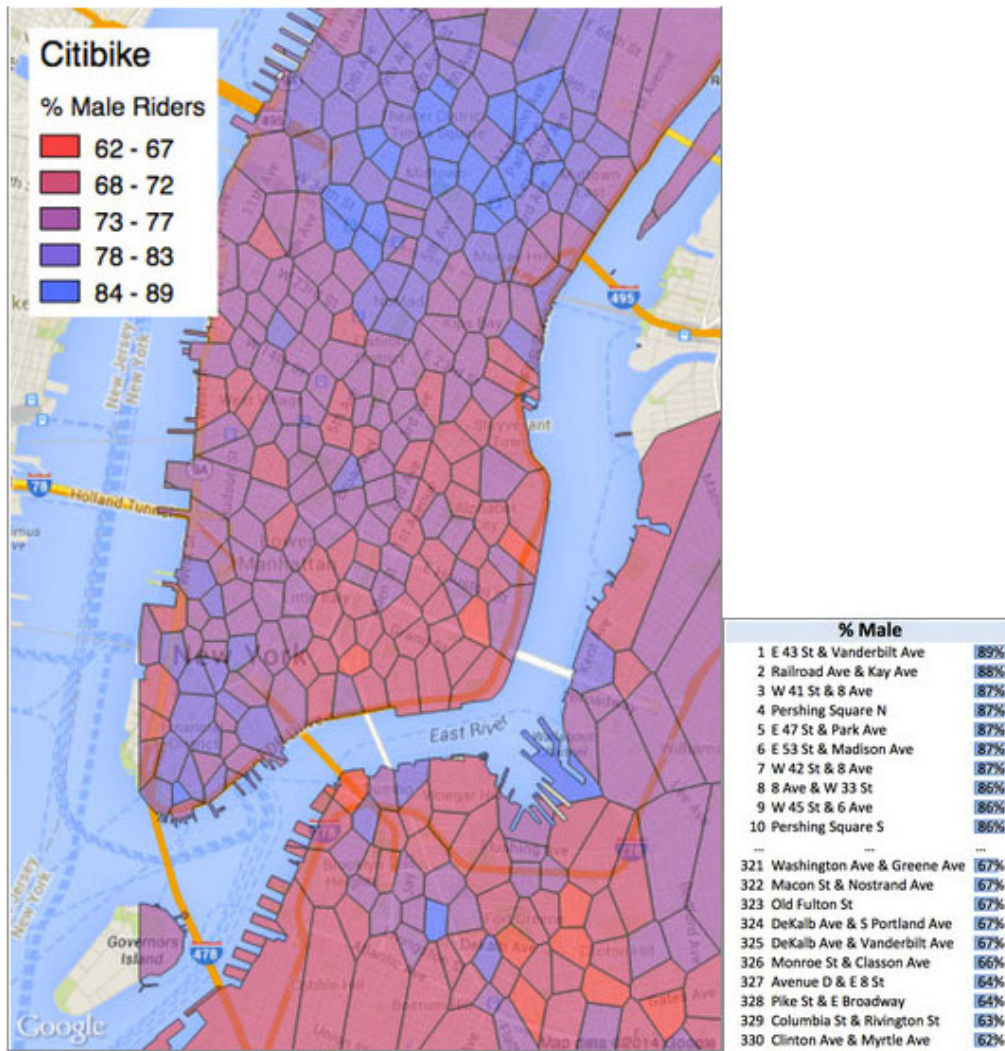
1.3.1 Gender, Communities of Color and Cycling

Because Citi Bike is still a fairly new program, not a great deal of academic work has been published to date, but thanks to Citi Bike's open data policy, geospatial analysis of the project has been made available for academics, especially cartographers and geospatial analysts. One of the major topics of study has been the gender breakdown of usage by annual users, a topic that is particularly important

when considering the NYCHA population, where women outnumber men by a margin of 2 to 1 (Detailed demographic analysis of the NYCHA population will be provided in the following chapter).

Sarah Kaufman's (2014) study of Citi Bike by gender found that men took 76.3% of all trips between July and December of 2013. Furthermore, it was found that male subscribers were much more likely to take trips to and from stations in places like midtown Manhattan, which tend to be located in areas with heavier traffic, while female subscribers (still in the minority) were more likely to ride in quieter, more residential neighborhoods such as the Clinton Hill in Brooklyn and around Avenue D in the East Village. This same phenomenon was mapped by Ben Wellington of the I Quant NYC blog, which ranked the top and bottom ten Citi Bike stations by percentage of male annual users (See Figure 1). These findings are in line with those of Tuckel and Milczarski's (2014), who found that 23.2% of the 4,316 cyclists counted at 98 locations were Citi Bike users. Twenty-one percent of the total users counted were female, which is actually twice as many as it was in their previous study (2009), suggesting that despite still being far in the minority, cycling by women in Manhattan is on the rise. In the study, 31% of the female riders counted were on Citi Bikes and roughly 82% of female cyclists rode only in bike lanes. This uptick in the number of women cycling (especially in bike lanes), could also, in part, be attributed to the growth of New York City's bike lane network, which NYC DOT (2013) claims to have expanded by roughly 212 miles between 2009 and 2013.

Figure 1: Percentage of Male Citi Bike Riders



Source: I Quant NY

Pucher and Bueller (2012) found that men in New York City were more likely to report riding at several different frequencies (several times a month, once a month, a few times per year) than woman, while 86% of women (as opposed to 69% of men) surveyed in New York in 2007 reported never cycling. Of the women that reported cycling in Manhattan and Brooklyn, more than twice as many reported doing so on multi-use paths as opposed to street facilities, suggesting that women may feel safer riding on paths as opposed to the street.

Schneider (2011) found that women tend to have more complex travel patterns than men. Women are more likely to link trips together, as well as have passengers (either children or older adult parents) along with them, potentially making cycling a less viable option than other modes. Of female cyclists surveyed in the United States, 19% indicated that the “inability to carry children or other passengers (was a) factor that discouraged them from cycling for transportation.” According to Garrard, Handy, and Dill (2012) women at the national scale, “are both more concerned about safety, and more affected by safety concerns” than men. They believe that “perceptions of risk may be as important as actual risk” and that “traffic risks extend beyond risk of fatality or serious injury to include risk of near misses and harassment”.

1.3.2 Opinions of Cycling in Communities of Color

As previously noted, cycling and support of cycling amongst communities of color has shown great growth in the past 15 years (FHA 2009, PSRA 2012). Despite a shift in group opinion, a study from Princeton (2012) found that people of color said that they would ride more, but worry about safety in traffic- this is understandable given that the fatality rate for bicyclists is substantially higher for Latino (23%) and African Americans (30%) riders. The aforementioned Princeton Research study also found that people of color were more likely than white respondents to indicate that “learning about safe riding skills”, “plentiful and secure parking”, and participation in bicycle riding clubs would encourage them to ride.

1.3.3 Cycling Rates by Income

Pucher, Buehler, and Seinen (2010), found that those in the lowest national quartile of household income showed the highest rates of cycling (1.3%), but varied .2-.3% from the two highest earning quartiles. Despite resembling rates, according to the authors, “it seems likely that low- income persons cycle mainly for work trips and other utilitarian purposes, while high-income persons may cycle more for recreation and exercise”. The authors also note an increase in cycling amongst African American, Hispanic, and Asian Americans, whom account for a rise in overall bike trips, increasing from 16% in 2001 to 23% in 2009. Cycling is still largely dominated by Non-Hispanic Whites who were responsible for 77% of all trips made by bike in 2009, while accounting for only 66% of the population.

1.3.4 Travel Behavior Amongst Low-Income Communities

Travel behavior amongst low-income communities (often communities of color) in metropolitan areas tends to differ significantly from that of non low-income communities. Loveless (1999), found that low-income households take 20 percent fewer trips and travel 40 percent fewer miles than wealthier households, and tend to commute shorter distances overall. Despite needing to travel shorter distances overall, low-income populations living in metropolitan areas tend to take public transportation and have longer commutes. These longer trips can be attributed in part to the fading presence of industrial jobs over the past 30 years and the prevalence of low-skill service jobs largely located in unaffordable suburban locations (Stoll, et al; 1998). These service jobs often require reverse commutes or

off-peak travel, which tend to have diminished service and extended transfer times (Garnett, 2001). This mismatch in geography between the locations of low-income communities and centers of low-skill employment underlines the burden that contemporary transit systems in the United States tend to place on the urban poor.

1.3.5 Shortening the Last Mile

A number of NYHCA campuses in New York City require long walks to access subways. Gordon-Koven and Levenson (2014) found that Citi Bike's density of 19.7 station per square mile could significantly reduce travel times for those with 15 minute-plus walks to mass transit. The piece also found that major travel hubs (in Manhattan) were amongst the most likely trip start, trip end, morning rush, and evening rush locations overall, with stations near Grand Central, Penn Station, Union Square, and Astor Place making up the top four in all instances. The authors found that zero of the top twenty-five morning or evening commute locations were in Brooklyn, suggesting the last mile phenomenon is of less concern to Brooklyn Citi Bike riders than those from Manhattan.

1.3.6 News Stories and National Trends

Because of its relative newness, news outlets and blogs have provided the majority of the studies regarding the Citi Bike program. Most of the pieces written about the program have largely focused on the struggles of the program implementation, discussing siting battles with NIMBY opposition, issues with software, rebalancing problems, and theft. Perhaps the most talked about opinion

piece came from Wall Street Journal opinion columnist Dorothy Rabinowitz, whom called the program amongst many things, “dreadful” and the city’s leadership “totalitarian”. Interestingly, the Wall Street Journal also released an article titled “Bike Share Skips Many”, which discusses how Citi Bike had debuted in mostly “white census tracts” and the wealthiest parts of the city, while skipping over many areas such as the Bronx, a common, but fairly shallow critique of Citi Bike program. Citi Bike focused its efforts on developing stations in both low-income neighborhoods such as Bedford Stuyvesant as well as in dense mixed-use areas, where the program was felt to be most capable of finding consistent ridership and generating the revenue necessary for the privately owned and operated New York City Bike Share LLC to succeed.

Two pieces that largely informed the undertaking of this study are from online news sources, DNA Info and Streetsblog. While both sources have political agendas that tend to be left-leaning and in favor of cycling and pedestrians, the talking points in these articles are decidedly focused on the barriers facing low-income communities of color and what it would take on the part of bike share programs to overcome them.

James Fanelli’s October 2013 piece for New York news blog DNA Info was amongst the first written on the subject of NYCHA discounted memberships signups. Entitled, “Citi Bike Sign Ups Scarce Among Poor New Yorkers, Data Shows”, the piece focused on the gap in the number of signups by NYCHA residents compared to the total overall yearly signups, as well as the disproportionate number of signups from wealthy zip codes as opposed to poorer ones located in the outer boroughs. Fanelli

found that as of July 23rd 2013, Citi Bike had signed up 285 members from NYCHA housing, about .5% of the total annual membership of the program at that point (62,384). Fanelli quoted Transportation Alternatives' Senior Director, Caroline Samponaro, who stated, "The discounted membership is too expensive... If you're spending less than \$100 a month in total [on transportation], you are not going to add bikes." Samponero went on to discuss other strategies such as lowering the cost to five dollars like Boston's Hubways program and printing information on the kiosks in other languages.

Fanelli also interviewed a number of NYCHA residents, including Luther Stubblefield, Vice President of the Baruch Houses Tenant Association, who did not know about the program until interviewed. Astonished by the affordability of the program Stubblefield stated that, "Just for the exercise alone at \$60 a year, I would invest in that. I would just ride back and forth on a bike to the garden." Stubblefield also stated that he had missed the Citi Bike demonstration at Baruch, and estimated that only 10-20 percent of residents attend NYCHA Tenant Association meetings, and suggested that, "A better way to do outreach is through fliers and mailers."

Fanelli's piece is particularly important in the conversation about bike share because it provides a range of voices on the topic from cycling bigwigs to NYCHA residents, uncovering a range of knowledge, but perhaps also simultaneously gesturing to the complexity of the issue and the lack of definitive answers about the root of the problem. What Fanelli's piece does particularly poorly however, is distort the number of NYCHA annual memberships signups at the time by comparing it to

the number of total annual signups (.05%), rather than as a ratio of the percentage of those users in NYCHA that live near enough to Citi Bike to make use of the program, compared to the total population that live within a walkable distance of a station; an issue that will be addressed fully in chapter two.

Ridership amongst low-income populations is a problem in other bike sharing programs in the United States as well. In an October 2012 piece titled, “Why isn’t bike-share reaching more low-income populations?” Streetsblog columnist Angie Schmitt looked at the lack of both economic and racial diversity in bike sharing programs nationwide, brought about at the time by Denver City Council Member Paul Lopez’s claim that Denver’s B-Cycle program was sidestepping low-income neighborhoods that could benefit from it most. Schmitt underlines the point that economic and racial diversity is a nationwide issue found in bike sharing programs, and that many programs favor high-density, mixed-use areas due to the greater potential for profitability. Denver’s B-share for example, as of 2012 was 81% white, and only 22% of its ridership made less than \$55,000 per year. A lack of diversity is a common trait found in many large bike share systems in the United States as well. In 2012, ridership amongst African American or Black identified individuals was 3% in Washington DC’s Capital share program and only 1% in Boston’s Hubways program. Capital Share and Hubways, according to Schmitt, developed programs aimed at improving accessibility for low-income communities, with DC creating a discounted program that works to sign up unbanked individuals with no minimum checking accounts, while Boston provides public housing

residents a \$5 membership that includes a free helmet and a longer amount of riding time. Schmitt's article is particularly important because it identified the tension between profitability and equity in bike sharing programs at a national scale. The article highlights the necessity of creating secure locking systems and placing bike sharing stations in dense, often wealthier mixed-use areas, while also debating issues of geographic inequity, lack of access, cultural differences, and the often ineffective or untested equity programs that follow.

Darren Buck's Encouraging Equitable Access to Public Bike Sharing Systems, surveyed bike share programs nationwide to record policies and approaches to reducing barriers to cycling for low-income communities. Buck found that in most instances, the majority of programs had intentions to create equity measures with regards to discounts, payment, and station placement, but that the majority had either yet to do it, or lacked the funds needed. Those that had created affordability programs and substantial numbers of stations in low-income communities, such as Nice Ride Minnesota, most often did so using outside funding sources and public health grants. Buck's piece underlines how US programs that predate Citi Bike have historically struggled with creating and funding programs for reducing barriers to cycling despite having a desire to do so. With this in mind, Citi Bike's troubles with engaging NYCHA residents seems to be part of a larger trend amongst bike share programs in the United States.

1.3.7 Representation, Engagement, and Cycling in New York

Low-income populations and communities of color have a history of underrepresentation with regards in to cycling in New York City. Part of this difficulty can be attributed to cycling counts done each year by the New York City Department of Transportation, which count cyclists crossing each of the pedestrian bridges into Manhattan. While New York has clearly seen a growth in cyclists, individuals that do not ride into central Manhattan for work tend to be overlooked. With this in mind, several new approaches to improve representation and engagement with cyclists from low-income and communities of color have been forwarded.

Beyond Backlash (2010), a piece published by graduate Urban Planning Students at Hunter College, discusses the need for improved representation of cyclists in boroughs outside of Manhattan and northern Brooklyn. To do this, students developed localized cycling count techniques, such as windshield and spot counts which provided new ways to identify otherwise uncounted riders, and designed localized biking networks that extended to local hubs rather than singular routes leading to Manhattan.

In a similar vein to that of Beyond Backlash, The New York City Department of Health's 2008 study, "*Bicycling in Bedford Stuyvesant: A Report on Cycling and Driving Behaviors*" surveyed 324 cyclists in Bedford Stuyvesant, Brooklyn, a historically African American neighborhood. The study found that the majority of

riders in the community were men (80%) of color, 40% of whom identified themselves as Black/ African American and 15% Hispanic/ Latino. Of these riders, 7 out of 10 lived in Central or North Brooklyn and 2 out of 3 adults surveyed were riding to work or school, while the remainder were biking for exercise or leisure.

In a study of cyclists of color in outer borough communities, the Bike Public Project (2013) photographed and surveyed individuals born in 24 different countries, 62% of whom did

Figure 2: The Biking Public Project’s “No Longer Empty” Project.



not speak English as their primary language at home, and 49% of whom felt that they did not have decision-making power in their community. The photographs from this project were used as part of No Longer Empty, a community art project that uses underutilized spaces to showcase art with the hope of showing the range of people that cycle in New York City, and to “engage bicyclists that are new to concept of advocacy”(see Figure 2). These projects each represent new ways of creating more inclusive bicycle counting practices and are demonstrative of how the data from these new methods can be used to create tools for improving engagement with low- income and/or communities of color.

Chapter 2: Demographics and Program Background

Introduction

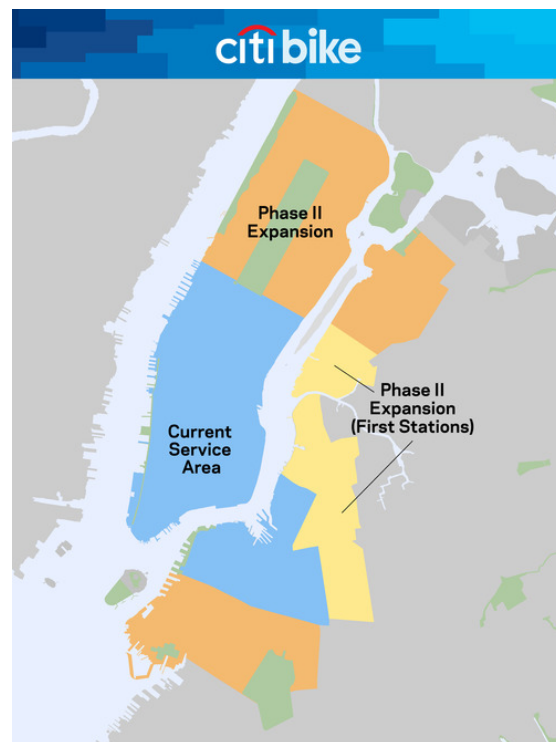
This chapter provides an introduction to the Citi Bike program, describing how the program came to be, how it compares to other bike sharing models, and the efforts made to provide access for NYCHA residents. This section also includes a demographic analysis comparing the populations of NYCHA and Citi Bike users showing the similarities and differences the two groups may have.

2.1 The Study Area

The current station areas of the Citi Bike program are dispersed throughout Manhattan below 59th street, and in northwest Brooklyn in communities near the Williamsburg, Manhattan, and Brooklyn Bridges. They are located as far north as Williamsburg, south as Atlantic Avenue, and east as Bedford Stuyvesant (see Figure 4). It is important to note that stations are sometimes moved to accommodate

places with greater need, construction, or community complaints, so the study area does have a degree of flux, but is somewhat static in overall composition and

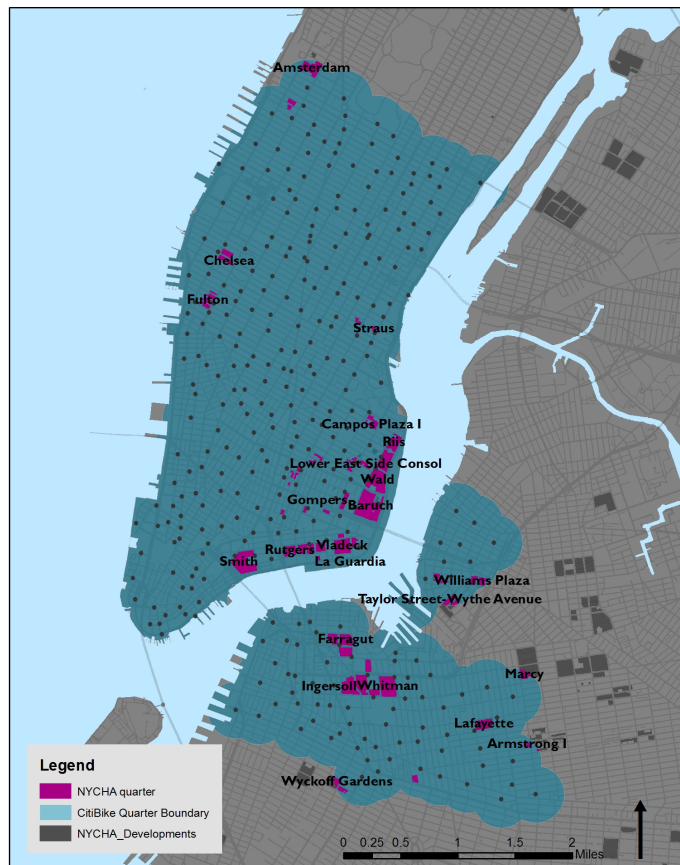
Figure 3: Citi Bike Expansion map



boundaries. The acquisition of Citi Bike’s parent company, Alta Bicycle Share, by REQX ventures, means the program is now set to expand further into Brooklyn and Queens by 2017 and will provide improved access to a greater number of NYCHA residents (see Figure 3).

Figure 4

NYCHA Campuses Within 1/4 Mile of a Citi Bike Station



The survey (see Appendix A) was given at 17 NYCHA campuses in Manhattan and Brooklyn located within a two to three block radius of a Citi Bike Station. The map shown in Figure 4 includes all of the NYCHA-owned properties within a quarter mile of a Citi Bike Station.

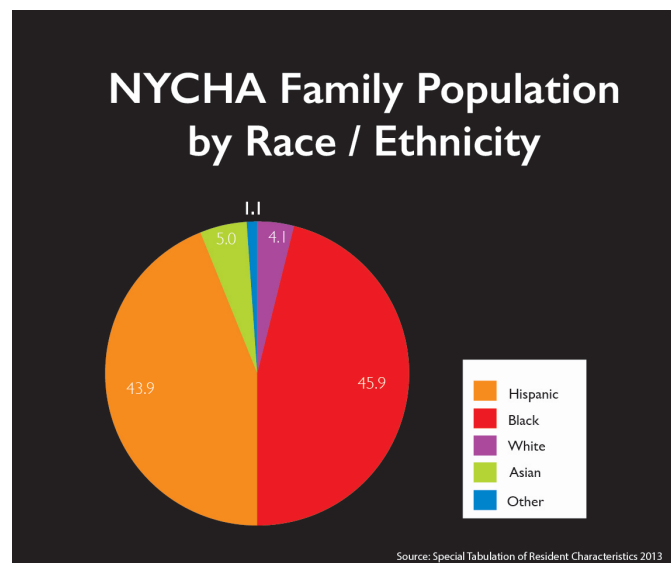
2.2 About NYCHA

The New York City Housing Authority, founded in 1934, is the nation’s largest public housing authority and makes up more than 10% of the country’s total public housing units. As of 2012, New York has 334 NYCHA developments with more than 400,000 residents. In 2013, NYCHA’s average family income was \$22,994 with an average monthly rent of \$435. NYCHA’s emphasis on housing working families keeps its tenants dependence on welfare low compared to most public housing programs; 11% of NYCHA families are on welfare, while 48% of families have one or more employed individuals. The average family size is 2.3 persons, and the average time spent living in NYCHA housing is 21 years.

2.2.1 Race and Ethnicity

Ninety percent of NYCHA’s population is split between individuals that identify as Hispanic/ Latino and Black, with White, Asian, and Other populations making up roughly 4 %, 5 %, and 1%, respectively (see Figure 5). NYCHA’s fact sheet does not make a distinction for mixed race individuals or Latino populations of African decent.

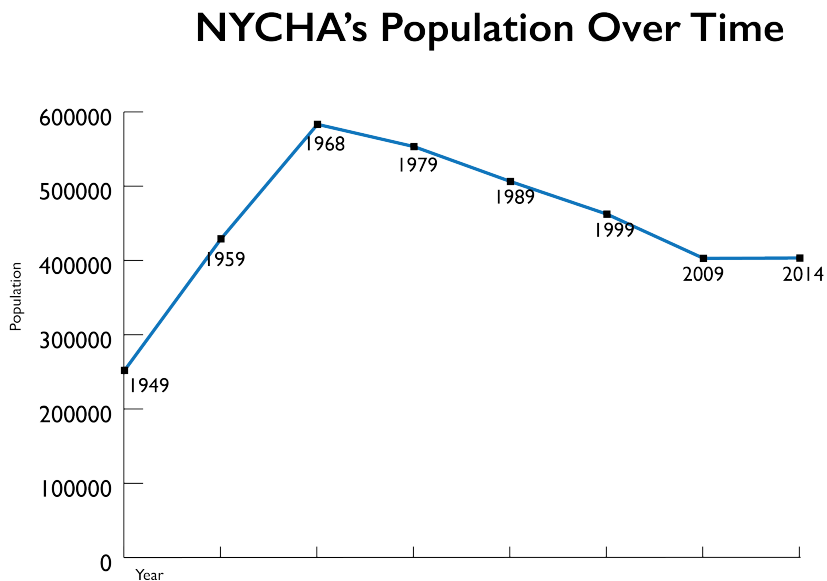
Figure 5



2.2.2 Population

Following rapid growth during the 1940s and 50s the NYCHA population peaked in the late 1960s (see Figure 6). Enduring decades of budgetary constraints at both the local and federal level, NYCHA has lost nearly one third of its population due largely to the deregulation of or demolition of buildings since its peak, but has plateaued in recent years. As of March 2013, there are nearly as many families on waiting lists (167,353) for NYCHA Public Housing and Section 8 Housing (123,533) as there are people living in it, but with an apartment turnover of 3% per year, one's chances of qualifying for a unit are fairly low.

Figure 6



Source: NYCHA

2.2.3 Age:

NYCHA's Public Housing Population as of 2013 was 403,736. This figure does not account for Section 8 Housing which houses 220,470 residents throughout New York City (NYCHA, 2013)². NYCHA public housing has a large number of young people, with individuals under 25 years old making up more than 40% of the total population. There is also a large senior population (62 years and older), many of whom living in NYCHA senior housing, that make up nearly 19% of the total population (see Figure 7).

Figure 7

NYCHA Total Population by Age Group



Source: 2011 HVS Survey

2.2.4 NYCHA's Shadow Population

NYCHA's population statistics use the number of individuals on each family or individual's lease to generate the official figure. In a 2007 piece for New York Magazine, writer Mark Jacobson remarks that NYCHA's public housing population, according to residents and officials is "universally regarded as too low" and that, "600,000 is more like it." This figure is 8 percent of New York City's population. When contextualizing the

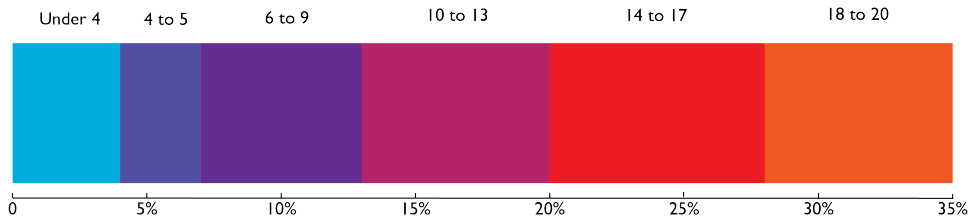
² Due to the scattered nature of Section 8 housing, the survey discussed in Chapter 3 focuses on public housing-based NYCHA tenants.

size, Jacobson explains that if NYCHA were its own city it would be the United States' 21st most populous, "bigger than Boston or Seattle, and twice the size of Cincinnati".

According to Kate Brennen of Henry Street Settlement, a social-services non-profit in Manhattan's Lower East Side, a great number of men (some unknowingly) are living in NYCHA off-lease. This phenomenon can be attributed to a number of factors including incarceration, which bars people with certain misdemeanors and felonies from entering campuses, as well as more muddled factors such as misunderstanding rent regulation and job market flux. Because NYCHA rents are calculated using 30% of the family's total income, families often choose not to include young men on rental leases because it would raise rents (K. Brennen, personal communication, August 13, 2014). Interestingly, more young women, especially those with children are likely to stay on leases with family. According to Brennen, this can likely be attributed to their greater ease of access to government support programs, as well as a greater perceived dependability amongst family members that they would contribute towards rental costs because of their greater need for stable housing. Because Citi Bike requires those living in NYCHA to supply an ID number, those that are living off lease in NYCHA do not qualify for the discounted membership program.

Figure 8

NYCHA Youth Percentage of Total Population by Age Group



Aside from this 'shadow population', discrepancies in population collection methodology also exist between primary data sets supplied by NYCHA and the Census's 2011 Housing Vacancy Survey (HVS), both of which used skewed sets for age breakdown. NYCHA's survey lacks articulation between the ages of 21 and 49, and does not break down age by gender, while HVS does not articulate ages younger than 25 and indicates a total public housing population that is roughly 80,000 people higher than NYCHA's, suggesting that the HVS might have accounted for some of the aforementioned individuals living off lease. The lack of granularity within each of these data sets makes it difficult to determine the exact NYCHA population under the age of 18.

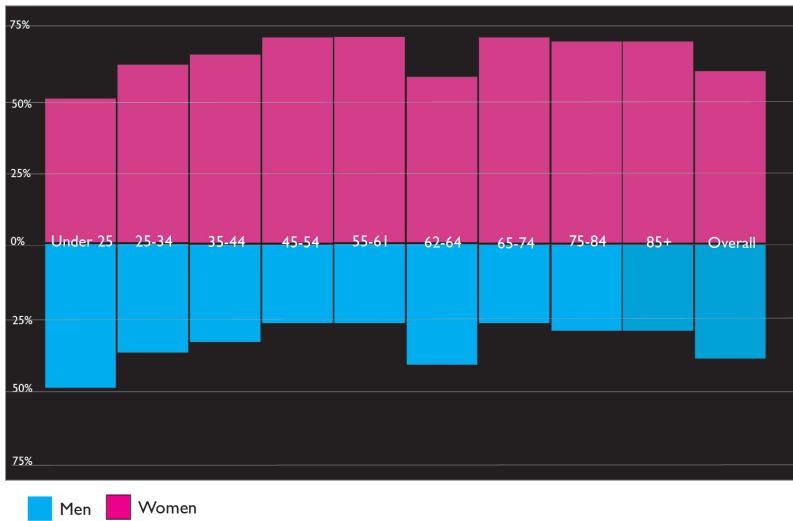
2.2.5 Gender in NYCHA

An often overlooked fact about NYCHA's population is that nearly two-thirds of the population is made up of women. Using HVS data, one can see that a near fifty-fifty gender split exists for public housing residents under the age of 25, but as tenants

advance in age, the percentage of male tenants decreases substantially, rebounding only slightly once tenants reach retirement age (62+), comprising a male population that is largely made up of youth and elderly individuals (see Figure 9). The potential implications of this gender imbalance has with regards to the relationship of NYCHA to Citi Bike will be discussed later in the chapter.

Figure 9

Age by Gender in NYC Public Housing



2.3 What is Citi Bike?

Citi Bike is a bicycle-sharing program currently located in the boroughs of Manhattan and Brooklyn in New York City. The program derives from a plan originally created by the New York City Department of City Planning (DCP) in 2009, and came into fruition in 2013 through collaborations with the New York City Department of Transportation (DOT) and Alta Bicycle Share under the New York City Bike Share LLC moniker. New York City Bike Share LLC manages the day-to-day operations of Citi Bike, with responsibilities including, but not limited to, bike and

station software, repairs, rebalancing, customer service, and advertisement³. DOT is in charge of the installation and removal of stations, and both entities work on community engagement and meetings. Employees of DOT also noted that the agency planned a number of new bike lanes in Manhattan and Brooklyn in preparation for the demand associated with Citi Bike stations in certain areas (personal communication, June 16, 2013).

2.3.1 Planning

In a 2009 document outlining plans for the program, the New York City Department of City Planning (NYCDCP), proposed 10,000 bikes in what would become Citi Bike's first phase with two additional phases, which would extend the program throughout Manhattan and deeper into Brooklyn, Queens, and the Bronx, while expanding the fleet of Citi Bikes to roughly 49,000 (New York City Department of City Planning 2009). Between 2009 and 2013, it was proposed that the program's first phase be set for a March 2013 launch that would include 7,000 bicycles at 420 stations and expand to 10,000 bicycles and 600 stations by the following summer. However, setbacks in the program's software, followed by the loss of over 1,000 bicycles stored in Sunset Park during Hurricane Sandy in November of 2012, delayed the program launch until May 2013, and decreased the total number of bikes launched to roughly 4,300 at 330 stations. This loss of bicycles kept the

³ Rebalancing is the term used by bicycle sharing programs to describe the moving of bicycles from one bicycle station to another in order to provide bicycles for stations lacking them and to relieve stations that are full, and thus unable to accept new bikes needing to be docked. Rebalancing is most often done using trucks, but is sometimes done using bicycles with towing trailers.

locations of the initial launch out of many parts of northern Brooklyn and western Queens, reducing movement between outer borough communities, as well as access to the program for a larger population of NYCHA residents.

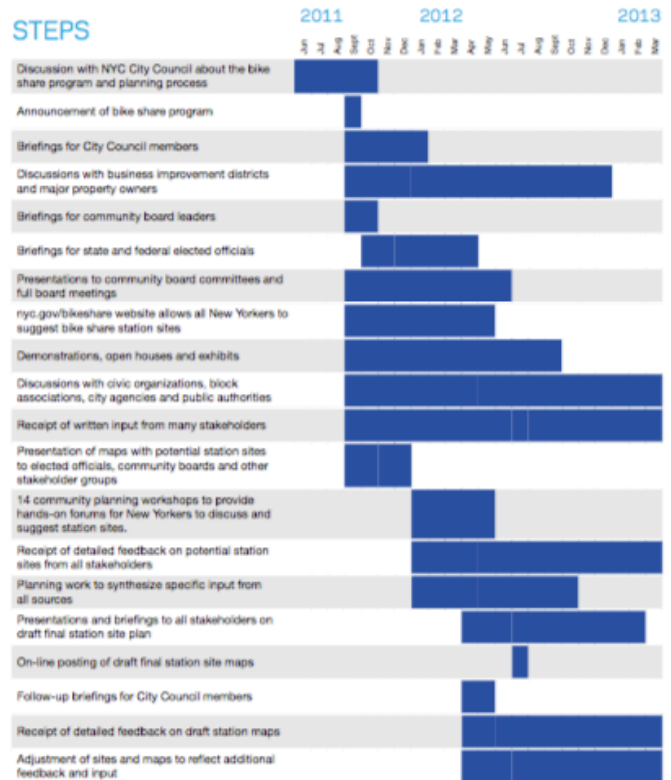
2.3.2 Outreach

In the document NYC Bike Share: Designed by New Yorkers, DOT outlines the outreach strategies used for the placement and design of Citi Bike. NYCBS efforts included 159 public meetings, presentations and demonstrations as well as 230 meetings with elected officials, property owners and other stakeholders (see Figure 10). Aside from the major outreach achievements noted throughout, the document also discusses the difficulties of accessing the program for low-income communities, including NYCHA residents, and communities that speak English as a second language.

Figure 10

Long Term Public Dialogue

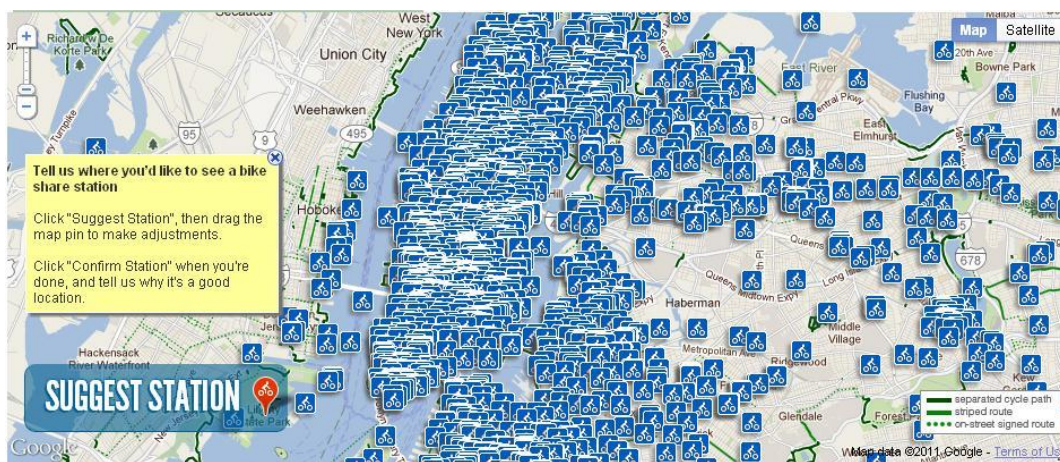
The rhythm of bike share planning in New York followed a pattern of DOT engagement, feedback from stakeholders, synthesis by DOT of many and diverse sources of input, and a return to stakeholders to discuss results. The work and process included these main steps:



2.3.3 Suggest A Station Map

As a way to engage New Yorkers less inclined or unable to attend community meetings, DOT created a virtual space at www.nyc.gov/bikeshare which featured the “Suggest a Station” map, here “visitors were invited to place pins on the map identifying locations where they would want to see bike share stations, provide comments on why they thought a particular location was good and then share their suggestion via Facebook, Twitter, and other social media (See Figure 11). Visitors were also invited to “support suggestions made by other visitors”. Suggest a Station, which was live between September 2011 and May 2012, received 10,000 suggestions in total along with 55,000 support pins. At the peak of popularity, the website garnered over 1,200 visits per hour. With the announcement of new ownership and expansion, Citi Bike also hinted that Suggest A Station is likely to return.

Figure 11



Targeting All New Yorkers

As part of an effort in what is called “targeting diverse populations”, DOT engaged a number of non-native English speaking constituencies. Two Spanish and one joint Mandarin and Cantonese presentations were given at the request of Manhattan Community Board 1 in the winter of 2011-12 through collaborations with the Grand Street Settlement, El Puente, and the Chinese Consolidated Benevolent Association. Additionally, DOT used heavy flyering for local businesses and housing developments as well as hosting series of open houses at Whitehall Staten Island Ferry Terminal and Port Authority Bus Terminal to engage constituencies that may commute into New York City for work.

In a section called “Bringing in All New Yorkers”, the document highlights two issues that challenge low-income access to Bike Sharing programs throughout the United States: credit card requirements that are “needed to ensure that each bike rental can be linked to a specific person” and the placement of bike sharing stations. These combined are described as “the main barrier for low-income would-be users”. The document goes on to note that, “low-income people are less likely than middle- and upper-income people to have a credit card” and that “American bike share programs to date have been small, only covering downtown areas and immediately adjacent residential neighborhoods. This often means that stations are not located in lower-income neighborhoods.” To counter these issues in New York City, DOT made attempts at creating greater equity from both a siting and affordability perspective. Working in collaboration with NYCHA, Community Boards, and NYCHA Resident Advisors, DOT found locations within one block of all of the 29

NYCHA housing campuses in the “program area”. The DOT contract with NYCBS also requires that the program cover “a number of lower-income neighborhoods”, despite never defining the boundaries of the program area or what qualifies as low-income.

The document also explains that DOT worked with NYCHA and the Department of Consumer Affairs Office of Financial Empowerment, the National Federation of Community Development Credit Unions, as well as the Bedford Stuyvesant Restoration Corporation, El Puente, and the Local Spokes Coalition, to develop the discounted annual memberships of \$60 for NYCHA residents and Community Development Credit Union members⁴. In the summers following the rollout of the program, Citi Bike also held nine helmet handouts at NYCHA campuses in Manhattan’s Lower East Side and in the Ft. Greene neighborhood of Brooklyn, and has worked with a number of the aforementioned community based organizations, including the Myrtle Avenue Revitalization Project (MARP) to sponsor free Citi Bike rides for community members using access keys that unlock the bikes to use for free (see Figure 12).

⁴ The Community Development Credit Unions consist of the Brooklyn Cooperative Federal Credit Union, the Lower East Side People’s Federal Credit Union, and the NYU Federal Credit Union. The website notes to check back for a growing list of Credit Unions.

Figure 12

NYCHA / Citi Bike Outreach Event Locations



2.3.4 Funding and Costs

Citi Bike is unique from other bike sharing programs of its size in that it is a privately funded venture. A large part of this funding was provided by the Urban Investments Group at Goldman Sachs, a branch of the multi-national investment bank, which provided the initial investment for the bikes, the technology, staffing, and the docking stations with a 41 million dollar investment. Goldman Sachs contracted the naming rights for the program to the Citi Bank Group, and also collects earnings from the fees paid by customers and members. Additionally, MasterCard provided five million dollars to become the preferred payment partner of the program. When asked in a July 2013 interview by Crain’s New York what sort of returns Goldman Sachs expected on its

investment, former spokesperson Alicia Glenn (now Deputy Mayor under Bill DeBlasio) stated, “High single digits. We're taking (a) risk, but we're not trying to make gazillions of dollars.”

Citi Bike is amongst the most expensive bike sharing programs of its size in the world. While most programs subsidize costs through government backing, Citi Bike relies upon private investment, advertising, and rental/membership costs. When compared to other programs in cities or programs of similar size, New York’s fares are comparatively expensive for 24 hour, weekly, and yearly rates (See Figure 13).

Figure 3

<i>Program</i>	<i>Daily</i>	<i>Weekly</i>	<i>Yearly</i>	<i>Discounts</i>
<i>NYC Citi Bike</i>	\$9.95+tax	\$25.00 +tax	\$150 +tax	\$60 for NYCHA
<i>Barclays (London)</i>	~ \$3.50	~ \$17.00	~ \$150	N/A
<i>Velib (Paris)</i>	~ \$2.30	~ \$11.00	~ \$40- \$50*	\$40 Under Age of 26 \$25 for Students/Low Income
<i>DC Capital Share</i>	\$7.00	\$15.00- 3 Day	\$75-\$84**	Free Memberships available for those in Job Access Reverse Commute Program
			*Membership costs differ based on 30 or 45 minute packages	**Offers a monthly installment plan that increases total cost by \$9

Citi Bike’s reduced rates for NYCHA residents and members of New York City Community Development Credit Unions (CDCUs) (\$60) are the program’s only discount, providing about 35% off the annual cost. This rate is nearly double that of Velib’s for low-income individuals and students (\$25), while DC’s Capital Share offers free membership for those in its Job Access Reverse Commute Program.

Citi Bike, in general, offers fewer plans when compared to other programs. Velib, for example, offers four discounted rates that encompass youth, income, students, and profession. Aside from free membership for qualified individuals, DC 's program offers an annual plan with installments, as well as a daily key, which offers quick access for the occasional rider. Unlike Citi Bike, both of these programs have received considerable subsidies from governmental sources.

Additionally, one possible deterrent of the program is the rider's inability to add additional equipment to Citi Bike to expand its uses. For example, the addition of child carriers and cargo hauling carts is neither provided nor permitted under Citi Bike's current by-laws.

2.3.5 Challenges

Popularity notwithstanding, Citi Bike has and currently faces a number of challenges. Financially, the program's balance sheet does not reflect how well it has been received by New Yorkers. Beginning with the loss of a great deal of equipment during Hurricane Sandy and several delays due to faulty software, the program launched many months later than expected. Additionally, the program's initial business model expected a greater number of tourists to use the program. Instead, yearly memberships, which were to be, in part, subsidized by daily passes, skyrocketed. This unexpectedly high yearly membership caused major issues with the balancing of distributions amongst stations, leaving many stations with little or no bikes and others completely full

and incapable of receiving users. This balancing issue has forced Citi Bike to move many bikes by truck and bicycle-powered dolly at a considerable cost. Additionally, Citi Bike has had trouble keeping up with repairs, leaving many bikes and docking stations unusable for customers. The New York Daily News reported that the problem has become so widespread that Alta is said to be in breach of the 6-year contract it held with the city that states that Alta must keep bikes and stations at a 99% repair rate. These issues, among many others, have left Citi Bike in considerable debt since program launch.

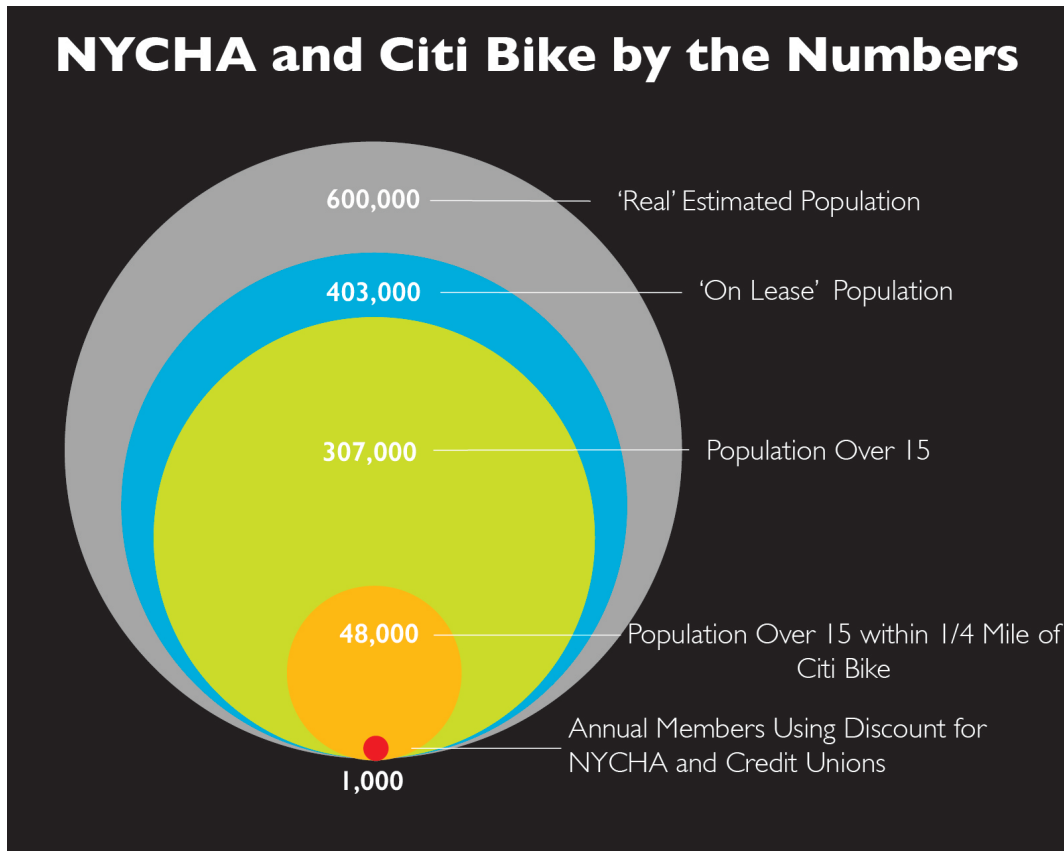
With Citi Bike staring down considerable debt, many believed new Mayor Bill De Blasio would allocate city funding to the program due to its popularity. De Blasio, instead took a hard-nosed stance on the program's self-generated funding model, refusing to provide aid to the ailing program. Instead, in late October 2014, after many months of negotiations, REQX Ventures, a parent of company of the Equinox gym franchise, settled on a deal to purchase a 51% stake in Alta Bicycle Share, New York City Bike Share LLC's parent company. This purchase entails a restructuring of the current pricing model, which would charge more for annual memberships, but retain the \$60 discounted rate for NYCHA residents. The purchase also means the program would install new system software as well as eventually expand the fleet, as noted earlier (Rubenstein, "Deal Takes Shape to Bolster Citi Bike").

2.3.6 NYCHA Demographics in the Citi Bike Service Area

One of the central issues surrounding the Citi Bike discounted program for NYCHA residents was the lack of annual membership signups in proportion to the total population of NYCHA. Using NYCHA's entire population in relation to the number of Citi Bike signups is problematic because the Citi Bike network is only within walking distance of a small number of NYCHA campuses. To fully understand whether the program has done a poor job of engaging NYCHA residents, one must have an idea of the number of people living in NYCHA that are 16 years old (the age at which you're allowed to use Citi Bike) and within a walkable distance of a Citi Bike Station, and how this compares to the total number of people over 16 years old that live within this same walkable threshold.

While it is difficult to extract exact population figures, using 2010 census 100% data, one can find the population of individuals over the age of 15 living in census tracts within one quarter mile of Citi Bike Stations, providing a rough estimate of the current population: about 825,000 people. According to the Department of City Planning, Manhattan and Brooklyn have grown by 2.5% and 3% respectively between 2010 and July 2013. This means that the total number of people of Citi Bike would be roughly 25,000 more people (if population is distributed somewhat evenly amongst census tracts), meaning the total population of the Citi Bike service area would be about 850,000, this is slightly more than one-tenth of New York City's total population (8,405,837) as estimated by DCP in July 2013.

Figure 14



For the purposes of this study, the target population is NYCHA residents that are over the age of 15 (the age at which one is old enough to ride Citi Bike) and that are on a lease- this includes roughly 307,000 people⁵ or 76% of NYCHA's on lease population. Using Arc-GIS, one can extract the total populations of NYCHA Campuses located within ¼ mile of a Citi Bike Station (64,467). To find a rough estimate of the population over the age of 16, one can apply the percentage of total individuals over the age of 16 to the

⁵ The exact figure is difficult to extract due to NYCHA's age bracketing which combines ages 14-17 together. This estimate was made by splitting that age group's total population in half.

population within the study area to find about 48,000 people⁶ (roughly 12% of the total population of NYCHA) (see Figure 14). While this figure does not account for NYCHA tenants that may use the program because they work in the station area, the intention is to show who is living in the area that could have access on a daily basis.

2.3.7 NYCHA's Statistical Matriarchy

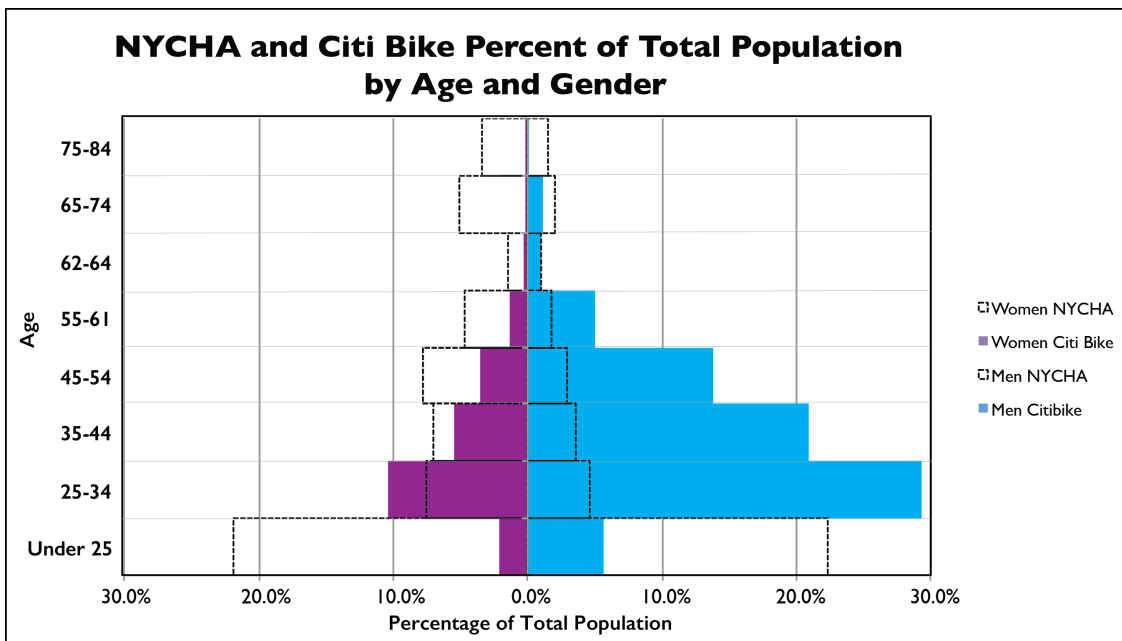
As shown in the previous section, NYCHA's male and female population diverge after the age of 25, creating an environment in which women make up the great majority of the adult population. According to NYCHA, 76% of the families in NYCHA have women as the head of household, one third of which are women over 62 and an additional one-quarter of whom are single mothers. These two indicators mean they are amongst the poorest New Yorkers. The dominance of women as head of household may suggest that they wield considerable decision-making power over the finances and travel choices of their family. It is critical to consider all of these factors in combination with the studies done on women's cycling behavior (safety concerns, trip chaining, etc.). Given this, NYCHA's small population of annual discounted sign ups begins to make more sense.

By using Citi Bike ridership numbers from July 2013 through August 2014 and comparing them to NYCHA's female population broken down by age, several notable things emerge. Citi Bike's largest female ridership group, women aged 25-34, is larger

⁶ The percent growth for Manhattan and Brooklyn is not applied here due to the limited change in population that NYCHA undergoes on a year to year basis.*

proportionately than the number of women living NYCHA in the same bracket. Over the ages of 35-54, Citi Bike’s female population begins to dwindle, while NYCHA’s female populations stays relatively even through the age of 74 (See Figure 15). These trends suggest that women over the age of 34 are a largely untapped market for Citi Bike, and that a greater consideration of the needs of these women, including those living in NYCHA, could play a part in filling that void. Recommendations on improving ridership amongst the female demographic in NYCHA will be discussed in chapters three and four.

Figure 15



When comparing NYCHA and Citi Bike’s male populations, it becomes immediately apparent that Citi Bike’s largest user groups (men aged 25-54) make up a considerably smaller piece of NYCHA’s overall population, only becoming proportionately larger after the age of 62. While Citi Bike’s population of men within

these brackets is proportionately larger than of the city overall, this finding makes clear that the majority of Citi Bike rides are taken by men, but that the age groups of men within NYCHA that would be most likely to use the program either do not live there or are not reported on a lease, and thus do not qualify for the discounted membership.

2.4 Takeaways

NYCHA's population demographics, as they compare to that of Citi Bike, may play a significant role in explaining the lack of annual membership signups. Citi Bike's key demographic, largely men in their mid-twenties to their mid-fifties, are a relatively small demographic within NYCHA in comparison to women, whom have been shown to use Citi Bike and other bikes less than men. The lack of use amongst young (16-25) and older individuals (65+) may also play a role, given the size of these populations within NYCHA.

NYCHA consists of some of New York City's poorest families, most of whom are Hispanic/ Latino and African American. Understanding perceptions of cycling, language difficulty, and bicycle usage by these populations is key to understanding the possible barriers NYCHA residents face in using the Citi Bike. These are all issues that will be spoken to in the findings and conclusion sections of this paper.

Chapter 3: Survey Findings

3.1 Introduction

The following chapter shares the findings of surveys given at NYCHA campuses within a several block radius of a Citi Bike Station. These surveys were used to gain a greater understanding of NYCHA resident's general knowledge about bike sharing, the Citi Bike program, and any experience they may have had using the program. Additionally if those surveyed had not used the program, they were asked their reasons for not doing so, in an effort to better understand how the discounted membership program for NYCHA residents could be improved and what types of barriers NYCHA residents may be facing when considering whether to join Citi Bike.

3.2 Methodology

The 203 surveys were collected at 17 NYCHA campuses: 9 on the Lower East Side of Manhattan, 3 on the west side of Manhattan in Chelsea, and 5 in the Fort Greene and Clinton Hill neighborhoods of Brooklyn. Surveys were given in the morning, afternoon, and early evening during weekdays and on weekends to capture a range of ages and employment types. Surveying was largely conducted in the center of campuses to those walking by, surveyors walked around public areas within the campus and approached individuals to ask if they would take the survey. Before taking the survey, individuals were asked whether they were a resident of NYCHA and whether they were over the age of 16 as prequalifying questions. Surveys were printed in English and Spanish and those taking the survey had the option of choosing between taking the survey orally or in written form.

3.2.1 Demographic Overview

Gender, age, and race are used throughout the findings section as lenses for better understanding trends amongst respondents, and thus representative surveying of these groups is vital to giving an accurate reflection of residents, albeit being methodologically difficult at times. The following section will look at the intricacies of these demographic breakdowns as a primer for the results that will follow.

3.2.2 Gender

Question 1 of the survey asks respondents how they identify their gender. The breakdown of these percentages shows the majority of respondents to be women by a ratio of nearly two to one, a number intended to reflect the reported overall ratio over residents over the age of 16 living in NYCHA public housing citywide (see Figure 16).

Figure 16: Respondents by Gender

	Male	Female
Number Surveyed	66	137
Overall Percentage	32.5%	67.5%

One difficulty of surveying NYCHA residents, particularly when looking at gender, is attaining knowledge of who is and is not living there legally. Because there is understood to be a large population of individuals living illegally in NYCHA, asking questions about one's legal tenancy brings up a number of privacy issues beyond the scope of this project. According to Kathleen Brannen, many individuals, particularly young men, are often

unaware that they need to have their name on a lease to live in NYCHA, while those that are aware of this requirement are less than likely to admit that they are living in NYCHA illegally. This issue of legal tenancy is also thought to be prevalent amongst the formerly incarcerated, whom, in most cases, are barred from living legally in NYCHA. This methodological grey area hints at the need for a greater breadth of affordable Citi Bike memberships for poor and low-income communities regardless of housing status or incarceration record; an issue that will be spoken to in greater detail in the recommendations section of this paper.

3.2.3 Age

Age is an important lens for understanding differing opinions and issues of access to the Citi Bike program. Efforts were made throughout the data collection process to survey a range of ages keeping in mind a median between representative percentages of who lives in NYCHA and who uses Citi Bike (see Figures 17 and 18).

Figure 17. Respondents by Age

Age	16-17	18-24	25-44	45-64	65+	No Response	Total
Respondents	18	22	70	70	21	2	203
%	8.9%	10.8%	34.5%	34.5%	10.3%	1.0%	

**Figure 18. NYCHA Special Tabulation of Resident Characteristics Over 14:
Public Housing Households 2013.**

Ages	14-17	18-20	21-49	50-61	62+	Total
	31,310	26,250	131,981	53,638	75,669	243,179
	12.9%	10.8%	54.3%	22.0%	31.1%	

Knowing the exact number of individuals to survey by age group is methodologically difficult. NYCHA’s population statistics are broken down into groupings that are quite different from those typically used by the census creating difficulties especially in the low and middle-age ranges (NYCHA 2013).

While giving the survey, elderly residents that would fall into the 65 and over age range tended to have a lower range of physical mobility, and were generally less interested in taking the survey due to medical conditions and or fear of injury. This lack of ability and or interest is backed by Citi Bike ridership numbers, which show that rides by people aged 65 and older make up just 1.3% of the total ridership of the program. Younger men (ages 24 and under) were also a particularly difficult group to engage for reasons not entirely understood. Singularly, individuals were somewhat open, but if in groups or in sight of peers, individuals often declined. The disinterest in Citi Bike is somewhat reflected in the 16-24 year old age groups use of the program, which makes up less than 8% of the total rides. This figure pales in comparison to 25-34 year olds, whom make up nearly 40% of the program’s overall usage.

3.2.4 Race and Ethnicity

NYCHA’s population has a much larger concentration of individuals that identify as Black and Hispanic/ Latino identifying than in New York City overall (see figure 19b). This is significant in that these groups have accounted for an increasing number of rides taken nationwide over the past decade or so (Pucher, et al; 2011).

However, NYCHA’s representation of these groups lacks granularity in that the data categorizes individuals by a singular race, despite there being a fairly large contingent of individuals within New York City’s total population that identify as being biracial or being a Latino of African origin.

**Figure 19a
Survey Respondents By Race**

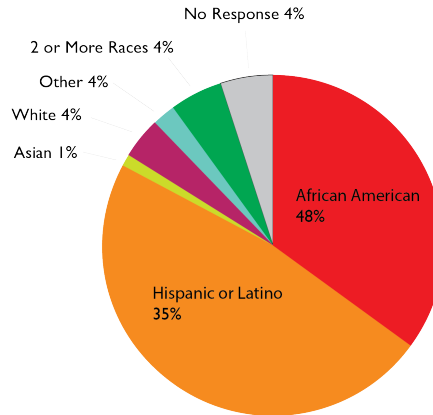


Figure 19b. Overall NYCHA and New York City Population by Race

2013 NYCHA Population by Race and 2010 New York City Population by Race					
	Black	Hispanic / Latino	White	Asian	Other
NYCHA	46.2%	43.6%	4.9%	4.5%	0.8%
NYC	25.5%	23.6%	33.3%	12.6%	4.9%

Sources: NYCHA, 2010 Census 100% Data

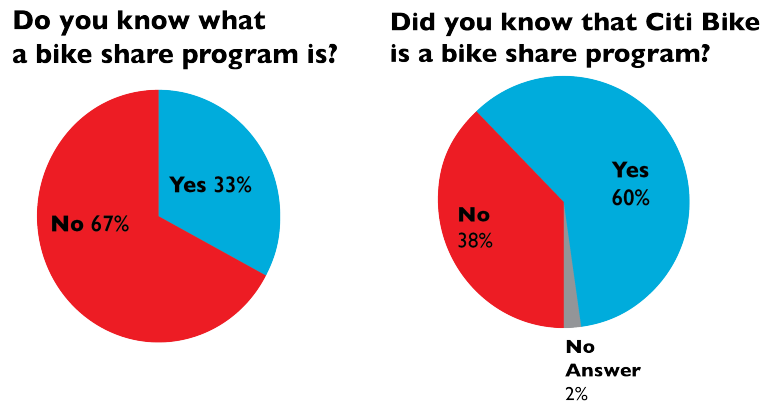
This study allowed individuals to choose as many race or ethnicities as needed (see Figure 19a). With this in mind, the Hispanic / Latino only population surveyed is less than that reported by NYCHA, but those that identified as 2 or more races in this survey largely identified one of those races as Latino or Hispanic. Asian

populations are also underrepresented in the study. This is in part due to a lack of access to Mandarin/ Cantonese translators and survey translations. Overall, the survey was fairly close to surveying a representative range of individuals by race and ethnicity.

3.3 Understanding of Citi Bike

Every NYCHA resident that was surveyed indicated that they knew what Citi Bike was, however, key terms such as “bike sharing” were less familiar for some. The two first non-demographic related questions in the survey asked users if they knew what bike share was and whether they knew if Citi Bike was a Bike Share program. The intention of these questions was to learn how familiar residents were with the term or idea of a bike share and how many people understood this association when paired with Citi Bike.

Figure 20



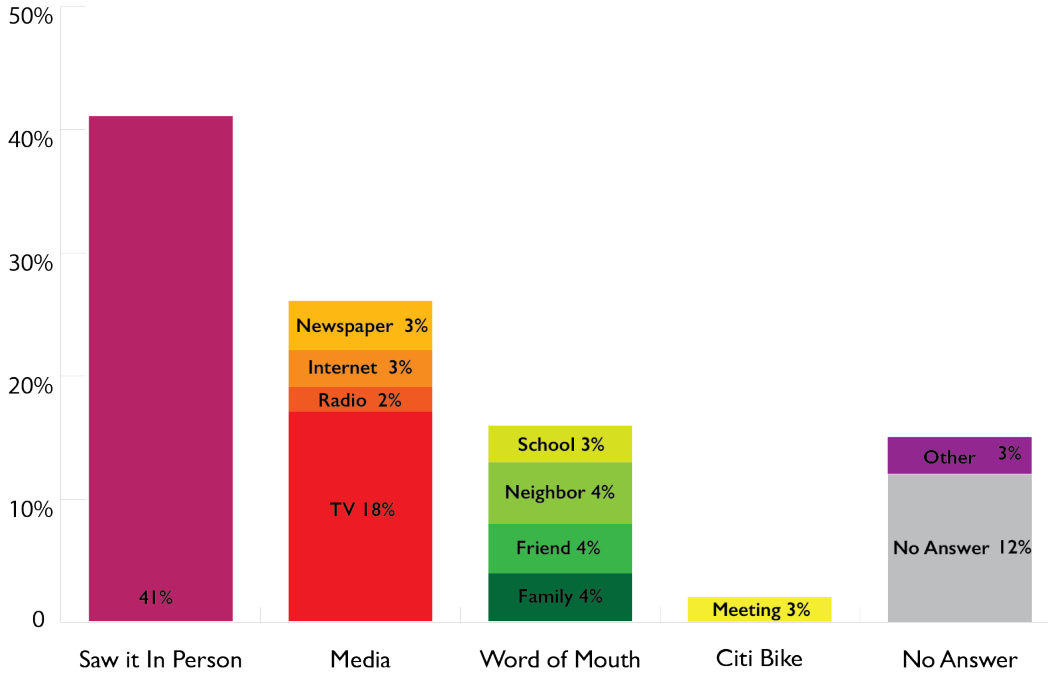
As shown in Figure 20, only 1/3 of those surveyed knew what the bike share program was. However, 60% indicated that they knew Citi Bike was a bike share program. This sequence of questions may indicate that the association of Citi Bike with the word bike share connected meaning to the term for many of those surveyed, suggesting that people understood the concept, but were unfamiliar with the terminology. In general, every respondent had heard of or seen Citi Bike, but sometimes referred to them as “blue bikes”. This finding suggests that an effort to improve understanding or more clearly define what bike sharing is for NYCHA residents may be a necessary precursor to improving their participation in the program.

3.3.1 How Did You Learn About Citi Bike?

Ineffective outreach to NYCHA residents has been forwarded as one of the reasons for the low number of discounted annual signups. To gauge NYCHA resident knowledge of the program before and during its launch, the survey asked residents how they first learned about Citi Bike (see Figure 21).

Figure 4

How Did You Learn About Citi Bike?



A substantial number of those surveyed indicated that they first learned about Citi Bike by seeing it in person (41%). This high percentage may signify a general lack of awareness amongst NYCHA residents about the program previous to its launch. Media made up the second largest category, with television cited as the most common way of learning about the program prelaunch within the category. Many noted that they had seen Citi Bike on New York 1, a 24-hour cable news network that focuses particularly on the New York City Metropolitan area. In a meeting with an individual from Citi Bike, who preferred to go unnamed, the majority of outreach about Citi Bike planning was done with signage in the entrances to NYCHA residences and community facilities. Only 3% of respondents stated that they had heard about the program through meetings or signage,

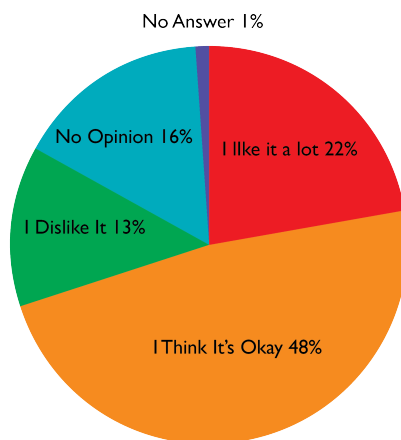
suggesting that Citi Bike’s prelaunch methods were ineffective in reaching NYCHA residents. Recommendations on how to improve awareness of the program are provided in the next chapter.

3.3.2 What Is Your Opinion of Citi Bike?

The Citi Bike program’s high overall usage in New York City signifies a general popularity amongst the public. Low participation in the discounted annual membership program, however, suggests that Citi Bike may be less popular amongst NYCHA residents. When asked their opinion of the program, about half of respondents surveyed said that they thought the program was “okay”, 22% stated that they like it “a lot”, while 13% stated that they “disliked” the program, and 16% had “no opinion” (see Figure 22).

Figure 22

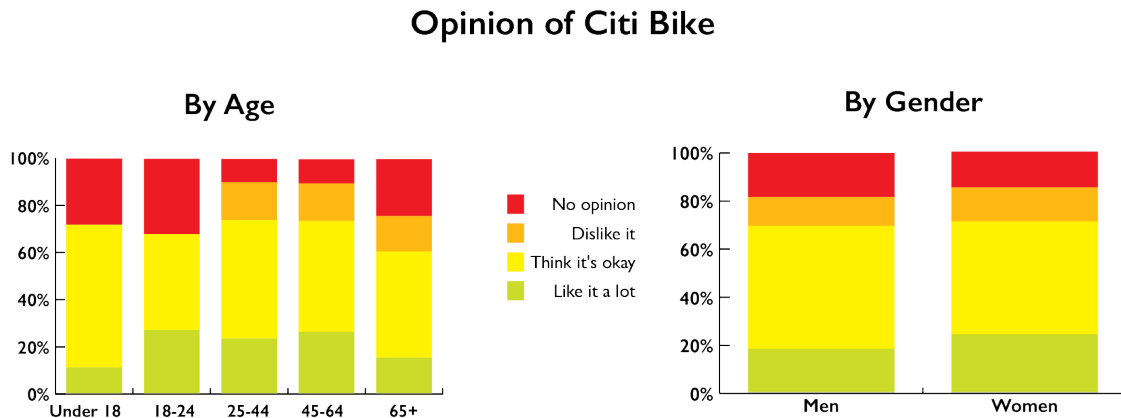
What is your opinion of the Citi Bike Program?



When breaking this figure down by gender, respondent’s opinions were somewhat similar. Women were shown to have a slightly more polarized opinion of

the program, displaying a higher percentage of individuals that either liked the program a lot or totally disliked it, while men were shown to be more neutral with higher percentages of “okay” and “no opinion” (see Figure 23).

Figure 23



When comparing the opinion of Citi Bike amongst respondents by age, a number of key findings emerge. A majority of those surveyed thought the program was okay, while a minority, all above the age of 24 (13%) disliked the program. While no individuals under the age of 24 stated that they disliked the program, these groups were also, proportionately, the two most likely to say that they had no opinion of the program. 18 to 24 year olds had the highest percentage of individuals to say that they liked the program a lot, while those under 18 had the fewest.

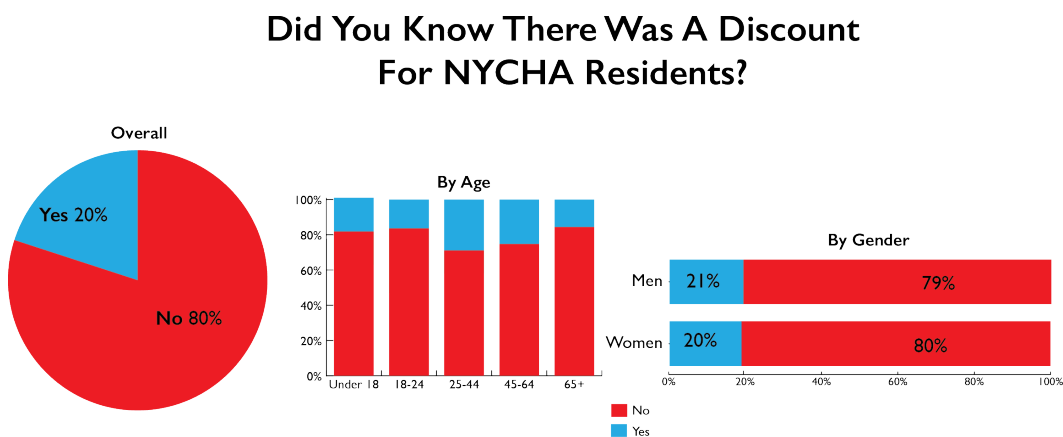
Overall, respondents from NYCHA held a neutral to favorable opinion of the Citi Bike Program. Closer analysis by gender suggests that there is a substantial population of women that really like the program, this is a key finding if Citi Bike is interested in creating a more gender balanced program overall. It was also found

that despite tending to use the program less, many individuals under the age of 24 really like the program, suggesting that greater outreach to youth may be a good way improve NYCHA membership in the program.

3.3.3 Knowledge of NYCHA Discount

One of the central questions of this study asks what barriers NYCHA residents may be facing in using Citi Bike, and more specifically, why so few have signed up for the discounted membership. When asked whether they knew about the NYCHA discounted yearly membership, 80% of the total individuals surveyed indicated that they had no knowledge of the program (See Figure 24). This suggests that a lack of access to information or advertising about the discount may have contributed to the lack of participation by NYCHA residents.

Figure 5



Moreover, it was found when looking closely at the data that nearly 41% of the total individuals that stated they knew about the yearly discount were surveyed

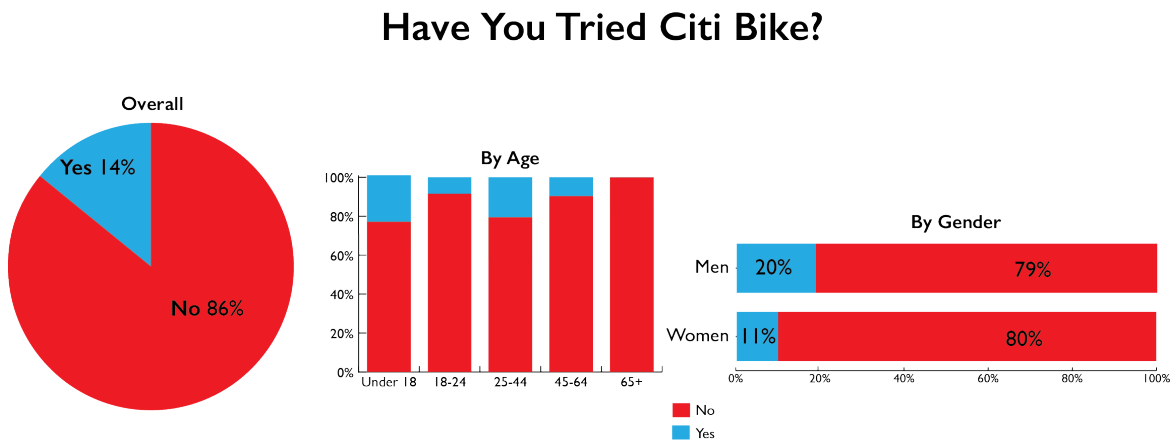
by GOLES in the Lower East Side. Goles is an organization with close ties to NYCHA residents in the area, and a member of Local Spokes, a coalition of Lower East Side non-profits that do awareness and advocacy work around cycling in that neighborhood. Because of GOLES involvement in this community, it can be assumed that there might have been more attention brought to this constituency about access to the program than in other areas or among other groups of individuals. Additionally, Citi Bike's free helmet giveaway program did extensive programming based in NYCHA campuses in the Lower East Side, which may also explain the higher knowledge base found there.

When comparing knowledge of the discount by gender, a small percentage more of men (23%) knew there was a discount for NYCHA residents than women (19%). The age group with the highest percentage of individuals that knew the program existed were 25-44 year olds (about 30%), while those ages 18 to 24 and 65+ were the least likely to say yes (both roughly 14%). 18 to 24 year olds should be a key demographic for Citi Bike due not only to their higher likelihood of being able physically to make use of the bikes, but because they also had the highest percentage of individuals that indicated that they liked the program "a lot". Overall, the lack of knowledge about the discounted membership program amongst those surveyed represents a considerable barrier in terms of NYCHA residents accessing the Citi Bike program.

3.4 User Experience

In addition to the small number of individuals that knew about the discounted membership, it was found that 86% of survey respondents had not tried Citi Bike (see Figure 25). While data exists about the number of individuals living in NYCHA that have signed up for annual memberships, less is known about Citi Bike ridership amongst NYCHA residents without them. This very low usage amongst respondents underlines the importance of understanding why these individuals have not used the program and what sort of barriers may be keeping some of these individuals from being able to do so.

Figure 6



Overall, 14% of the individuals surveyed had ridden a Citi Bike. When considering gender, about one out of five men surveyed had used the program, while a little less than one out of six women had tried the program (see Figure 25). Individuals under the age of 18 represented the largest group of users. It is also worth noting that zero individuals surveyed over the age of 65 had tried the

program. This combined with the lack of awareness about the program’s discounted membership suggests that there may be a lack of engagement with this age group, and / or a lack of interest or ability amongst respondents in this age category, or both. Seeing as those 65 and over represent the largest growing age group within NYCHA, better engagement with this community could improve the number of NYCHA residents making use of the discounted Citi Bike membership.

3.4.1 Passes

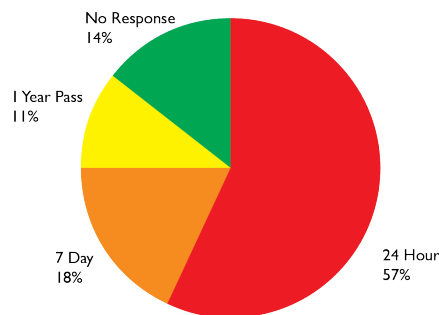
When considering the ridership of other modes of transportation in New York City such as the subway, the burden of cost per trip is higher for those that cannot afford an unlimited monthly subway pass (Loveless, 1999). With this in mind, understanding the types of Citi Bike passes NYCHA residents could provide interesting insight into the population’s travel choices and investments.

More than half of the individuals that indicated they had used Citi Bike did so using a twenty-four hour pass, which allows individuals the use of the program in thirty-minute increments for one 24-hour period. 11% (three users

total) indicated that they had signed up for a one-year pass (see Figure 26). Of those individuals, one stated that they had used the NYCHA discount, another said they

Figure 26

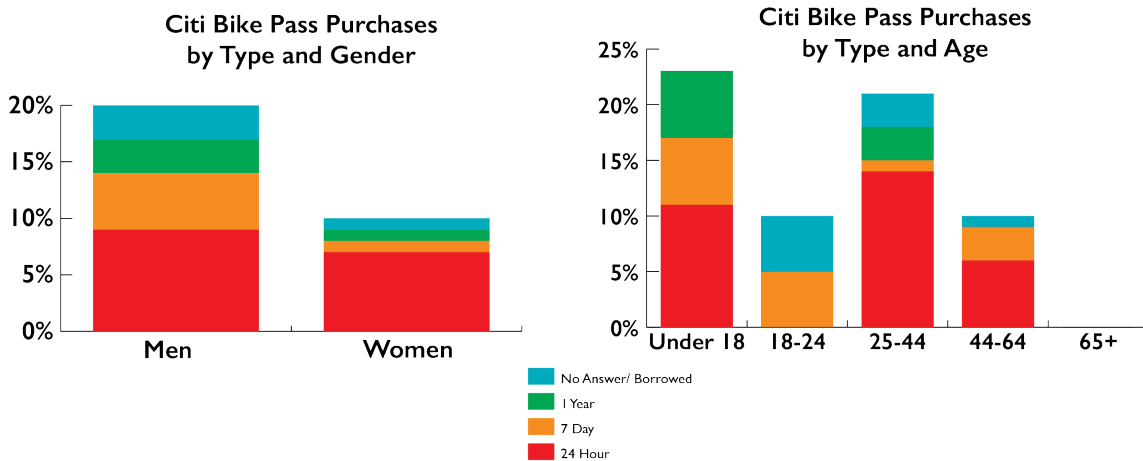
What type of Citi Bike pass did you buy?



had not, and the third did not indicate either way. 14% of respondents did not indicate which type of pass they purchased. While surveying, many people that did not indicate which type of pass they used explained that they had used the program by borrowing a friend’s bike or fob key.

Figure 27

What type of pass did you purchase?



Overall, a greater percentage of the male population (about 20%) surveyed had tried Citi Bike than the female population (11%). Similar percentages of women and men had tried the 24-hour pass, but greater proportions of the male populations made use of seven day and one year passes (see Figure 27).

Respondents under 18 represented the highest proportion of individuals that had tried the program, while no respondents over the age of 65 had tried the program. However the very small percentage of overall users that had tried the

program suggests that breakdown by age may be too granular to be representative of a larger trend.

3.4.2 Program Usage

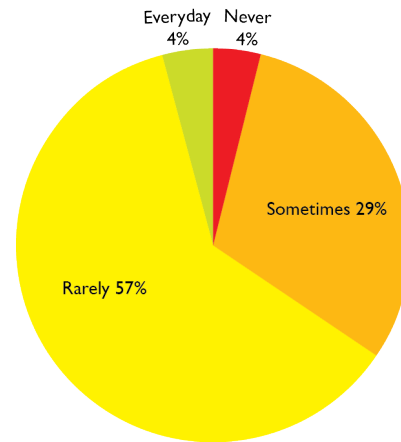
Within the small selection of individuals that had used the program, over half indicated that they use/used the program “rarely” or “never”. Less than a third indicated that they use the program sometimes, and 3% stated they used the program everyday. When considering the regularity of usage, roughly 1 out of 6 of all individuals surveyed stated that they had tried the program, 1 out of 25 indicated that

they used the program more than once (sometimes), and 1 out of the 203 individuals surveyed indicated that they used the program everyday (see Figure 28).

This lack of regular usage may indicate that beyond a singular experience of purchasing a 24-hour pass or borrowing a friend's Citi Bike, that very few NYCHA residents surveyed consider Citi Bike a form of regular or even occasional transportation.

Figure 28

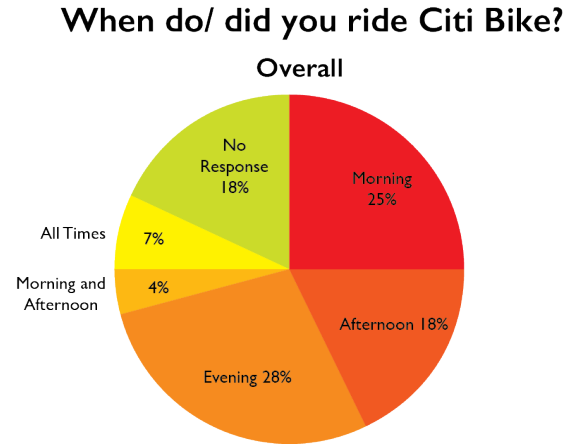
How often do you use the program?



3.4.3 Time of Day

When looking at the time of day that users rode Citi Bike, it seems that no single period was widely preferred or used (see Figure 29). Because there was such a lack of regular ridership amongst those that had tried the program, time of day does not seem to be indicative of any particular pattern in use. In future work, paying greater attention to the period of the week users ride or tried the program, particularly the weekend, would be interesting due to the number of individuals that use the bikes for leisure activities as opposed to a form of commuting.

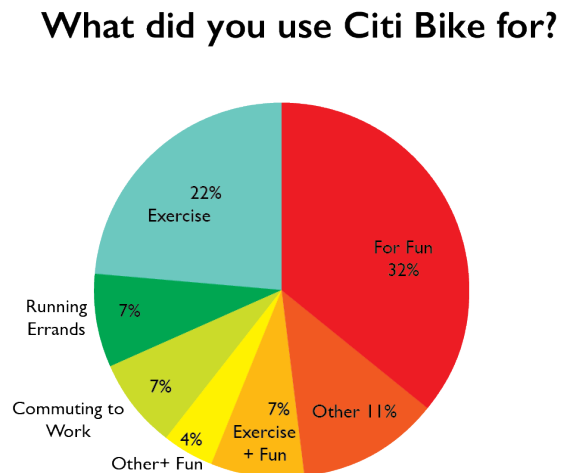
Figure 29



3.4.4 What Did You Use Citi Bike For?

Citi Bike is often viewed as an alternative means by which to commute and make shorter trips within New York City. Users from NYCHA however, indicated that they had used program as a source of fun and exercise above all else (See Figure 30). This finding combined with the fact that only a

Figure 30



few NYCHA riders used the program to get to work and none used it as a linkage to a train or bus, signifies a difference in program's perceived utility and could provide insight on how best to market the program to NYCHA communities.

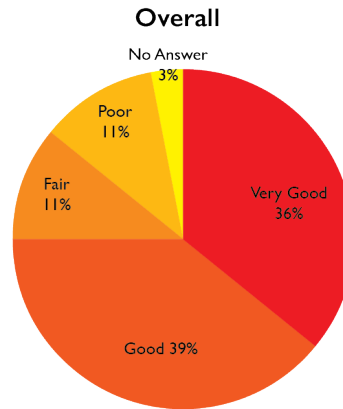
Although this data draws upon the experiences of a small sample of individuals, it fascinatingly goes against the findings of previous studies, which show bicycle usage amongst low-income populations to be utility driven as opposed to recreational (Pucher, et al; 2011). The type of passes purchased by NYCHA residents combined with their use of the program, could lead one to think that they perceive the program as a luxury as opposed to a regular utilitarian mode. With this in mind, improving access to information about the discounted membership for NYCHA residents may shift the Citi Bike program's from one perceived to be too expensive, to one for regular use.

3.4.5 Experience Rating:

Roughly 75% of individuals that used the program rated their experience as "Very Good" or "Good", with only 11% stating it was "Poor" and no respondents stating it was "Very poor". Those that rated their experience as poor made up the majority of those that indicated they had difficulties while using the program (see Figure 31).

Figure 31

How Would You Rate Your Experience Riding Citi Bike?

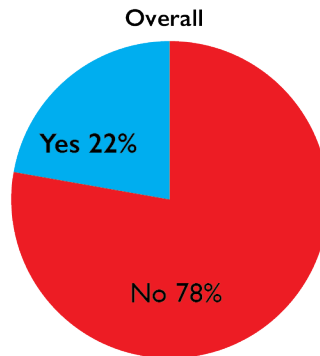


3.4.6 Difficulties

Less than a quarter of respondents that had used the program indicated that they had difficulty while using the program (see Figure 32). Of the problems that had occurred, the majority of issues pertained to getting bikes in and out of stations, prolonged holds on debit and credit cards, and not having enough time to get places using the 24-hour pass.

Figure 32

Have You Experienced Any Difficulties While Using the Program?

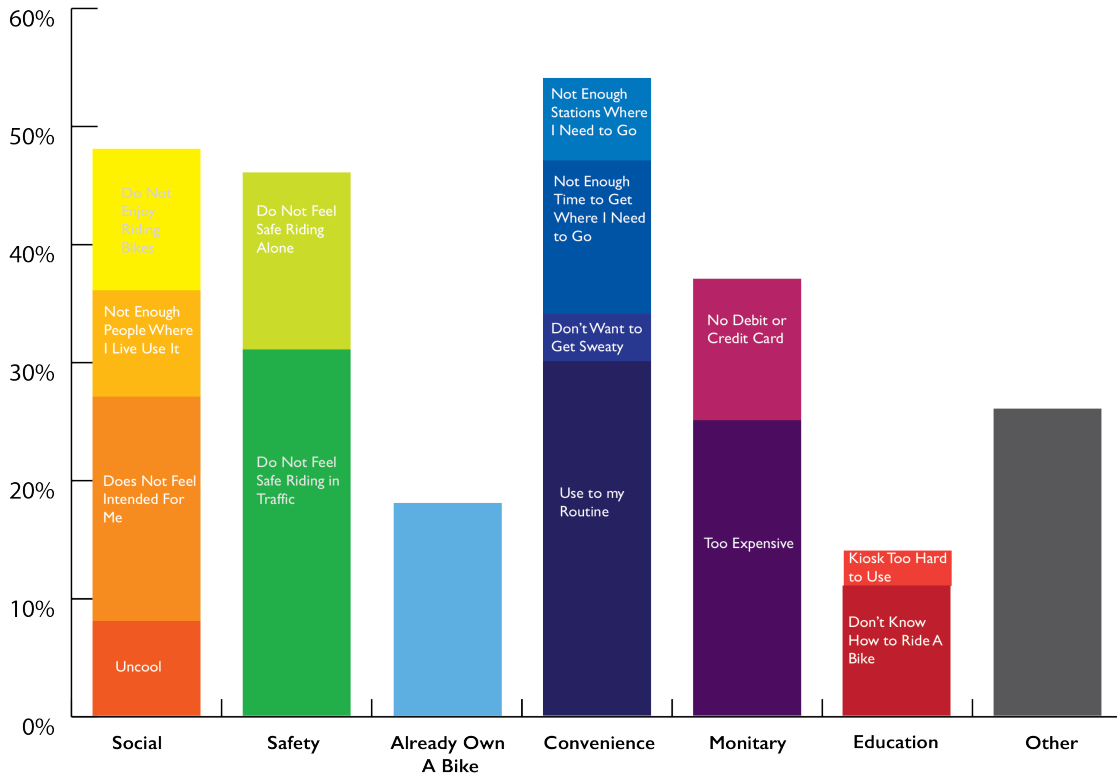


3.5 Obstacles

86% of the individuals surveyed stated that they had not tried Citi Bike. Many ideas about why many NYCHA residents may not be using the program have been forwarded based largely on problems seen in other programs. For example, Washington DC's Capital Share program found that a large percentage of the low-income population in the city were unbanked, which was in part keeping them from using the program. To counter this issue, Capital Share developed a program to sign up unbanked individuals for bank accounts, while also signing them up for memberships. In order to test some of these perceived barriers found in other programs, the survey asked individuals that indicated that they had not tried Citi Bike why they had not done so (see Figure 33).

Figure 33

Why Have You Not Used Citi Bike?



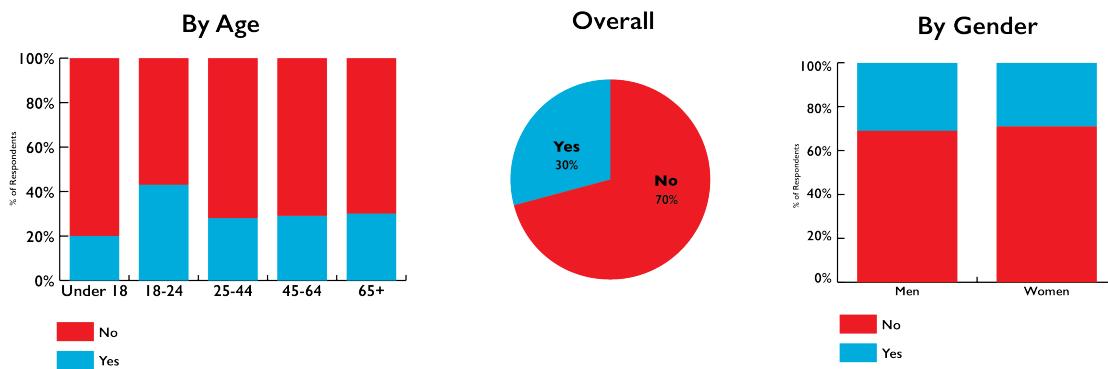
The top reasons cited for having not used the program were that people were used to their routine, did not feel safe riding in traffic, thought the program was too expensive, that it did not feel intended for them, and that they already owned a bike. A large percentage also stated that they were not using the program for other reasons, which ranged from disliking riding bikes to lacking equipment to carry children. The following subsections will look in greater detail at the responses to this question, using age and gender as additional lenses of analysis.

3.5.1 Used to my routine

30% of individuals indicated that they had not joined the program because they were used to their routine. This is a fairly open ended answer that respondents sometimes elaborated on by indicating that they preferred to walk or take public transportation and that trying something new like Citi Bike either did not fit into their schedule or they had not gotten around to trying it yet. This issue of routine might intersect in part with the aforementioned “trip chaining” issue (brought up in the literature review of this paper) in which individuals need to make several stops during a journey.

Figure 34

Respondents that had not used Citi Bike because they were “used to (their) routine”



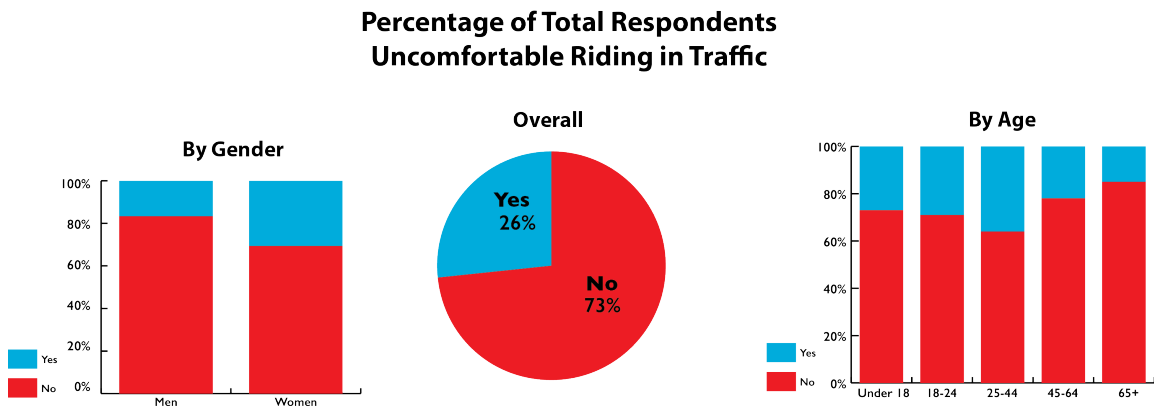
The group most likely to cite routine as the reason they had not tried Citi Bike were 18 -24 year olds, while there was no marked difference amongst other age groups or when looked at by gender (see Figure 34). In order to move people from their routine to participate in the Citi Bike program, particularly this age

group, the program may need to conceptualize more flexible features and payment plans that make Citi Bike a more viable and convenient option for getting around. Some ideas for this are listed later on in this chapter and in the recommendations section of this paper.

3.5.2 Safety

As noted in the literature review of this paper, studies have shown that women are more likely than men to be wary of riding bicycles due to issues of safety. Overall, more than one quarter of respondents indicated that riding in traffic was a major deterrent to their trying the program. In this survey, 31% of women indicated that they had not used the program because they did not feel comfortable riding in traffic, while 19% stated that they did not feel comfortable riding alone (see Figure 35). This remaining 69% of women that did not indicate that they felt unsafe riding in traffic is far higher than the 2012 Princeton Omnibus study that found that only 6% of women surveyed felt comfortable riding a bike in traffic. With this in mind, further study of the topic may be in line.

Figure 35



3.5.3 Cost

25% of all individuals surveyed indicated that cost was one of the reasons they had not tried Citi Bike (see Figure 36). Cost was the highest deterrent to trying the program amongst men, and the second highest amongst women behind safety. According to the 2013 ACS 5-year data, NYCHA resident's median household income is less half that of New York City, which could explain, in part, why the Citi Bike program's rates may be perceived as too costly. Before investing in the purchase of an annual membership it makes sense that one would want to try the program first. However the \$10 rate for a 24-hour pass is comparatively expensive to other forms of transit in NYC, and might be keeping potential users from trying the program. This underlines the importance of providing outreach opportunities to NYCHA communities who may need to try the program for free first, so that they can decide whether an annual membership is something worth investing in.

Figure 36

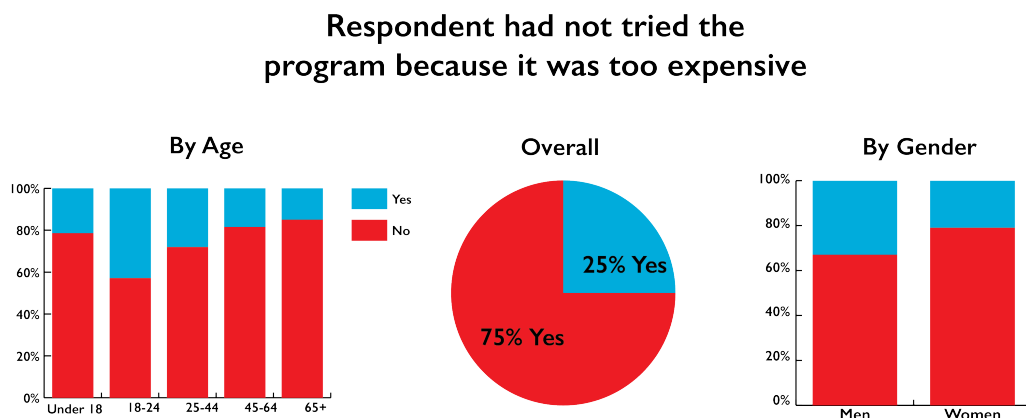
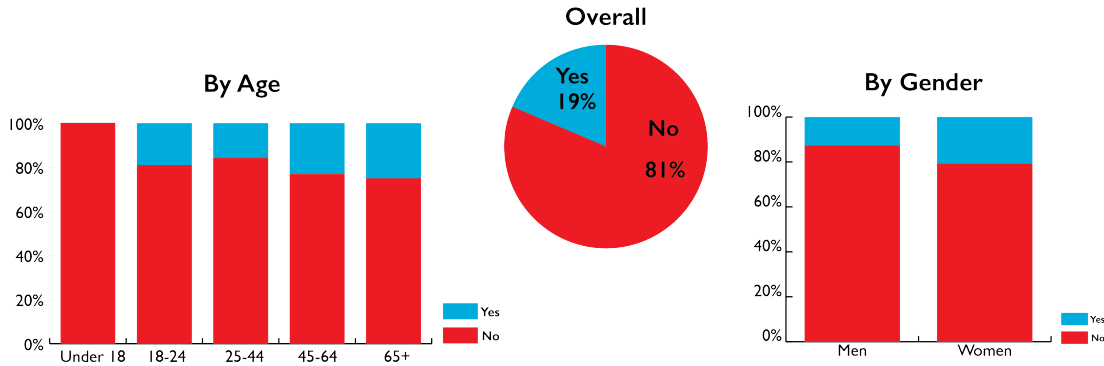


Figure 37

**Respondents that had not used
Citi Bike because they did not feel it was
“intended for (them)”**



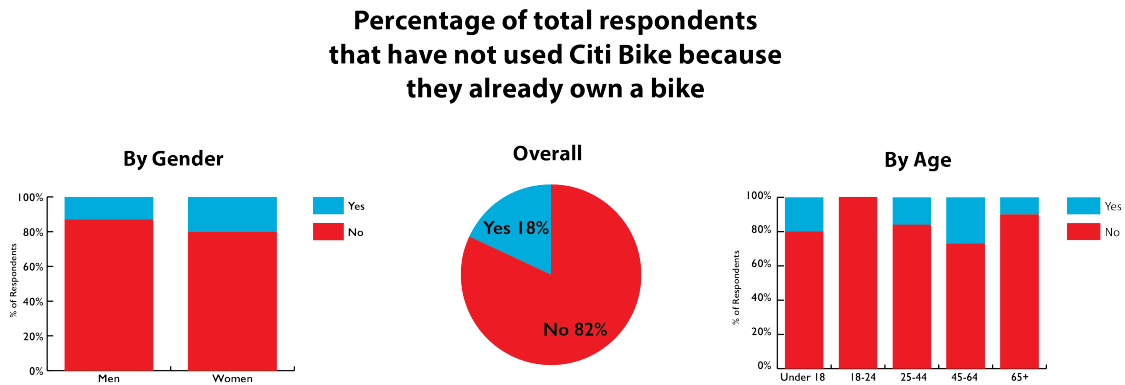
3.5.4 Citi Bike Does Not Feel Intended for Me

19% of all respondents indicated that they had not used Citi Bike because they felt the program was not intended for them. When broken down by gender, this figure made up 20% of women that were surveyed and 13% of men (see Figure 37). Amongst the reasons given for choosing this option, many noted issues of race and residence. One respondent said she felt the program was for “white people”, while another respondent said that the program was, “for tourists! I’m a New Yorker!” No respondents explicitly stated that the program was meant for the other gender, however many noted that as mothers they wanted to be able to carry their children as they rode.

3.5.5 Respondents Already Own A Bike

18% of individuals surveyed indicated that they had not used the Citi Bike Program because they already owned a bike (see Figure 38). A great strength of Citi Bike is that it allows people access to a bicycle without the concern of storage, freeing up room for those with limited space in their home. Owning a bicycle, however, also has benefits that Citi Bike cannot or does not currently provide. For example, Citi Bike does not allow the use of accessories such as child carriers or cargo carts, which allow flexibility for those needing to travel with children or carry bulky items. Owning a bike also allows for greater flexibility with trip chaining due to one's ability to go directly to a destination without the concern of needing to find the nearest station with a vacancy or worry about the amount of time between each of the stops.

Figure 38



Nearly 20% of women and 13% of men surveyed indicated that they had not used Citi Bike because they already owned a bicycle. The hauling capacity and enhanced flexibility of a personal bike could be particularly useful for women in NYCHA, who are much more likely to be the head of their household and / or a

single mother responsible for taking care of children or grandchildren. Additionally Citi Bike's design, optimal for sturdiness and reliability, is fairly heavy, and thus other bike types could be better for those wishing to use cycling for fitness.

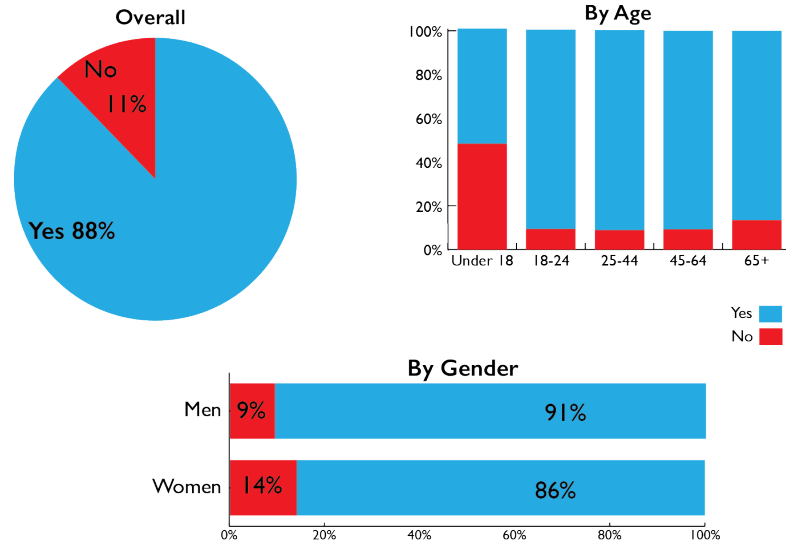
When considering bike ownership by age, ages 45 to 64 were the most likely to indicate that they had not used the program because they already owned a bike (25%), while 18 to 24 year olds were the least likely (0%). This difference could be explained by the higher likelihood of living with one's family at a younger age than an older one, and thus having more room to store a bicycle.

3.5.6 Access to Credit or Debit Card

A major finding of this study showed that only 11% of individuals surveyed did not have access to a credit or debit card, a major issue in other bike share programs in the United States (see Figure 39). When considering those that did not have access, nearly one-third were under the age of 18, meaning that unbankedness had not been a long-term issue for them. The general accessibility to a credit or debit card by the majority of those surveyed suggests that equity efforts could be more focused on affordability or portioning of costs rather than the means by which participants pay.

Figure 37

Do You Have Access to a Credit or Debit Card?

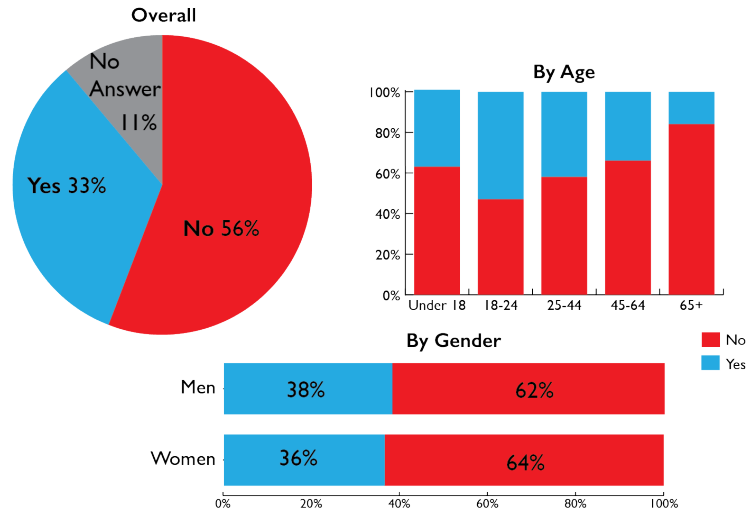


3.5.7 Have You Considered Joining Citi Bike?

One-third of residents surveyed stated that they had considered joining the Citi Bike program. Because this survey has no other larger survey to measure this statistic against, it is difficult to ascertain whether 33% is greater or less than that of the larger public opinion (see Figure 40). Anecdotally, a number of respondents noted that because they had learned about the discounted rate for NYCHA residents while taking the survey, they were more likely to consider joining the program.

Figure 40

Have You Considered Joining Citi Bike?



When considering responses by age, nearly 50% of 25 to 44 year olds and roughly 40 % of 16 to 17, 18 to 24, and 45 to 64 year olds said they had considered joining the program, while only 18% of those over 65 years old said they had considered joining. The high rate of consideration amongst younger individuals may suggest that the Citi Bike should gear more efforts towards engaging youth living in NYCHA to join the program.

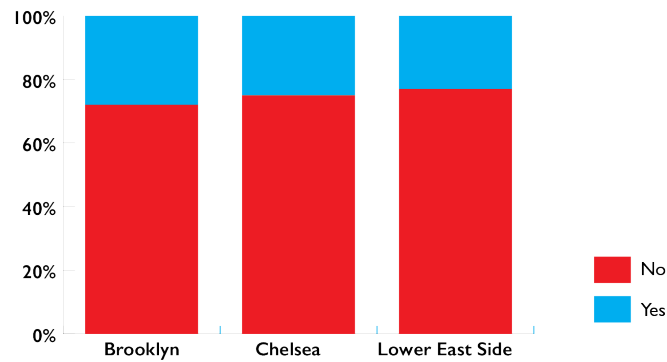
3.6 Experience and Opinion by Geography

When analyzing the data by geography, developments were divided into three general localities: Brooklyn, Lower East Side, and Chelsea. It is important to note that amongst these geographies, the Lower East Side has received the most outreach from Citi Bike, featuring numerous helmet give-aways by DOT and group rides organized by Local Spokes. The Citi Bike program has also done outreach at

the Ingersol houses, organizing several group rides from the Ft. Greene area where the houses are located. Campuses in the Chelsea area (Chelsea Houses and Fulton Houses) have not hosted any Citi Bike related outreach. With this in mind, the overall difference in outreach does not seem to have a great effect on resident's knowledge or usage of the program (see Figure 41).

Figure 41

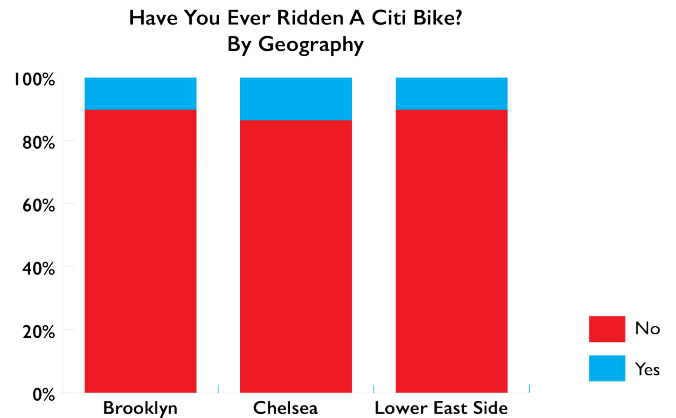
**Did You Know There Was A Discount For NYCHA Residents?
By Geography**



When asking respondents whether they knew about the discounted membership for NYCHA residents, each area demonstrated a similar lack of knowledge about the program. This finding suggests that greater outreach to certain areas has not improved the overall knowledge of the discounted membership in those communities and that the outreach being used are not effective in reaching the entire NYCHA population.

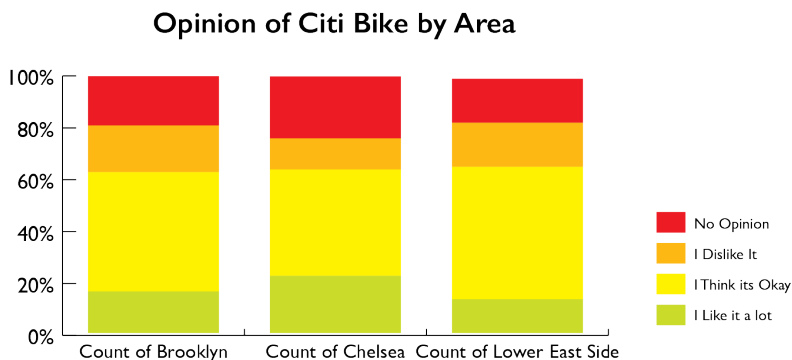
When looking at usage, small percentages of individuals had tried Citi Bike across all geographies (see Figure 42). Of the three geographies, Chelsea had the highest number of individuals that had tried the program, despite receiving no

Figure 8



outreach from Citi Bike. The Lower East Side, which received the most outreach, had the lowest percentage of individuals that had tried the program. Chelsea had the highest number of individuals state that they liked the program a lot, while more than 50% of respondents from the Lower East Side stated that they thought the program was okay. Brooklyn and the Lower East Side tied for the most individuals that disliked the program- about 18 %, while all three neighborhoods had roughly 20% of respondents say that they had no opinion (see Figure 43). These numbers tell us that in general NYCHA residents tend to think favorably of the program throughout the Citi Bike network and that outreach had little effect on the number of individuals that had tried the program.

Figure 43

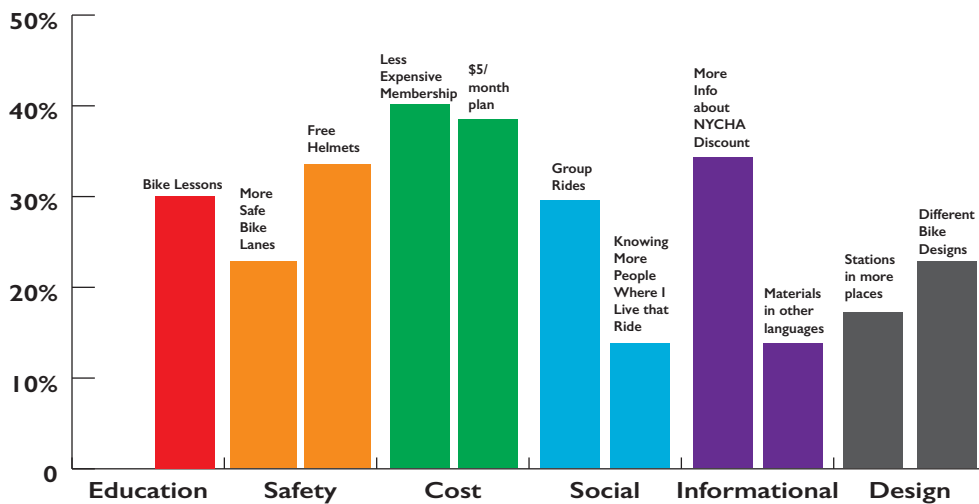


3.7 Opportunities

A number of ideas of how to improve access to Citi Bike have been forwarded by experts and tried by a different bike share systems throughout the world. This survey listed some of the ideas that are applicable to Citi Bike and NYCHA and asked whether they would improve the likelihood of a NYCHA resident trying the program. These ideas have been broken down into following types of improvement: educational, safety, cost, social, informational, and design. NYCHA residents indicated that improvements to the overall cost of the program and the creation of a monthly installment plan were most likely to get them to try the program. More readily available information about the discounted program, free helmets, and group rides also ranked highly amongst those surveyed (see Figure 44).

Figure 44

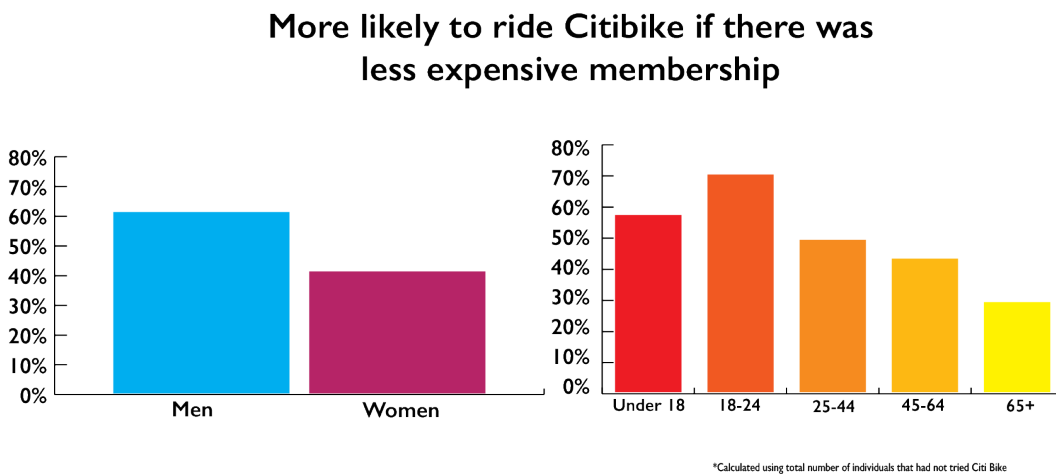
What Would It Take to Get You on a Citi Bike?



3.7.1 Cost:

Less expensive memberships to the program ranked highest (41%) amongst those surveyed as a strategy that may get them to try Citi Bike. Despite the already discounted rate of \$60 (now about one-third of the yearly membership cost), it is still more than many are willing or able to pay (see Figure 45). When asked how much they thought Citi Bike should cost, the median price for a membership given was \$40 per year. Considering that many of NYCHA residents are amongst the poorest individuals living in New York City, lowering the cost by \$20 could make the difference in one's ability to participate in the program.

Figure 45



More than 60% of men who had not tried Citi Bike also said that they would be more likely to try the program if the membership was less expensive, while roughly 40% of women said the same. More than 70% of 18 to 24 year olds that had not tried the program were most likely to try if the membership cost decreased followed by nearly 60% of individuals under 18 year olds. This high percentage

suggests that the cost of the program is prohibitive for younger NYCHA residents, and that creating opportunities for lower cost memberships for NYCHA youth could improve ridership.

An idea that could be used in place of or in tandem with a less expensive membership is a \$5 per month installment plan for discounted annual memberships. Budgets within low-income families tend to be tight and income can often fluctuate based on one's ability to get work month to month, so a low automatically-deducted or cost attached to rent might allow greater flexibility for these individuals or families. Many of those surveyed also mentioned the desire to be able to pay several months at once should an influx of funds become available to them. With this in mind, creating a low-fixed or loosened mechanism for payment may improve a NYCHA resident's ability to take part as annual members of the Citi Bike program.

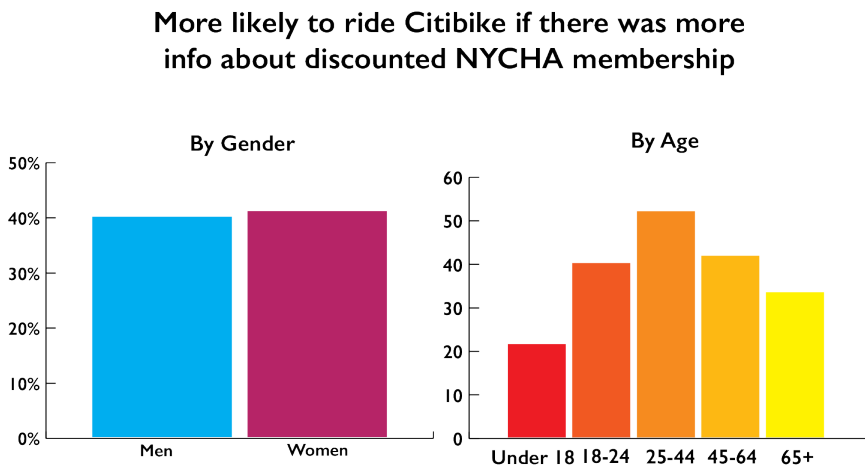
3.7.2 Informational:

One of the difficulties associated with the NYCHA's discounted membership program is a lack of widely distributed or accessible information about it. In order to find these details, one must go to Citi Bike's website and seek out the section on discounted memberships, which does not include any mention of NYCHA in the link. To date, there has not been any sort of semi-permanent street-level advertisement or repeatedly televised mention of the discounted program. NYCHA's discounted program is not widely advertised, and to find detailed information one must know to go looking for it. The fact that 80% of those surveyed did not know that a

discounted program existed is a proof that marketing the discounted program to NYCHA residents has not been a priority.

With this in mind, 41% of those surveyed indicated that knowing more about the discounted program would make them consider trying the program. Almost identical percentages of men and women stated that more information about the program made it more likely that they would try Citi Bike. 25 to 44 year olds were the most likely to say that more information about the program would make them consider trying Citi Bike (52%), while individuals under 18 were the least likely (21%), suggesting that gearing this type of outreach to more mature NYCHA audiences may yield better results (see Figure 46).

Figure 46



3.7.3 Free Helmets

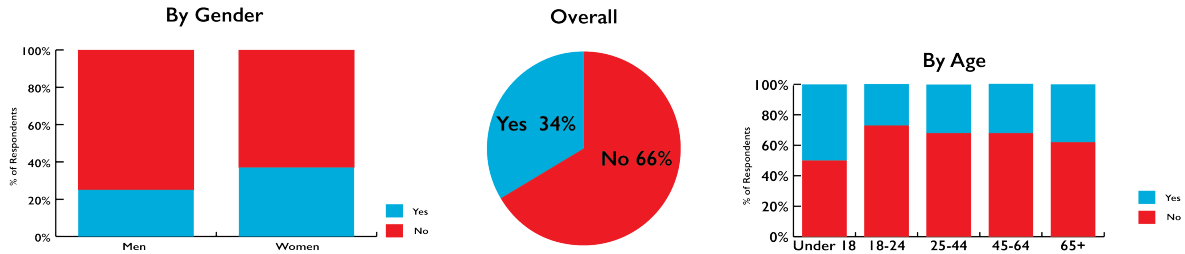
One of Citi Bike and DOT's central strategies for doing outreach to communities has been through free helmet giveaways at NYCHA campuses. This strategy has been very popular amongst the general public. Most giveaways have

run out of helmets, and the long lines are inclusive of people from all social strata. While all kinds of people having a helmet is great for safety overall, A criticism of the approach could be lack of focus on making sure that low-income populations that may not be able to afford a helmet receive one before someone that can. Secondly, these long lines may be off-putting for a NYCHA resident who may otherwise be interested in learning more about the program. Creating NYCHA only events may result in a greater number of residents learning about the discounted program, and higher number of those in need of a helmet, being able to receive one.

When surveyed, NYCHA residents indicated that free helmets would improve the likelihood of them trying the Citi Bike program. Free helmets were more popular amongst women than men, and were particularly popular amongst respondents under 18 (50%) and over 65 (39%), two demographics are that are currently underrepresented in terms of overall program usage (see Figure 47). Considering the concerns that many respondents (particularly women) had about riding alone and / or in traffic, free helmets could represent an effective method for getting NYCHA residents to join the Citi Bike program. More information about effective helmet giveaway strategies will be provided in the next chapter.

Figure 47

Would free helmets help to get you to ride Citi Bike?



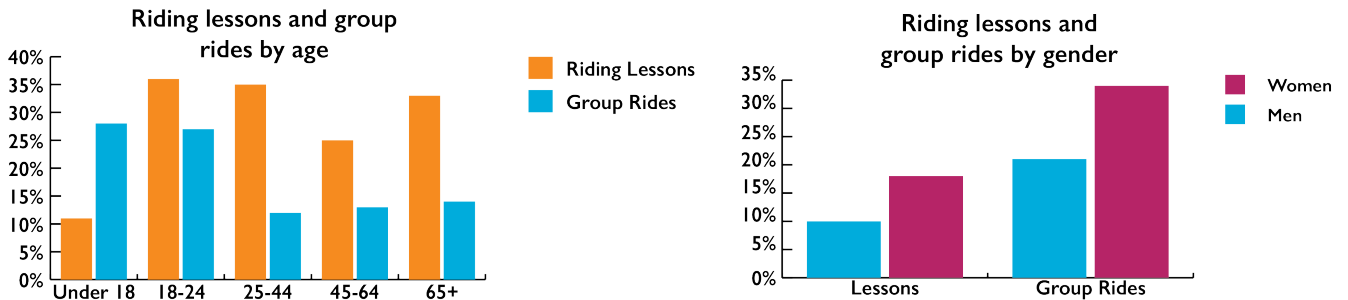
3.7.4 Group Rides and Bike Lessons

Another outreach method that Citi Bike has used is the coordination of group rides with community-based organization. Groups such as Myrtle Avenue Revitalization Project (Local Development Corporation) and Good Old Lower East Side, whom both work with NYCHA and low-income residents, have been given access keys, which unlock bikes for group. These rides are intended to improve engagement between the Citi Bike program and members of these communities, with hopes of increasing the number of low-income individuals that have access to the program.

Those surveyed indicated that more opportunities like these would be appealing to them, but also said that they would like a regular riding group should they join the program (see Figure 48). The idea of localized NYCHA riding groups ties into the idea of those surveyed knowing more people where they live that ride bikes. Creating a pairing structure where new riders could ask other people from

their community questions about the program might make Citi Bike feel more accessible for would-be riders. It also has the potential to create informal riding groups, while developing greater localized knowledge about how to use Citi Bike and join the discounted program for NYCHA residents.

Figure 48



Given the high percentages that indicated that they did not feel comfortable riding in traffic or riding alone, along with those that did not know how to ride a bike, it makes sense that a large number of those that had not tried Citi Bike were interested in riding lessons. Many indicated that they knew how to ride a bike in a location without traffic, but were worried about taking Citi Bike into trafficked areas. By developing partnerships with a cycling education group to teach lessons on how to bike safely in trafficked areas, Citi Bike could potentially engage a greater number of riders from NYCHA.

3.8 Chapter Summary:

Overall, the NYCHA residents surveyed hold a fairly favorable view of Citi Bike despite a small number having tried it or knowing about the program’s discounted program. The survey showed that a large portion of respondents had not

heard of the program before its launch, and that a lack of information about what bike sharing is may exist amongst NYCHA residents.

Amongst the few that had tried the program, even fewer had used the program for more longer than a 24-hour period, and only 3 had annual memberships, only one of which was purchased with NYCHA's discount. Respondents used the program more for fun and exercise than for commuting purposes, and their experience was generally positive overall. The difficulties associated with the program by users were largely related to issues with getting bikes in or out of stations, holds on credit cards being placed for extended periods of time, and not having a good way to measure how much time they had spent on the bicycle.

Those that had not used Citi Bike indicated that they had not done so for a range of reasons. Many indicated they were use to their routine, felt the program was too expensive, did not feel safe riding in traffic, already owned a bike, and/or did not feel the program was intended for them. Issues such as lack of access to a credit or debit card, Citi Bike being uncool, and kiosks being difficult to use were not largely noted as deterrents amongst individuals that had not tried the program. Overall one-third of all respondents that had not tried the program said they would consider joining Citi Bike.

When asked what it would take to get them to ride a Citi Bike, less expensive memberships, free helmets, bike riding groups, more information about the NYCHA

discount at kiosks, and a \$5 per month installment plan ranked highest amongst respondents. Women were particularly drawn to bike riding groups and free helmets, while men were more interested in less expensive memberships and installment plans. The next chapter features a list of recommendations that utilize the findings of this survey to suggest ways that Citi Bike could improve participation in the discounted membership program for NYCHA residents.

Chapter 4: Recommendations for Improvement

This chapter offers recommendations and proposals aimed at improving accessibility to and usage of the Citi Bike program by NYCHA residents. When considering these recommendations and reflecting on the chapters before, remember that NYCHA residents are among New York City's most underserved groups. This population shares many burdens including: living far from the train, having constrained work opportunities, working odd hours, having difficult commutes, and having small apartments with little space to hold a bike. These discounted memberships have the potential to make a big difference in the life of a NYCHA resident especially those living paycheck to paycheck by providing 24-hour access to transportation at a fraction of the cost of purchasing monthly subway passes, and yet so few NYCHA residents know that the program's available to them.

With this in mind, the following recommendations take into account the range of groups living in NYCHA housing and the needs associated with improved engagement to this population. Proposals in this section include recommendations on outreach, advertising, programming, system policies, payment methods, and infrastructure, with the intention of improving usage of Citi Bike by NYCHA residents.

4.2 Cost and Pricing Measures

Installment plans

Despite the discounted membership, cost was still a primary barrier to many NYCHA residents trying the program. One potential solution that many of those surveyed indicated would make them more likely to join the program was to break the \$60 payment into monthly installments of \$5. Additionally, many individuals acknowledged that expendable income in their household tends to ebb and flow, so the ability to pay several months at once if wanted, was highly desirable, as well as being able to freeze their membership during months that they do not plan to use the program.

4.3 Women and Cycling

More than two-thirds of those living in NYCHA that are old enough to use Citi Bike are women. Many studies have shown that women and men in the United States tend to demonstrate different types of travel behavior, with women showing more concern for safety when making mode choices, but also being more likely to make several stops during a trip that are associated with familial duty. With this in mind, creating a range of strategies to better engage and account for the difference in types of trips that women tend to make, is vital to improving engagement with NYCHA residents.

Cycling Groups and Lessons for Women

Female survey respondents reacted very positively to the idea of cycling groups and lessons when asked what types of measures might get them to try the program. Women's only cycling classes / groups may help remove some of the fear associated with riding in traffic and relieve some of the intimidation that often acts as a barrier to new or would-be cyclists.

Advertising to Women of Color

One of the top reasons for women surveyed stating that they had not used the program was that they felt the program was not intended for them. One method for improving membership amongst women in NYCHA might be to create more marketing materials that include Black and Hispanic/ Latina women of varying ages shown using the program. This could be done through a series of rider profiles placed near Citi Bike Stations, or in videos/ commercials featured on the program's website or on local television.

4.4 Outreach and Advertisement

80% of NYCHA residents surveyed indicated that they had not heard of the discounted membership for NYCHA residents. Even more individuals (85%) indicated that they had not tried the program. Citi Bike's lack of publically advertised and accessible information on the discounted program could be greatly to blame. In order to improve engagement with NYCHA residents it is recommended that the Citi Bike program consider expanding outreach and advertisement approaches to NYCHA through the following techniques:

Advertise in Citi Bike Stations:

At present, the check out machines and advertisement spaces that sit adjacent to Citi Bike Stations do not include any information about discounted membership programs for NYCHA residents. By using a portion of these spaces to advertise the discounted program, stations near NYCHA campuses, in particular, can become a low cost engagement tool for the program.

Advertise in NYCHA Community Facilities:

In addition to better utilization of stations, advertisement of the yearly membership discount for residents at NYCHA Community Centers, Preschools, and Senior Centers should be considered. These spaces may also be better centers for doing NYCHA-based outreach events, where those in need are prioritized for receiving giveaways such as helmets and lights, as well as providing the ability to try a Citi Bike and sign up for the program in person.

Advertise on the front page of the Citi Bike Website:

The current Citi Bike website home page mentions all types of memberships, including a discounted membership via Citi Bank. However, to find information about the discounted Citi Bike membership on the website, one must first go to the pricing page, and then find a link that says, “Discounted Memberships for Qualifying New Yorkers” in a small box at the bottom of the page, before finding any information that mentions NYCHA residents. To know that there is a discounted membership a NYCHA resident must know to seek out the details. Without prominent print advertisement elsewhere about the program, there are few venues

for the average NYCHA resident to know that the program exists. An easy way to fix this is to create a prominent space on the home page of the Citi Bike website that clearly states that NYCHA residents get a discount, and to provide a link to more information about the discounted program.

Advertise on New York 1:

A number of individuals indicated that they first heard about Citi Bike on TV via cable channel New York 1. One way to better engage NYCHA residents may be to work with the station to air a series of informational pieces about Citi Bike, the discounted membership, the program's riding lessons program, and any giveaways that may occur at NYCHA campuses in the future.

NYCHA's Community Newsletter:

A number of sources expressed that a good way to engage NYCHA residents is through the developments monthly newsletter. Working with NYCHA to make space for information about the program and events each month could be a great way to improve engagement with residents.

Hire NYCHA Ambassadors:

Another way to engage NYCHA residents may be to employ current Citi Bike Members from NYCHA that use the program to talk about the benefits and help address questions about the program at their NYCHA campus. Outreach featuring members of the NYCHA community might help to legitimize the program as a feasible, affordable, and safe means of transportation, exercise, or fun.

4.5 Bike Design

Timers

Several NYCHA residents that had used the program stated that they were stressed about keeping track of time while using Citi Bike as they were afraid of the additional charges that accrue. Putting timers on the bicycles so that individuals can track how much time they have used could assuage some of these worries, creating a more enjoyable riding experience, improve the circulation of bikes in the system, and allow users to make more educated decisions on whether or not to re-dock their bikes.

Rentable Baby Carriers, Cargo Attachments, and Bicycles For Children:

Current Citi Bike bylaws forbid the attachment of baby carriers and cargo carts for use on Citi Bike and provide only adult-sized bikes for rent. These by-laws actively discourage use amongst women, who tend to bear a disproportionate amount of domestic duties including the transport of children and grocery shopping. By developing new bike designs or a way for individuals to rent attachments, Citi Bike could provide an improved and more flexible service that's more inclusive of the needs of women living in NYCHA developments, and women in general.

In summer 2014, the Velib bike share program in Paris, launched a service for children ages two to ten comprised of 300 bikes in four different sizes (see Figure 49). The bikes all include helmets and many have training wheels for children who have just begun to learn how to ride. Although the program for children is still in its infancy, it sets a precedent for how Citi Bike can expand to be

inclusive of children and the parents or guardians that would like to be able to ride along with them.

Figure 49:Velib's Bike Share Program for Children



Source: www.fastcodesign.com

4.6 Reporting Stolen Bikes:

Several individuals surveyed wanted to know how to contact Citi Bike about stolen bikes they see in NYCHA campuses. Many reported seeing bikes inside of buildings and left abandoned by joyriders who managed to steal them from docks. Many stated that they did not like that bikes were being left about, because it gave their building a bad reputation. One way to remedy this is to create a toll-free number where people can report stolen bikes and post it on Citi Bike Stations near NYCHA campuses.

4.7 Citi Bike: The Streets Are Your Gym

Citi Bike markets and orients itself as a commuting system and more generally a way from get from point A to B. The majority of NYCHA residents surveyed that had used the program stated that they had used it for fun or exercise. Additionally, when responding to the “I don’t want to get sweaty” option on the question about why they had not tried Citi Bike, many respondents offered just the opposite, stating that they wanted to try Citi Bike *to* get sweaty and to get in shape. Marketing Citi Bike as a way to fight obesity, and providing opportunities based on improving health could be key to getting NYCHA residents to become annual members of the Citi Bike program.

4.8 Helmet Giveaways

Free helmets were popular among those surveyed, and could be a method for improving the number of NYCHA residents participating in the discounted membership program. In addition to the current helmet giveaway program run in conjunction with DOT, Citi Bike should consider giving a free helmet to NYCHA residents that sign up for the discounted membership program as an added perk. Additionally, Citi Bike should consider developing NYCHA-specific helmet giveaways so that there is less competition for goods and more focus on getting information to NYCHA residents about signing up for the discounted membership.

4.9 Education

Citi Bike: A How to Guide

Surveying showed that NYCHA residents lack access to information about the sign up process for securing a discounted membership and more generally the details of how Citi Bike functions. One way to improve NYCHA residents' knowledge of the program could be to work with an organization such as the Center for Urban Pedagogy (CUP) to create an illustrated guide that defines bike sharing, Citi Bike's rules and regulations, and the process for signing up for the program via the discounted NYCHA membership program or participating Credit Union. These manuals could then be given out by Citi Bike at outreach events and left at NYCHA community centers in the network area.

Engaging Senior Populations

This survey and overall Citi Bike usage statistics show that senior citizens are much less likely to use Citi Bike than other age groups. This disconnect is of particular concern when considering that NYCHA's fastest growing population is made up of senior citizens. One method for engaging this demographic might be to organize rides with NYCHA senior centers and senior groups. One might also consider working with the Brownsville Partnership and bike advocate Betty Kollock-Wallace, who have cultivated a long-term senior citizens riding group in the Brownsville / East New York area, and have been very successful in engaging these low-income communities in taking an active role in the development of bicycle infrastructure and use.

Engaging Youth Populations

Youth in NYCHA were among the most likely to have tried Citi Bike, however, city wide, individuals under 24 lag behind other groups in terms of usage.

Cultivating youth bike riding groups based in NYCHA community centers, which sponsor rides and teach students how to repair bikes could create a system for training future Citi Bike mechanics. This grassroots approach could help to develop greater usage by a demographic that is currently under-engaged, while sourcing a future workforce for Citi Bike.

4.10 Extend Discounted Memberships

Two million people in New York City are considered low-income. Of that two million, NYCHA officially houses about 400,000 people plus a significant number more that live off-lease. While those living in NYCHA are amongst the poorest New Yorkers, they are in some ways fortunate compared to many families, in that they have attained affordable long-term housing. The upcoming expansion of Citi Bike means that more communities will have access to the program. But for many, the cost of paying for Citi Bike is too much, and has become more burdensome with the recent increase of the annual membership to \$150 per year. With this in mind, an expansion of the discounted Citi Bike membership to a greater number of low-income individuals could help close the affordability gap that many New Yorkers now face.

Citi Bike currently uses NYCHA lease information to account for users of the discounted annual membership program. One method for the expansion of these benefits beyond NYCHA could occur instead through the New York State Benefits identification card, which is used in conjunction with programs such as the Supplemental Nutrition Assistance Program (SNAP) and Medicaid and provides support to more than 1.8 million New Yorkers. While improving usage amongst NYCHA residents remains important at present, as the program expands, creating a program that is inclusive of a larger population in need should be considered.

4.11 Identifying Barriers

While this study is meant to identify and speak to a lack of engagement between Citi Bike and NYCHA, a longer-term method for strengthening this relationship could come in the form of a monthly working group. This working group would consist of NYCHA annual members and Citi Bike Staff, who would work on ways to improve participation in the discounted program and work to identify solutions to on going barriers that the group identifies in the program.

4.12 Conclusion

The Citi Bike discounted membership program's lack of signups after more than a year and a half of operation, calls into question the program's commitment to creating equitable access to the program. With very little publically accessible information and few large scale efforts aimed at improving engagement with NYCHA residents, the discounted membership program seems to be more of an effort to

placate or check boxes than to level the playing field. While this is disappointing, it should not come as a surprise. Citi Bike's ownership, Alta Bicycle Share and parent company REQX Ventures, are private entities dependent on pass and membership sales to remain financially solvent. With this in mind, equity measures, which generate less revenue, are also likely to remain a low priority for Citi Bike and Alta.

The recommendations offered in this chapter provide strategies for improving access to the Citi Bike program's discounted membership for NYCHA residents. Changes to the program's outreach, advertising, programming, system policy, payment methods, and infrastructure, could improve engagement with the NYCHA community and expand usage amongst some of New York City's poorest residents. To see improvements to the discounted membership program, such as those recommended in this chapter, it is likely that NYCHA residents, program members, transportation advocates, and government officials will need to work together to leverage such changes. With the Citi Bike program scheduled to expand to more neighborhoods in New York City, the push for equity measures like those recommended are not only timely, but crucial.

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Appendix A:



Citi Bike Survey

This survey is intended to gather NYCHA resident's opinions on the Citi Bike program, providing a way to share experiences and/or how the program could be improved to better suit the needs of this community.

1. Gender: Male / Female / Other		2. Age: Under 18 / 18-24 / 25-44 / 45-64 / 65+		3. Race: (Circle all that apply) African American / Black / Hispanic / Latino Asian / White / Native American / Other	
4. Do you know what a bike share program is? Yes / No		5. Did you know Citi Bike is a bike share program? Yes / No		6. If Yes, how did you learn about it? (Circle all that apply) TV / Radio / Internet / Newspaper / Family / Friend / Neighbor / School / Saw it in person / Meeting / Other	
7. What is your opinion of the Citi Bike Program? I like it a lot / I think it's okay / I dislike it / No opinion		8. Did you know there is a discount on yearly memberships for NYCHA residents? Yes / No		9. Have you ever ridden a Citi Bike? Yes / No <i>If you answered no, please skip to Question 11</i>	
10a. If yes: Which type of pass(es) did you buy? (Circle all that apply) 24 Hour pass / 7 Day pass / 1 Year			10b. How often do you use the program? Every Day / Sometimes / Rarely / Never		10c. When do you ride? (Circle all that apply) Morning / Afternoon / Evening
10d. If yes, what did / do you use it for? (Circle all that apply) Commuting to work / Running errands / Exercise / For fun / Going to train or bus / Other		10e. How would you rate your experience riding Citi Bike? Very Good / Good / Fair / Poor / Very Poor		10f. Have you experienced any difficulties while using the program? Yes / No	
10g. If you answered "Yes" to Question 10e. <i>Please describe the difficulties you experienced.</i> _____ _____				10h. If you purchased a 1-year pass, did you purchase the membership through the NYCHA discount program? Yes / No	
11. If you answered "No" to Question 9, why have you not used Citi Bike? (Check all that apply)					
<input type="checkbox"/> Not enough time to get where I need to go		<input type="checkbox"/> Do not know how to ride a bike		<input type="checkbox"/> Not enough people where I live ride them	
<input type="checkbox"/> I'm used to my routine		<input type="checkbox"/> Do not enjoy riding bikes		<input type="checkbox"/> Citi-Bike does not feel intended for me.	
<input type="checkbox"/> Don't want to get sweaty		<input type="checkbox"/> Do not feel safe riding alone		Why? _____	
<input type="checkbox"/> Stations not located where I want to go		<input type="checkbox"/> Do not feel safe riding in traffic		<input type="checkbox"/> I think Citi Bike is uncool	
<input type="checkbox"/> Already own a bike		<input type="checkbox"/> Too expensive		<input type="checkbox"/> Other: _____	
<input type="checkbox"/> Kiosk too hard to use		<input type="checkbox"/> Do not have access to a credit/debit card			
11B. If you answered "No" to question 9, have you considered joining? Yes / No					
12. What would it take to get you to ride a Citi Bike? (Check all that apply)					
<input type="checkbox"/> Less expensive membership, how much would you pay? _____		<input type="checkbox"/> Stations in more locations: Where? _____			
<input type="checkbox"/> More bike lanes in your community that feel safe		<input type="checkbox"/> \$5 per month plan : Example: _____			
<input type="checkbox"/> Bicycle riding lessons		<input type="checkbox"/> Citi Bike materials in other languages _____			
<input type="checkbox"/> Free helmets		<input type="checkbox"/> Knowing more people where I live that have memberships			
<input type="checkbox"/> Bike riding groups		<input type="checkbox"/> Different bike designs			
<input type="checkbox"/> More info about NYCHA discount at kiosk		<input type="checkbox"/> Other: _____			
13. Are you interested in taking part in a focus group about access to Citi Bike for NYCHA residents? Yes / No					
If Yes: Name: _____ Phone Number: _____ Email: _____ Which NYCHA development do you live in? _____					

Appendix B:



Citi Bike Encuesta

Esta encuesta es para recabar opiniones de los residentes de NYCHA acerca del programa Citi Bike. Es una oportunidad para compartir experiencias y forma en que el programa podría ser mejorado para satisfacer mejor las necesidades de esta comunidad.

1. Cuál es su Sexo: Masculino / Femenino / Otros		2. Cuál es su Edad: Menores de 18 / 18-24 / 25-44 / 45-64 / 65+		3. Cuál es su Raza: (Marque todos los que aplican) Afro Americano / Negro / Hispano / Latino / Asiático / Blanco / Nativo Americano / Otro																			
4. ¿Sabes lo que es el programa de bicicletas compartidas Citi Bike? Si / No		5. ¿Sabías que Citi Bike es un programa de participación en bicicletas compartidas? Si / No		6. En caso afirmativo: ¿Cómo se enteró del programa Citi Bike? (Marque todos los que aplican) Televisión / Radio / Internet / Periódico / Familiar / Amigo / Vecino / Escuela / Vi en persona / Reunión / Otro																			
7. ¿Cuál es su opinión sobre el programa Citi Bike? Me gusta mucho / Creo que está bien / Me gusta / No tengo opinión		8. ¿Sabía usted que hay un descuento en las membresías anuales para los residentes de NYCHA? Si / No		9. ¿Has montado una Citi Bike? Si / No Si contesto no, por favor pase a la pregunta numero 11																			
10a. En caso afirmativo: ¿Qué tipo de pase(s) has comprado? (Marque todos los que aplican) pase de 24 horas / pase de 7 Day / la membresía anual		10b. ¿Con qué frecuencia utilizas el programa Citi Bike? Todos los días / A veces / Casi nunca / Nunca		¿Cuándo montas la bicicleta? (Marque todos los que aplican) En la Mañana / En la Tarde / En la Noche																			
10d. En caso afirmativo: ¿Para qué la usas? (Marque todos los que aplican) Ir al trabajo / recados / Ejercicio / Para la diversión / Ir al Metro o autobús / Otros		10e. ¿Cómo calificaría su experiencia montando Citi Bike? Muy bueno / Bueno / Regular / Mala / Muy		10f. ¿Ha tenido alguna dificultad durante el uso del programa, Citi Bike? Si / No																			
10g. Si su respuesta es "Sí" a la pregunta 10e. Por favor describa las dificultades durante tu experiencia. _____ _____ _____				10h. Si compraste un pase de un año, ¿Lo compraste a través del programa de descuentos de NYCHA? Si / No																			
11. Si su respuesta es "No" a la pregunta 9, ¿por qué no ha utilizado Citi Bike? (Marque todos los que aplican) <table border="0" style="width: 100%;"> <tr> <td><input type="checkbox"/> No hay suficiente tiempo para llegar por bicicleta a donde tengo que ir</td> <td><input type="checkbox"/> No se cómo montar una bicicleta</td> <td><input type="checkbox"/> Donde vivo no hay suficiente gente que monten bicicleta</td> </tr> <tr> <td><input type="checkbox"/> Estoy acostumbrado a mi rutina</td> <td><input type="checkbox"/> No me gusta montar en bicicleta</td> <td><input type="checkbox"/> Citi-Bike no se siente deseada por mí. ¿Por qué? _____</td> </tr> <tr> <td><input type="checkbox"/> No quiero sudar</td> <td><input type="checkbox"/> No me siento seguro montando bicicleta solo(a)</td> <td><input type="checkbox"/> Pienso que Citi Bike es fuera de moda / pasado</td> </tr> <tr> <td><input type="checkbox"/> Las estaciones no están situado donde quiero ir</td> <td><input type="checkbox"/> No me siento seguro montando bicicleta en el tráfico</td> <td><input type="checkbox"/> Otro: _____</td> </tr> <tr> <td><input type="checkbox"/> Ya tengo una bicicleta</td> <td><input type="checkbox"/> El programa Citi Bike es demasiado caro</td> <td></td> </tr> <tr> <td><input type="checkbox"/> El quiosco (Kiosk) es demasiado difícil de usar</td> <td><input type="checkbox"/> No tengo acceso a una tarjeta de crédito o débito</td> <td></td> </tr> </table>						<input type="checkbox"/> No hay suficiente tiempo para llegar por bicicleta a donde tengo que ir	<input type="checkbox"/> No se cómo montar una bicicleta	<input type="checkbox"/> Donde vivo no hay suficiente gente que monten bicicleta	<input type="checkbox"/> Estoy acostumbrado a mi rutina	<input type="checkbox"/> No me gusta montar en bicicleta	<input type="checkbox"/> Citi-Bike no se siente deseada por mí. ¿Por qué? _____	<input type="checkbox"/> No quiero sudar	<input type="checkbox"/> No me siento seguro montando bicicleta solo(a)	<input type="checkbox"/> Pienso que Citi Bike es fuera de moda / pasado	<input type="checkbox"/> Las estaciones no están situado donde quiero ir	<input type="checkbox"/> No me siento seguro montando bicicleta en el tráfico	<input type="checkbox"/> Otro: _____	<input type="checkbox"/> Ya tengo una bicicleta	<input type="checkbox"/> El programa Citi Bike es demasiado caro		<input type="checkbox"/> El quiosco (Kiosk) es demasiado difícil de usar	<input type="checkbox"/> No tengo acceso a una tarjeta de crédito o débito	
<input type="checkbox"/> No hay suficiente tiempo para llegar por bicicleta a donde tengo que ir	<input type="checkbox"/> No se cómo montar una bicicleta	<input type="checkbox"/> Donde vivo no hay suficiente gente que monten bicicleta																					
<input type="checkbox"/> Estoy acostumbrado a mi rutina	<input type="checkbox"/> No me gusta montar en bicicleta	<input type="checkbox"/> Citi-Bike no se siente deseada por mí. ¿Por qué? _____																					
<input type="checkbox"/> No quiero sudar	<input type="checkbox"/> No me siento seguro montando bicicleta solo(a)	<input type="checkbox"/> Pienso que Citi Bike es fuera de moda / pasado																					
<input type="checkbox"/> Las estaciones no están situado donde quiero ir	<input type="checkbox"/> No me siento seguro montando bicicleta en el tráfico	<input type="checkbox"/> Otro: _____																					
<input type="checkbox"/> Ya tengo una bicicleta	<input type="checkbox"/> El programa Citi Bike es demasiado caro																						
<input type="checkbox"/> El quiosco (Kiosk) es demasiado difícil de usar	<input type="checkbox"/> No tengo acceso a una tarjeta de crédito o débito																						
11B. Si su respuesta es "No" a la pregunta 9, ¿Ha considerado usar la bicicleta? Si / No																							
12. ¿Qué se necesitaría para que usted ande en Citi bike? (Marque todos los que aplican) <table border="0" style="width: 100%;"> <tr> <td><input type="checkbox"/> Membresía más económico, cuánto pagarías? _____</td> <td><input type="checkbox"/> Estaciones en más lugares: ¿Dónde? _____</td> </tr> <tr> <td><input type="checkbox"/> Más carriles de bicicleta en su comunidad para sentirte más seguro en las calles</td> <td><input type="checkbox"/> Un plan de \$5 por mes: Ejemplo: _____</td> </tr> <tr> <td><input type="checkbox"/> Clases de bicicletas</td> <td><input type="checkbox"/> Materiales del programa Citi Bike en otros idiomas _____</td> </tr> <tr> <td><input type="checkbox"/> Cascos gratis</td> <td><input type="checkbox"/> Saber más personas donde vivo que tienen membresías</td> </tr> <tr> <td><input type="checkbox"/> Participar con grupos que montan bicicleta</td> <td><input type="checkbox"/> Bicicletas de diferentes diseños</td> </tr> <tr> <td><input type="checkbox"/> Más información sobre el descuento de NYCHA en el quiosco</td> <td><input type="checkbox"/> Otro: _____</td> </tr> </table>						<input type="checkbox"/> Membresía más económico, cuánto pagarías? _____	<input type="checkbox"/> Estaciones en más lugares: ¿Dónde? _____	<input type="checkbox"/> Más carriles de bicicleta en su comunidad para sentirte más seguro en las calles	<input type="checkbox"/> Un plan de \$5 por mes: Ejemplo: _____	<input type="checkbox"/> Clases de bicicletas	<input type="checkbox"/> Materiales del programa Citi Bike en otros idiomas _____	<input type="checkbox"/> Cascos gratis	<input type="checkbox"/> Saber más personas donde vivo que tienen membresías	<input type="checkbox"/> Participar con grupos que montan bicicleta	<input type="checkbox"/> Bicicletas de diferentes diseños	<input type="checkbox"/> Más información sobre el descuento de NYCHA en el quiosco	<input type="checkbox"/> Otro: _____						
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<input type="checkbox"/> Más información sobre el descuento de NYCHA en el quiosco	<input type="checkbox"/> Otro: _____																						
13. ¿Está usted interesado en participar en un grupo de discusión para los residentes de NYCHA sobre el acceso al programa Citi Bike? Si / No En caso afirmativo: Nombre: _____ Número de teléfono _____ Correo electrónico: _____ ¿En cuál NYCHA desarrollo/proyecto vives usted? _____																							