A Preliminary Inventory and Assessment of Health Care Facilities Within Manhattan Community District 3

Presented to Manhattan Community Board 3
By Amy Yang, 2013-2014 Community Planning Fellow

August 2014

ACKNOWLEDGMENTS

Thank you to:

Michael Levine
Fund for the City of New York

Human Services Committee
Manhattan Community Board 3

Digital Social Science Center Data Service
Columbia University

Juan Francisco Saldarriaga
Columbia University

Stacey Sutton
Columbia University

Jonathan Martin
Columbia University

Sue Kaplan
NYU Langone Center

Shraddha Ramani
Columbia University

TABLE OF CONTENTS

EXECUTIVE SUMMARY

In light of hospital closings in recent years, it is necessary to evaluate the health care needs of affected areas and assess the resources with which these needs can be met. The purpose of building an inventory of health care facilities is to not only have a catalogue of resources to reference, but also to have the capacity to assess whether or not Community District 3 (CD 3) is able to respond to existing and future health trends in the district. Furthermore, there are no major hospitals within CD 3, although a handful on its periphery serve the residents, and so it becomes even more critical for CD 3 to be able to evaluate its existing resources. With this tool, CD 3 will be able to identify where health services are and where they are needed. Knowing precisely where these gaps lie will help Community Board 3 lobby for necessary changes to ensure that residents are able to access the health care they need.

The first step was to conduct background research on the demographic makeup as well as the health issues facing CD 3 residents. Maps on race, education, income, disability, poverty, age, and medical insurance illustrate the spatial organization of the demographics. Then, the inventory was created through the compilation of various facility and provider listings. Challenges arose in the process of categorizing these facilities and the services they offered as they were numerous and widely varied. In total, 1,629 facilities have been entered into the inventory, with 113 attributes regarding services and specialties potentially offered by each. Continuing the project will be critical in filling in 113 attributes for in-depth analyses on the types of services available in CD 3.

While analyses on services must wait, initial analyses on the types of facilities in the district was conducted. The facilities were mapped and separated by type of facility. Preliminary trends include clustering of facilities in Union Square and Chinatown, a dominance of private practices, and sparse but fairly well distributed public-serving facilities spread across the district. In the future, it will be possible to not only analyze the stock of health care facilities in CD 3, but assess whether or not they are meeting population health needs and identify gaps in accessibility.

For future analysis, recommended steps are to 1) organize the data, 2) incorporate quantitative measures, 3) expand definitions of “accessibility,” 4) investigate historic trends, 5) analyze medical facilities as businesses, 6) construct solutions through a public process, and 7) push for better data.

INTRODUCTION

The task of the 2013-2014 Community Planning Fellow was to evaluate the need for health care facilities within Manhattan Community District 3 (CD 3). Bordered by East 14th Street, 4th Avenue, the Bowery, Canal Street, Baxter Street, Pearl Street, and the East River, CD 3 includes neighborhoods such as Union Square, East Village, Alphabet City, Lower East Side, Two Bridges, and Chinatown. The demographics of these neighborhoods vary vastly by race, education, and income and therefore also by the health issues faced by each respective group.

This evaluation was broken into three phases. The first phase focused on conducting a literature review and an assessment of population health needs, along with the creation of an inventory of health care facilities within the district. The second phase then aimed to analyze the relationship between existing facilities and population need, evaluating whether or not the district is adequately prepared to deal with prevalent health issues. Based on the findings from the analysis of the second phase, the third phase intended to explore possible policy tools with which to address gaps in health care within CD 3. The Fellow presented a work update at the Human Services Committee meeting each month.

Through the development of the inventory and continued investigation into the causes of health outcomes seen in CD 3, the scope

INTRODUCTION

of research kept growing. Accessibility to and options for health care services are arguably both predetermined by a person's geopolitical environment, as well as their independent decision. Preliminary analyses and findings are presented in this report. However to honor the complexity of this topic, it is suggested that the project remain a work in progress. This report provides suggested points of focus in the continuation of the project, seeks to encourage new ways of considering what determines health care access within a community, and offers alternate options in analyzing health care access.

BACKGROUND

To place the task in context, the issues of income, race, disability status, age, educational attainment, and medical insurance coverage are discussed in this section. Variations among these demographic attributes are linked with variations in health outcomes; these are among the elements that comprise the social determinants of health. The World Health Organization Commission on Social Determinants of Health Final Report (2008) states that "the social gradient in health…and the marked health inequities…are caused by the unequal distribution of power, income, goods, and services." Therefore, this section seeks to sketch a picture of the social determinants that drive the health trends seen in CD 3. Having a broad understanding of how population characteristics reflect social circumstances and how they in turn affect health outcomes, will help contribute to the construction of the inventory and subsequent analysis in adequacy of health care resources.

Income

Income and health, generally, are positively correlated: the higher one's income, the better one's health.*

The Furman Center's 2012 State of NYC's Housing and Neighborhoods reported that 17 percent of CD 3 households earned over $114,000 of income, while 28 percent of households earned under $19,000. The Furman Center also calculates an income diversity ratio which measures the spread of incomes within each community district; the higher the ratio, the broader the spread. In 2012, the income diversity ratio of CD 3 was 7.1; by 2013, it had grown to 7.5, indicating an increase in income disparity. In the 2013 State of NYC's Housing and Neighborhoods, Manhattan CD 3 reported the 6th highest income diversity in New York City, behind only Brooklyn CD 1, Brooklyn CD 8, Manhattan CD 10, Brooklyn CD 13, and Manhattan CD 9 (see Figure 1). The high income diversity dampens the positive findings of increased median household income, decreased overcrowding, and decreased poverty rate between 2011 and 2012. Moreover, the increased income diversity supports trends of increased unemployment (6.7-9.1 percent) and increased median rent burden (29.8-30.9 percent) between 2011 and 2012. While these trends are not unique to Manhattan CD 3, they are more drastic than those of its neighbors (see Figure 2).

**For the purposes of this report, this is a generalization. Some scholars will argue that absolute income is not the most useful predictor of health inequity, but that the distribution of wealth within a city, state, or nation may also influence the health inequities that arise (Lynch and Kaplan, 1997).*

Figure 1. Top Six Community Districts with Highest Income Diversity Ratio

	Community District	Neighborhood	Income Diversity Ratio
1	MN CD 9	Morningside Heights/Hamilton Heights	9.8
2	BK CD 13	Coney Island	8.2
3	MN CD 10	Central Harlem	7.8
4	BK CD 8	North Crown Heights/Prospect Heights	7.7
5	BK CD 1	Williamsburg Greenpoint	7.6
6	MN CD 3	Lower East Side/Chinatown	7.5

Source: NYU Furman Center for Real Estate and Policy, 2012

Figure 2. Population Attributes in Lower Manhattan by Community District

	New York City		Manhattan (MN)		MN CD 3		MN CD 1*		MN CD 2*		MN CD 4**		MN CD 5**		MN CD 6	
	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012
Population	8,244,910	8,336,697	1,601,948	1,619,090	165,774	167,050	146,491	147,935	146,491	147,935	143,051	141,068	143,051	141,068	147,757	141,157
Severe Crowding Rate (% of Renter Households)	4.2%	4.1%	2.7%	2.5%	4.7%	2.5%	2.9%	3.0%	2.9%	3.0%	2.8%	1.6%	2.8%	1.6%	1.6%	1.0%
Median Household Income	$50,433	$51,750	$67,602	$68,227	$39,932	$41,512	$122,222	$104,603	$122,222	$104,603	$84,662	$87,726	$84,662	$87,726	$103,544	$93,983
Poverty	20.9%	21.2%	18.3%	17.8%	28.6%	25.1%	7.5%	7.4%	7.5%	7.4%	13.1%	11.5%	13.1%	11.5%	11.0%	9.1%
Poverty (Under 18 Years Old)	29.8%	31.4%	-***	-	-	-	-	-	-	-	-	-	-	-	-	-
Poverty (Over 65 Years Old)	19.0%	19.1%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unemploy-ment	11.2%	10.6%	9.0%	8.8%	6.7%	9.1%	4.8%	4.6%	4.8%	4.6%	8.2%	7.2%	8.2%	7.2%	6.9%	5.5%
Median Rent Burden	32.5%	32.2%	28.5%	28.6%	29.8%	30.9%	24.4%	26.6%	29.8%	26.6%	28.4%	27.6%	28.4%	27.6%	26.7%	26.5%
Median Rent Burden (Low-Income Renters)	46.9%	46.6%	45.0%	42.9%	36.9%	39.0%	60.0%	66.7%	36.9%	66.7%	48.0%	42.4%	48.0%	42.4%	66.7%	62.7%
Racial Diver-sity Index	0.74	0.74	0.68	0.68	0.72	0.73	0.41	0.48	0.72	0.48	0.55	0.52	0.55	0.52	0.42	0.44
Income Di-versity Ratio	6.1	6.0	8.0	7.5	7.1	7.5	5.6	6.3	7.1	6.3	8.9	6.7	8.9	6.7	6.3	5.6
Educational Attainment (No HS Diploma)	20.3%	20.4%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Educational Attainment (Bachelor's or higher)	34.1%	34.7%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Child Obe-sity	20.7%	-	19.0%	-	16.3%	-	10.9%	-	16.3%	-	10.9%	-	10.9%	-	10.9%	-
Disabled	7.8%	7.6%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Foreign-born	37.2%	37.6%	28.8%	28.9%	37.5%	35.8%	22.1%	24.5%	37.5%	24.5%	25.9%	24.5%	25.9%	24.5%	21.1%	23.1%
Population Aged 65 and Older	12.3%	12.5%	13.7%	14.0%	14.4%	13.2%	11.1%	10.2%	14.4%	10.2%	11.1%	11.9%	11.1%	11.9%	15.1%	15.4%

Source: New York University Furman Center for Real Estate and Policy, 2012; 2012 ACS 1-Year Estimates

* Community Districts MN01 and MN02 both fall within sub-borough area 301. Data reported at the sub-borough area for these community districts are identical
** Community Districts MN04 and MN05 both fall within sub-borough area 303. Data reported at the sub-borough area for these community districts are identical
***Data not available

BACKGROUND

Figure 3. Median Household Income

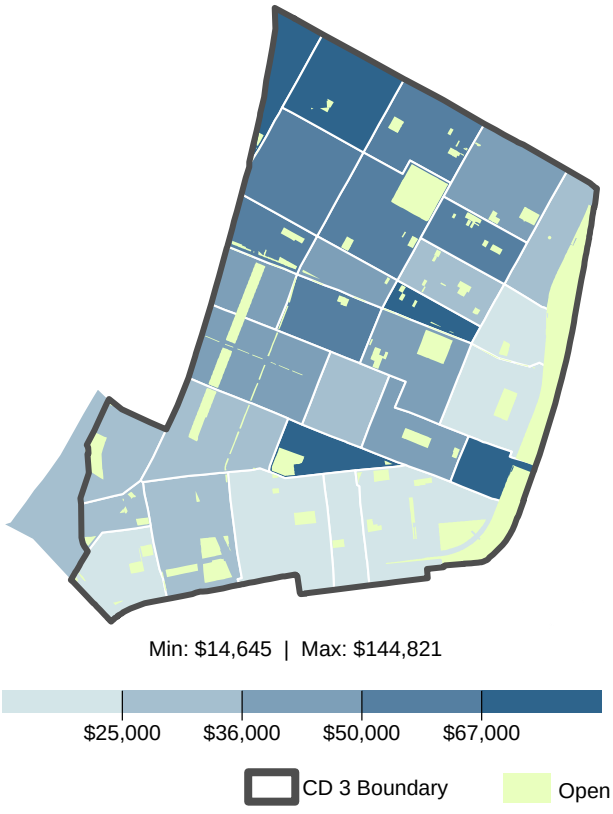
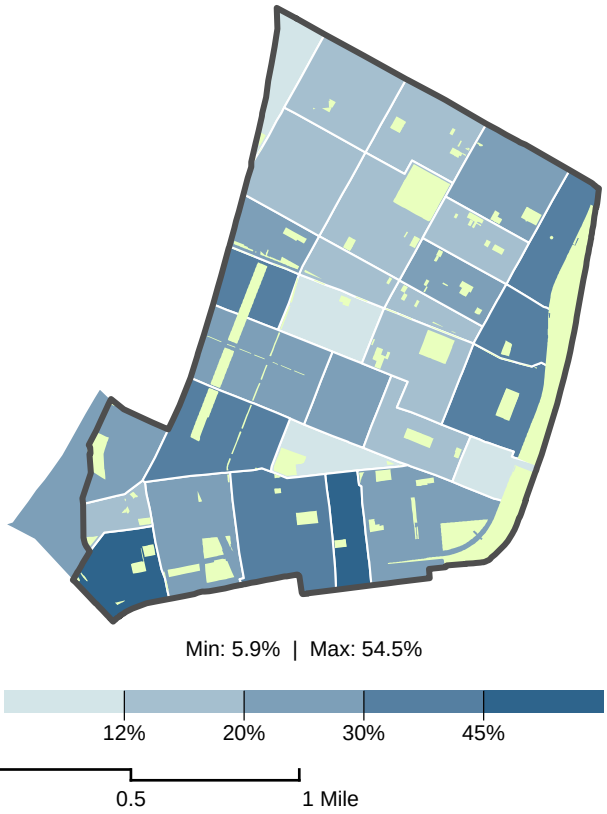


Figure 4. Households Below Poverty



Sources: NYC DCP, 2012 ACS 5-Year Estimates

Figure 5. Top and Bottom Five NYC Community Districts and CD 3 Census Tracts by Median Household Income

	NYC Community District	Neighborhood	Median Household Income	Poverty Rate
Top 5				
1	MN CD 1,2	Greenwich Village/Financial District	$104,603	7.4%
2	MN CD 8	Upper East Side	$100,994	7.6%
3	MN CD 6	Stuyvesant Town/Turtle Bay	$93,983	9.1%
4	MN CD 7	Upper West Side	$93,361	11.1%
5	BK CD 6	Park Slope/Carroll Gardens	$88,610	10.5%
Bottom 5				
51	BK CD 16	Brownsville/Ocean Hill	$28,838	36.4%
52	BX CD 4	Highbridge/South Concourse	$27,408	37.0%
53	BX CD 5	University Heights/Fordham	$21,959	42.3%
54	BX CD 3,6	Morrisania/Belmont	$20,933	46.4%
55	BX CD 1,2	Mott Haven/Hunt's Point	$19,443	46.1%

	CD 3 Census Tract*	Median Household Income	Poverty Rate
Top 5			
1	42	$144,821	10.1%
2	40	$85,055	15.4%
3	22.02	$83,807	17.6%
4	14.01	$81,700	6.2%
5	10.01	$80,223	5.9%
Bottom 5			
26	6	$18,832	38.8%
27	20	$18,488	42.0%
28	2.01	$17,282	48.1%
29	10.02	$15,890	36.8%
30	25	$14,645	54.5%

**See Appendix B, Figure B.1 for map of census tract numbers.*

Sources: 2012 ACS 1-Year Estimates, 2012 ACS 5-Year Estimates; NYU Furman Center for Real Estate and Policy, 2012

BACKGROUND

Figure 6. Persons Over 65 Years Old Living Below Poverty

Figure 7. Asian Population

Sources: NYC DCP, 2012 ACS 5-Year Estimates

Income diversity can also be considered spatially (Reardon and Bischoff, 2010). In the northwest corner, income is high and poverty is low, comparable to surrounding community districts which are highest and lowest in the city, respectively. However, in the southern tip, income is low and poverty is high, comparable to the South Bronx which are the lowest and highest in the city, respectively (see Figures 3, 4, and 5).

Thus, while a growing number of residents are living comfortably, a high proportion "continue to live on the edge of homelessness and economic survival" (Manhattan Community District 3 [CD 3], 2014a). For those who are struggling, access to primary care becomes more difficult. This is concerning, as "lack of access to quality primary care can result in negative health outcomes and lead to more intensive and expensive medical care" (Jasek, 2011).

Poverty is most prevalent in the southern and eastern parts of the district. Figure 6 shows that poverty is even more prevalent for those who are over 65 years old, especially in the south and southeast portions, including the Chinatown and Two Bridges neighborhoods.

The poverty rate of CD 3 is over two to three times that of neighboring Community Districts 1, 2, 4, 5, 6 (2012 ACS 1-Year Estimates*). A lot of this poverty is concentrated in the Two Bridges and Chinatown areas, which also correspond with an aging, Asian population with very low English proficiency.

**All percentages derived from the 2012 ACS 1-Year Estimates were taken from the Furman Center's State of New York City's Housing and Neighborhoods reports from 2012 and 2013.*

BACKGROUND

Figure 8. Black or African American Population

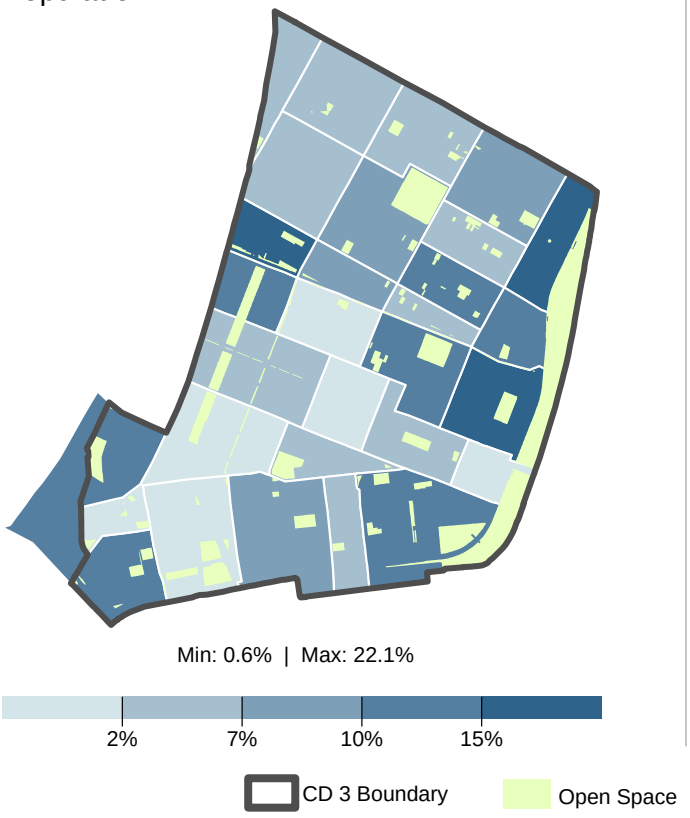
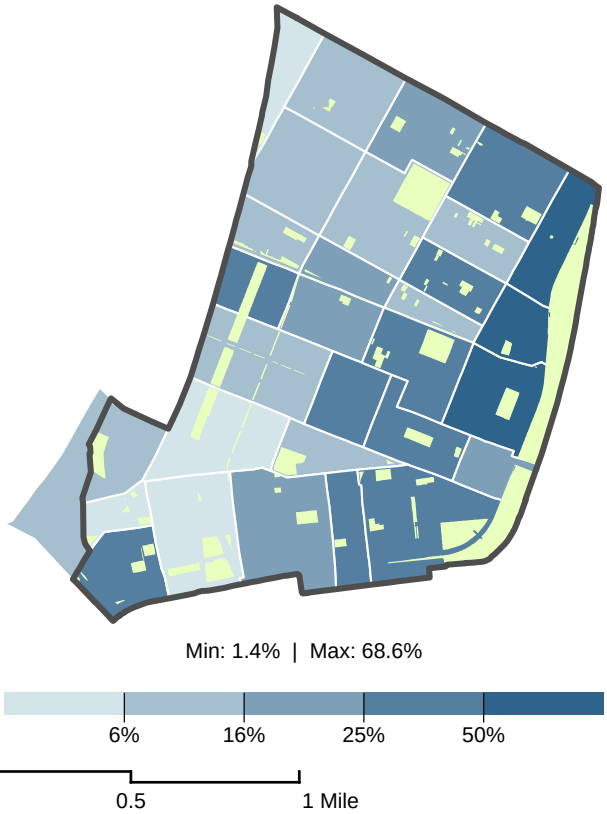


Figure 9. Hispanic Population



Sources: NYC DCP, 2012 ACS 5-Year Estimates

Race

Differences in health outcomes can be linked with differences in race (Hayward et al., 2000; Kirby et al., 2006). This link allows us to infer health conditions of CD 3 based on racial composition of the district.

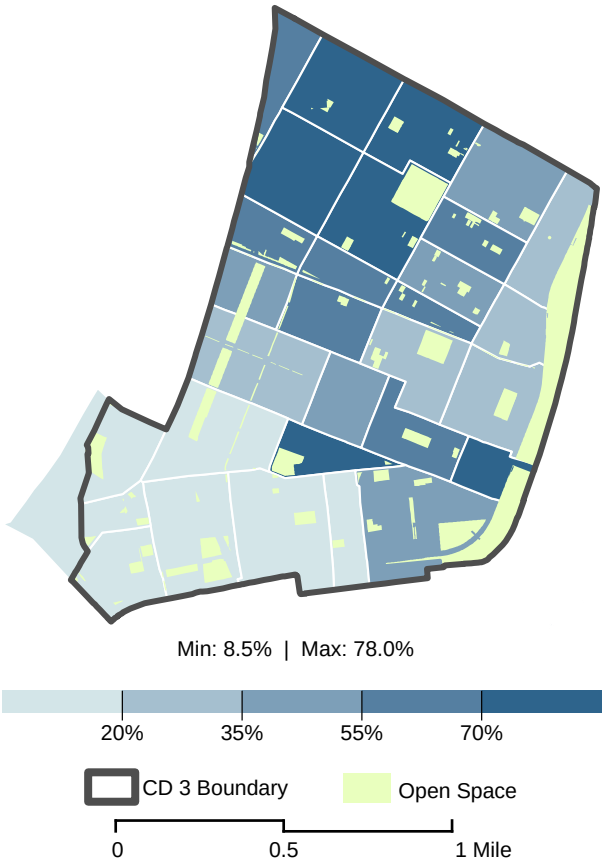
As of 2012, CD 3 was tied as the fourth most racially diverse neighborhood in New York City, composed of four broad groups: 39 percent white, 36 percent Asian, 23 percent Hispanic, and 9 percent African American. Even within these groups, there is a large range of racial diversity that reflects a diversity of health conditions. 35.8 percent of the population is foreign-born (2012 ACS 1-Year Estimate; Furman Center, 2013).

Figure 7 shows that the Asian population is heavily concentrated in the Chinatown area. Figure 8 shows that there are pockets of concentrated areas of Black or African American populations, but that these are dispersed throughout the district. Figure 9 shows that there is a heavier concentration of Hispanic population on the east side of the district. Figure 10 shows that there is a high concentration of White populations in the northwest corner of the district.

Binge drinking in New York City occurs most often with White, well-educated males (New York City Department of Health and Mental Hygiene [DOHMH] Community Health Survey [CHS], 2012). Instances of binge drinking also increases with higher educational attainment for both men and women (DOHMH CHS, 2012). This report therefore makes the assertion that because Union Square and East Village are areas with a predominantly White and well-educated population, binge drinking may be a

BACKGROUND

Figure 10. White Population



Sources: NYC DCP, 2012 ACS 5-Year Estimates

health concern for these areas. The incidence of tuberculosis (TB) is highest among Asians, especially in United Hospital Fund (UHF) District 309 (Union Square and Lower East Side) (DOHMH TB, 2012). Chinatown and Two Bridges are therefore implicated with high rates of TB as these neighborhoods host a predominantly Asian population. Sexually transmitted diseases (STDs) have the highest incidence rate in the Black or African American population within UHF 309; the Hispanic population has the second highest incidence rate (DOHMH STDs, 2009). However, the Black or African American population cannot be associated with any particular area of CD 3 as there is no large concentration in any neighborhood and are scattered across the district. The Hispanic population, however, is most dominant along the eastern border, and so it is inferred that the rate of STDs along the eastern border is higher than the rest of the district.

While racial integration is increasing, the maps show that the district is still visibly segregated. In this case, racial segregation is linked with income, education, and English-speaking abilities.

In 2012, the United Hospital Fund conducted a study on frequent users of the emergency department services in New York City. They found that high-frequency emergency department (ED) users typically came from neighborhoods that were poor, Black, Hispanic, and had a large foreign-born population. Although, all of these characteristics can also be used to describe the population in CD 3, the report found that CD 3 residents showed comparatively low ED usage. One potential explanation for this discrepancy is that there is a lack of ED facilities within CD 3, therefore a lack of ED usage. Moreover, breaking down the district by zip code*, we see that relatively higher ED usage in the district still

**This information was derived from the New York State Statewide Planning and Research Cooperative System (SPARCS). Based on the methodology from a study done by a Community Health Assessment Steering Committee for Manhattan Community District 2 in 2010, it is possible to see which hospitals are more often used by residents of a given zip code. These were broken down into inpatient services as well as "treat and release" services which served as a proxy to ED usage. Zip codes of the Secondary Service Area defined in this study were 10002, 10003, 10009, 10013, and 10038, which, while not exactly matching to district boundaries, covers the entirety of Manhattan Community District 3. Findings from the discussion paper indicate that in 2009, Beth Israel and NY Downtown were the most frequently used hospitals for both inpatient admissions and ED visits.*

BACKGROUND

Figure 11. Persons with Disability

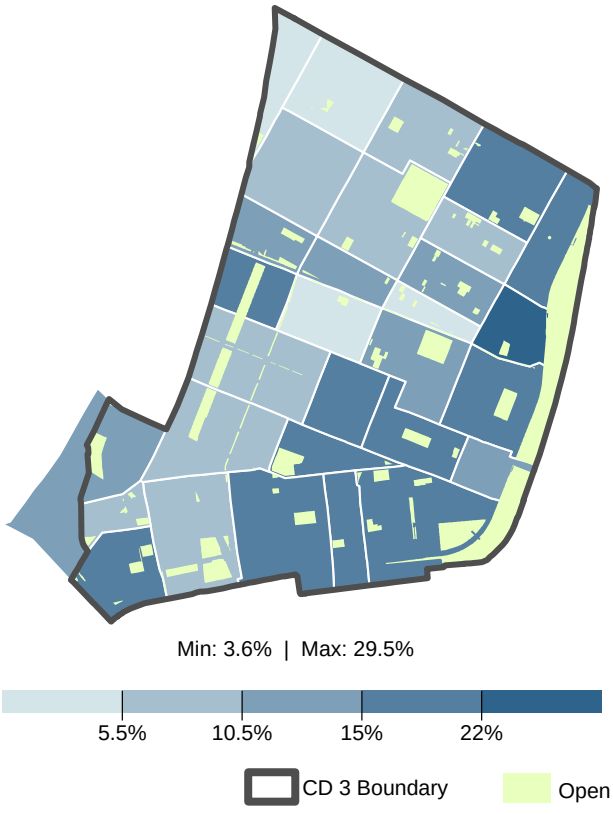
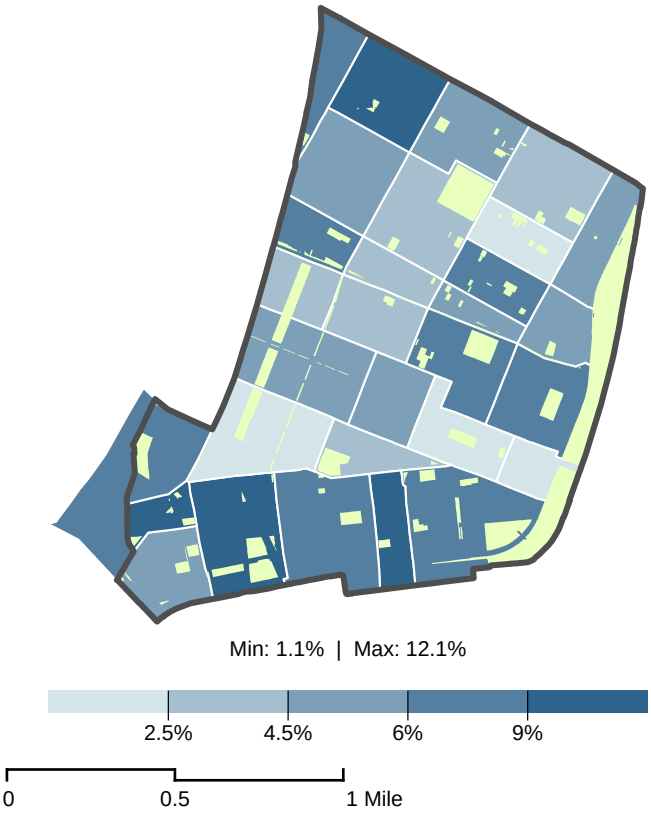


Figure 12. Persons with Disability with Cognitive Difficulty



Sources: NYC DCP, 2012 ACS 5-Year Estimates

follows this pattern. There are comparatively fewer Blacks and African Americans in the area than in other low-income areas of Manhattan, and a larger proportion of foreign-born population, namely Asians, in the district than in the rest of Manhattan. In zip codes 10038 and 10002, there are higher percentages of ED usage than in other CD 3 zip codes. Also found in 10038 and 10002 are high percentages of Asians.

Disability

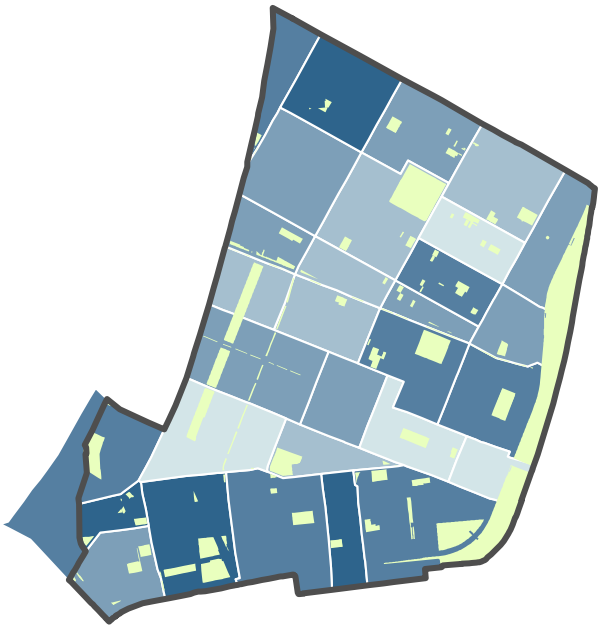
In New York State, 10.9 percent of the population lives with disability. In New York City, 10.4 percent of the population live with disability. In Manhattan, 10.0 percent live with disability. However in CD 3, 12.7 percent live with disability, with higher percentages living in the Two Bridges and Chinatown areas (See Figure 11) (2012 ACS 5-Year Estimates*). However, when the different types of disability are mapped out, it seems that the prevalence and spatial arrangement of individual disabilities are all relatively similar to each other, none with any distinguishing pattern (see Figures 12, 13, 14, 15, 16, 17).

According to Figure 18, within Community District 3, persons over 65 years of age living with a disability are concentrated in the southern portion of the district. This area also corresponds with the Chinatown and Two Bridges neighborhoods, which also display trends of high percentages of the population living below poverty as well as

**Percentages derived from the 2012 ACS 5-Year Estimates may be skewed upward because Census Tract 29 (in Chinatown) resides in both CD 1 and 3.*

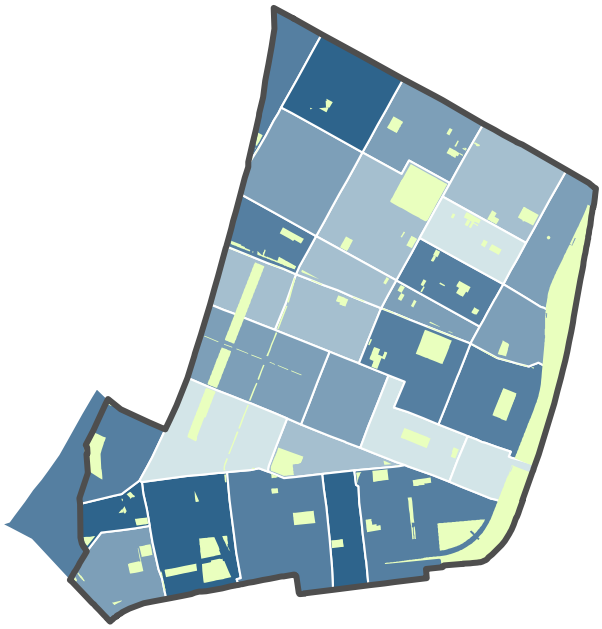
BACKGROUND

Figure 13. Persons with Disability with Difficulty with Self-Care



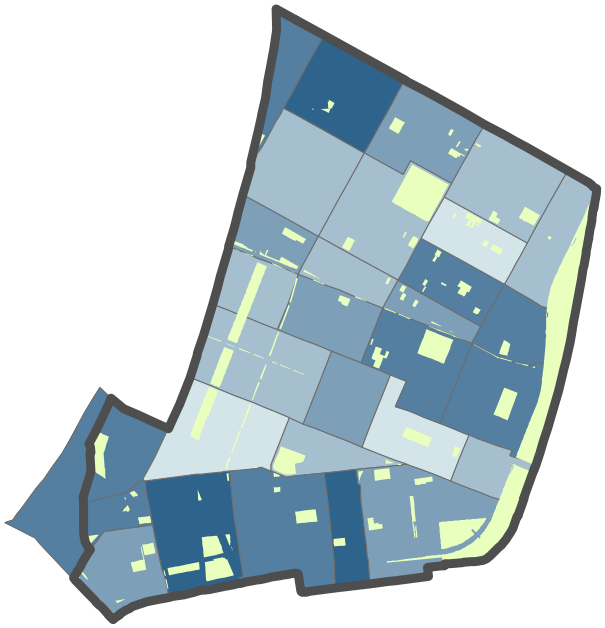
Min: 1.3% | Max: 12.1%

Figure 14. Persons with Disability with Ambulatory Difficulty



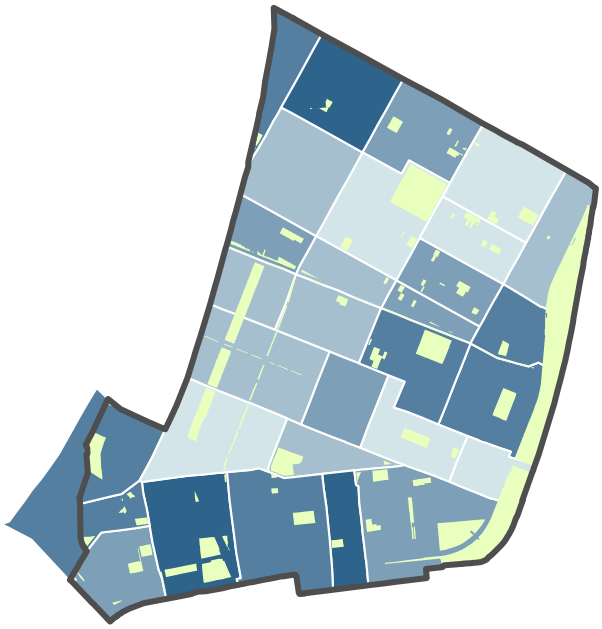
Min: 1.1% | Max: 12.1%

Figure 15. Persons with Disability with Difficulty with Vision

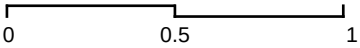


Min: 0.4% | Max: 11.9%

Figure 16. Persons with Disability with Difficulty with Hearing



Min: 0.4% | Max: 10.9%



Sources: NYC DCP, 2012 ACS 5-Year Estimates

BACKGROUND

Figure 17. Persons with Disability with Difficulty with Independence

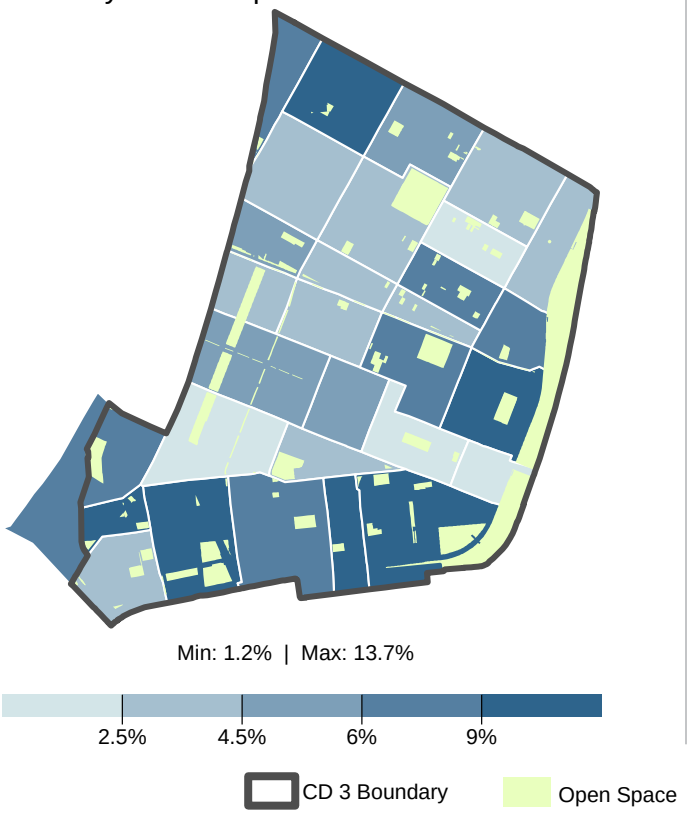
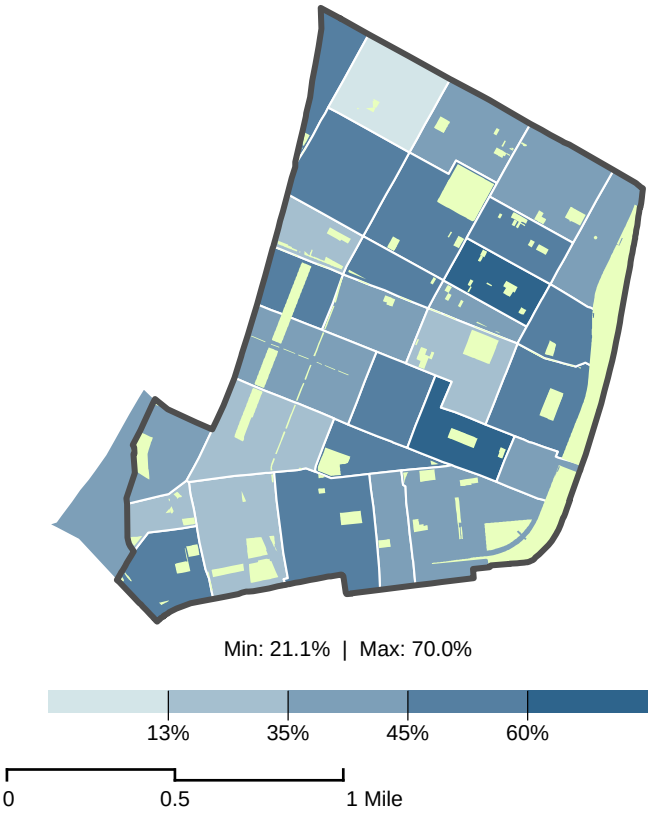


Figure 18. Persons 65 Years Old or Older with Disability



Sources: NYC DCP, 2012 ACS 5-Year Estimates

high percentages of people who speak English less than very well. Compared with the rest of Manhattan and New York City, 2012 disability rates are higher in CD 3, especially in the Two Bridges and Chinatown areas (see Figure 2).

Although there has been progress since 1990 with the passage of the Americans with Disabilities Act in improving physical accessibility and providing accommodations such as Braille signage, major barriers to health care remain for people with disabilities (DeJong, 1997; Drainoni et al., 2006). While barriers are not final determinants of whether or not a person with disability ultimately obtains the health care they need, delays and frustrations associated with insurance policies, the transportation system, the physical environment, communication with providers, providers' insufficient knowledge, insensitivity, and lack of respect, among many other barriers, often delayed the care when they needed it or caused the patient to avoid seeking care altogether (Drainoni et al., 2006).

The consequences of not addressing these barriers to health care encompass social, psychological, physical, economic, and independence issues of daily life, although physical consequences may be the most common (Neri and Kroll, 2002). Drainoni et al. (2006) points out that, "when consumers attempt to access health-care services, their particular diagnoses have less relevance than does the way each patient 'touches' the health-care system (e.g., in a wheelchair; without being able to see, hear, or speak)."

Furthermore, the intersection of the health needs of the aging population and that of people

BACKGROUND

Figure 19. Persons with a Bachelors Degree

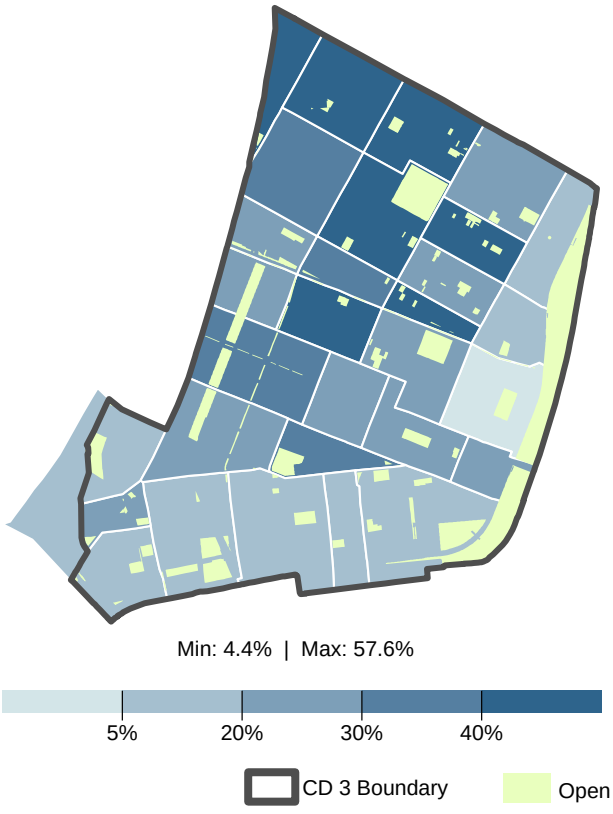
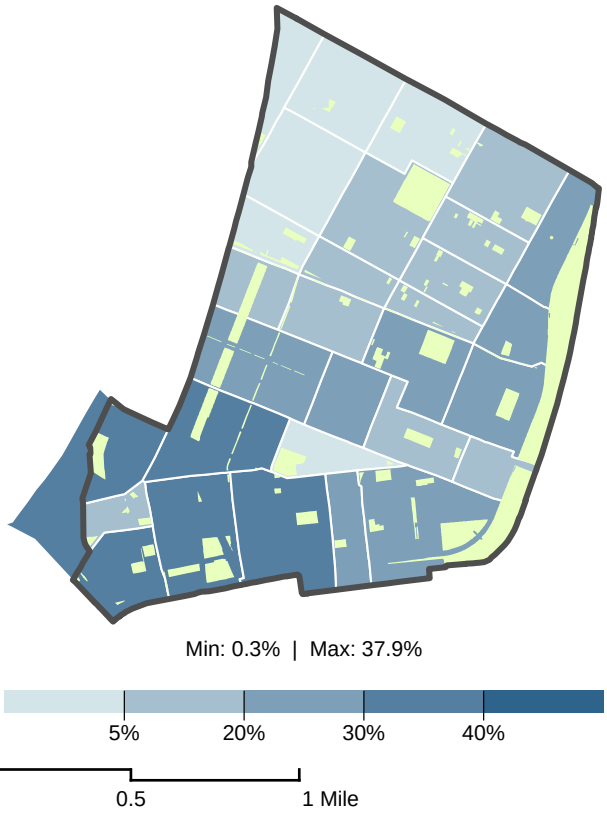


Figure 20. Persons with Less Than a Ninth Grade Education



Sources: NYC DCP, 2012 ACS 5-Year Estimates

with disability warrants serious consideration. As of 2012, 44.1 percent of CD 3 residents over the age of 65 lived with disability. This is higher than New York State (34.6 percent), New York City (37.9 percent), and Manhattan (34.4 percent) (2012 ACS 5-Year Estimates).

Education + Language

Education attainment levels across CD 3 vary greatly. In the northwest corner near Union Square, there is a concentration of people who have a college bachelors degree (see Figure 19). Those with less than a 9th grade education are concentrated in the south end near the Chinatown and Two Bridges areas (see Figure 20). This may be related to differences in health literacy and has implications on different methods of health advocacy and outreach campaigns. The Robert Wood Johnson Foundation released a brief (2013) stating that higher "education leads to higher earnings and increased access to healthier foods and safer homes," while also lowering the risk of heart disease and diabetes and reducing lost days of work due to sickness (Cutler and Lleras-Muney, 2007). Low education is moreover compounded by the effect of limited English speaking abilities. Also in the Chinatown area, there is a higher percentage of people who speak English less than "very well" (see Figure 21). This compounds the effect of low education in the area and, again, is critical to consider when attempting to improve health care delivery services. Limited language proficiency is a barrier to health care access, and while physician competency in the patient's language helps significantly, it does not

BACKGROUND

Figure 21. Persons Who Speak English Less Than Very Well

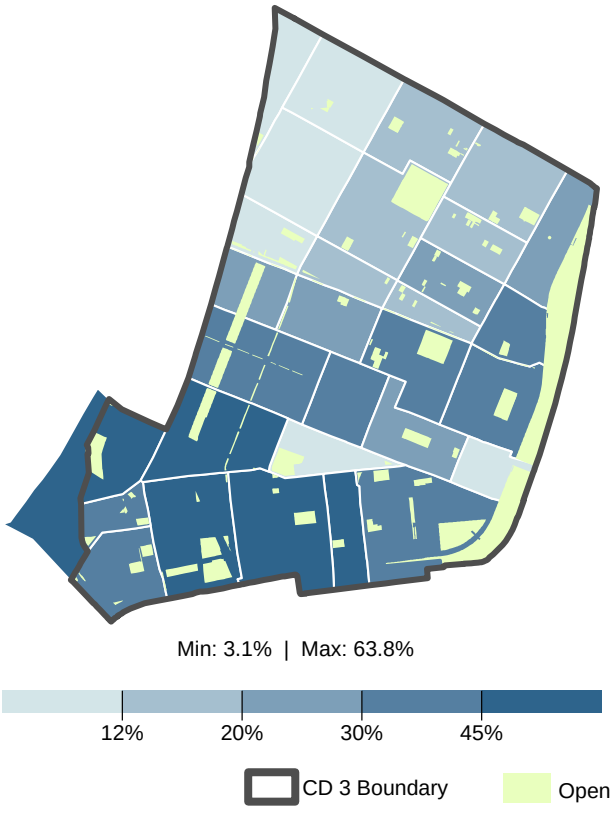
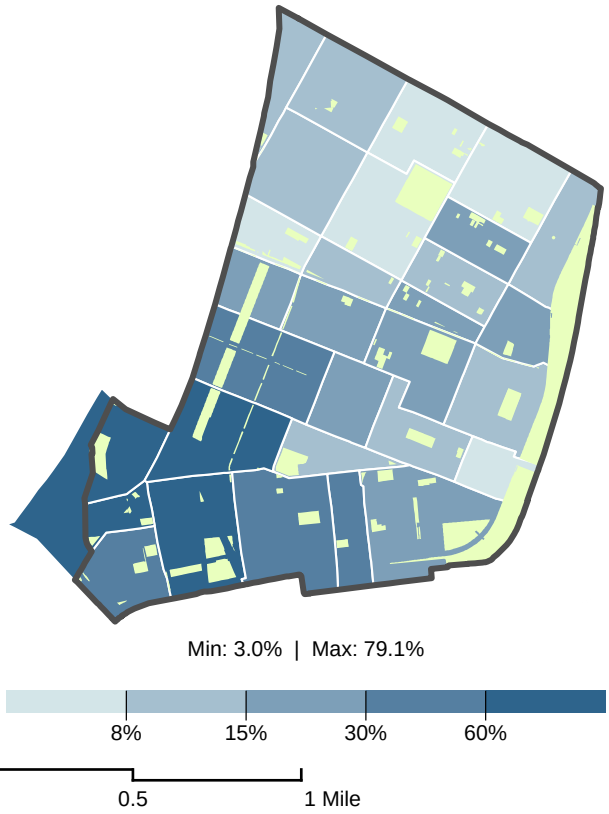


Figure 22. Asians Who Speak English Less Than Very Well



Sources: NYC DCP, 2012 ACS 5-Year Estimates

fully eliminate this barrier (Wilson et al., 2005). Furthermore, Figure 22 suggests that it is mainly the Asian language-speaking population that speak English less than "very well."

Moreover, education and language barriers may also effect the accuracy of survey answers as it may factor into someone's ability to correctly answer surveys. Therefore, the data may be skewed.

Age

The youth, the population under 18 years of age, comprise a relatively smaller percentage of the CD 3 population. Higher percentages of youth are found along the east side of the district and in Two Bridges and Chinatown (see Figure 23).

Children's obesity rate in both 2011 and 2012 was 16.3 percent, the highest amongst all Lower Manhattan community districts (see Figure 2). Additionally, youth poverty rates in CD 3 are also higher than the rest of Lower Manhattan. Rates of youth poverty are highest in the southern part of the district (see Figure 24). As noted in the *Income* section above, poverty is often associated with difficulty accessing health care and is linked with poor health outcomes. Specific to youth, however, an article written by the Population Reference Bureau article (2012) stated that, "children growing up in high-poverty neighborhoods are at higher risk of health problems, teen pregnancy, dropping out of school, and other social and economic problems compared with children living in more-affluent communities." Moreover, of the foster care placements in CD 3 that were

BACKGROUND

Figure 23. Youth Population

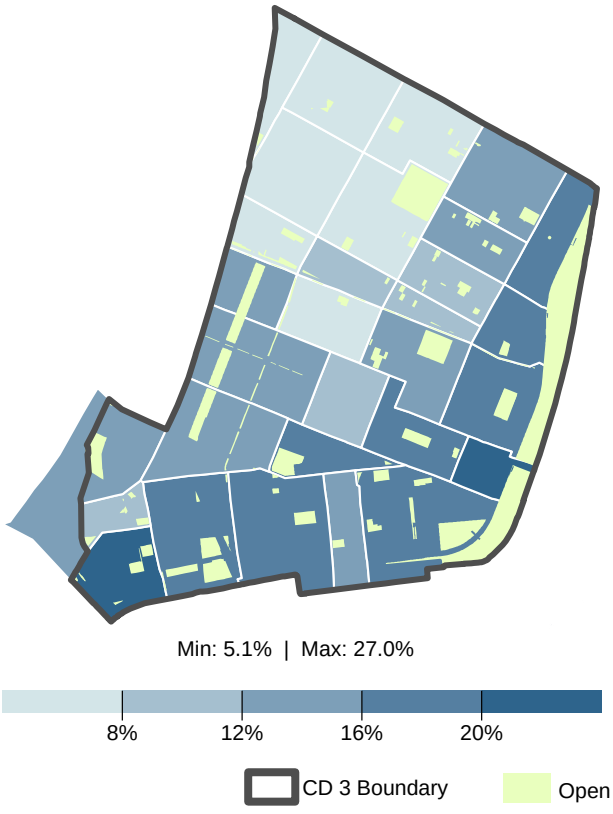
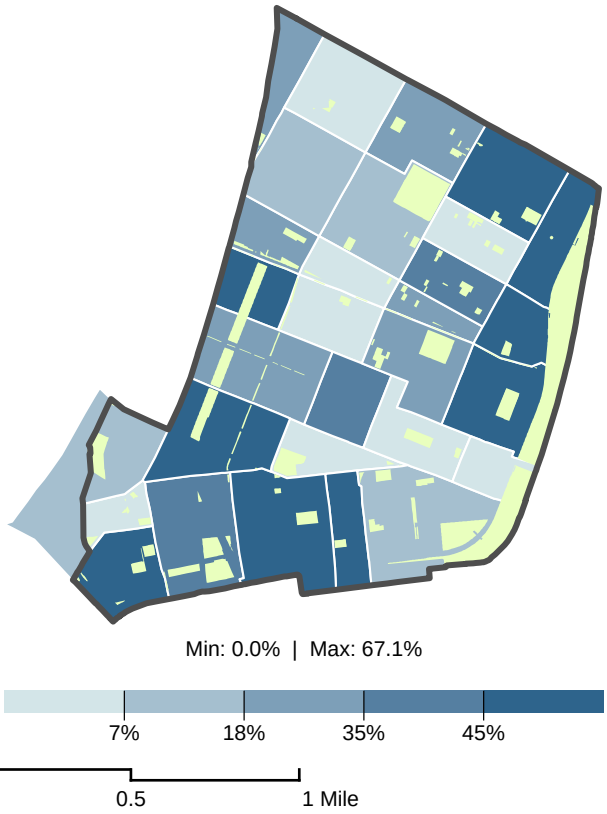


Figure 24. Youth Living in Poverty



Sources: NYC DCP, 2012 ACS 5-Year Estimates

discharged in 2011, 17.3 percent were aged out of care, much higher than the rate of surrounding community districts and higher than the rate for New York City (NYC Administration for Children's Services, 2011). Safe Horizon (2014), a violence victims' service agency, reports that youth who have been in foster care are more likely to be homeless and stay homeless longer than youth who have not been in foster care. Youth who do become homeless are more likely to suffer from mental health problems, developmental delays, substance abuse, and increased exposure to violence; additionally, "twenty-five percent of those who age-out of care experience Post-Traumatic Stress Disorder (PTSD) – double the rate of U.S. war veterans" (The Community Service Society and The Children's Aid Society, 2013). While Safe Horizon provides much needed services from hot meals to mental health counseling to the homeless youth, they are not located within CD 3.

The more affluent areas near Union Square are also the areas with predominantly young professionals (see Figure 25), characterized by higher median incomes, higher educational attainment, and with most of the population between the ages of 20 and 40 (U.S. Census Bureau, 2010b, 2010c, 2010d).

Conversely, populations over 65 years old are more concentrated in the southern part of the district near Chinatown and Two Bridges (see Figure 26). Between 2000 and 2010, CD 3's population aged 65 and older grew by 6.5 percent (U.S. Census Bureau, 2000, 2010a; New York City Department of City Planning [DCP], 2010). Especially because "individuals over age 75 are at increased risk of developing chronic health

BACKGROUND

Figure 25. Persons Between 18 and 64 Years Old

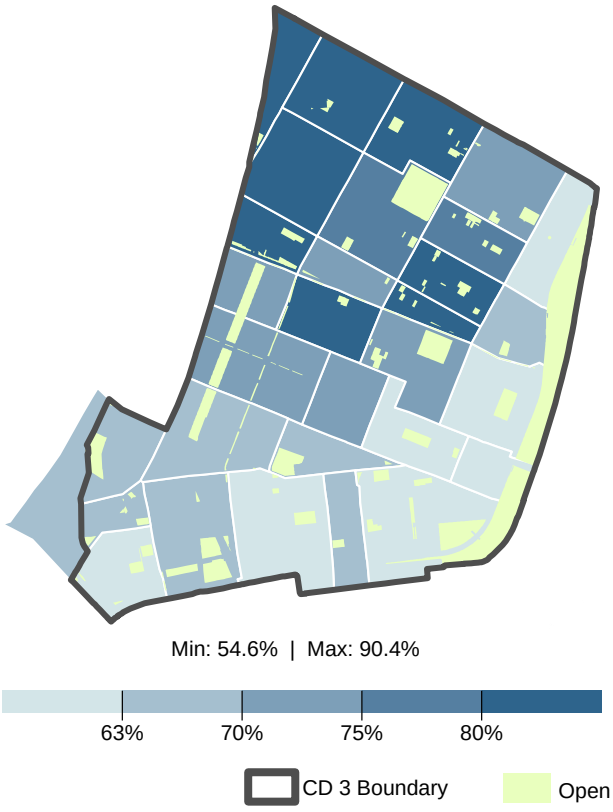
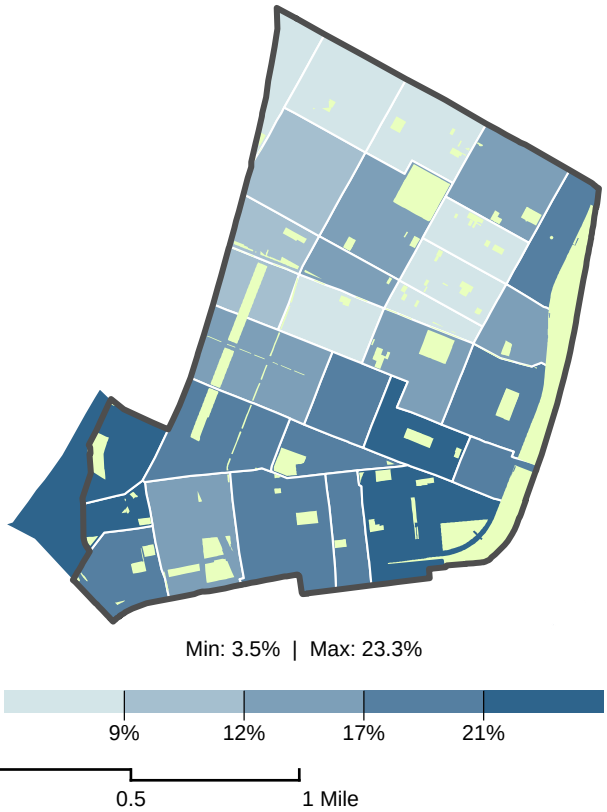


Figure 26. Persons 65 Years Old or Older



Sources: NYC DCP, 2012 ACS 5-Year Estimates

conditions, disability, and social isolation" (The New York Academy of Medicine [NYAM], 2008), an aging population will need facilities that offer geriatric care, more programs that offer home visits and case management, not to mention the appropriate infrastructure to ensure accessibility to facilities. Currently, Hamilton-Madison House and Grand Street Settlement are the only organizations within CD 3 boundaries that offers community-based senior health care. Other organizations like the Charles B. Wang Community Health Center and the Bowery Residents Committee lie just beyond district borders. The Hamilton-Madison House provides services through a senior center, and offers behavioral health services in multiple Asian languages, immigrant services, as well as services targeted to younger families by offering youth development programs such as music lessons and child daycare options for working parents. The Grand Coalition has three locations in CD 3, offering services such as medical care for the homebound, low-cost meals, social services, as well as a variety of wellness, recreational, nutritional, and social activities that are culturally sensitive.

Medical Insurance

Figure 27 depicts the percentage of the population that is not covered by health insurance. The lowest percentages of non-coverage lie near the center of the district; in other words, it is more likely to find people with health insurance living near the center of the district. When broken down by public and private insurance types, as shown in Figures 28 and 29, similar patterns in high levels

BACKGROUND

Figure 27. Persons Not Covered by Medical Insurance

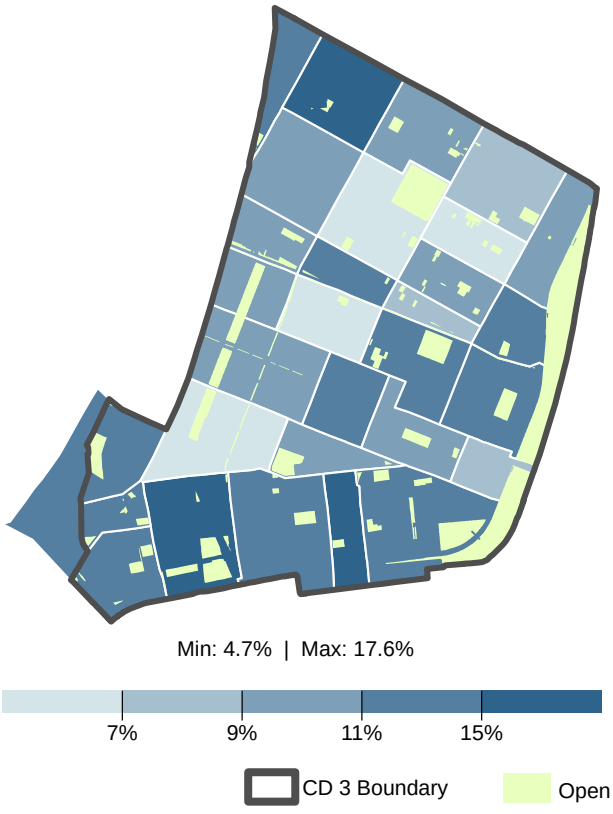
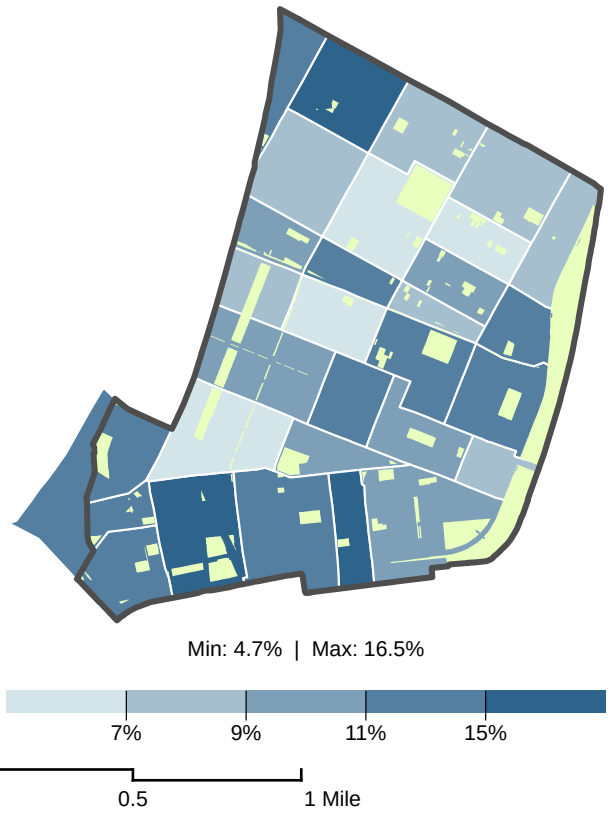


Figure 28. Persons Not Covered by Public Health Insurance



Sources: NYC DCP, 2012 ACS 5-Year Estimates

and low levels of health insurance appear.

Additional investigation would be helpful in determining the factors that allows these particular populations to enroll in a health insurance program and what causes others, especially in the northwest, east, and southern areas of the district, to not be enrolled. However, it is important to note that this data is from 2012, and does not reflect the recent changes to health care plan enrollment mandated by the Affordable Care Act (ACA), also known as "Obamacare." Nonetheless, it is arguable that current health trends and statistics are the result of policies and decisions made within the last few years. Therefore, it is still valuable to look into the differences of 2012 health insurance coverage.

Background Summary

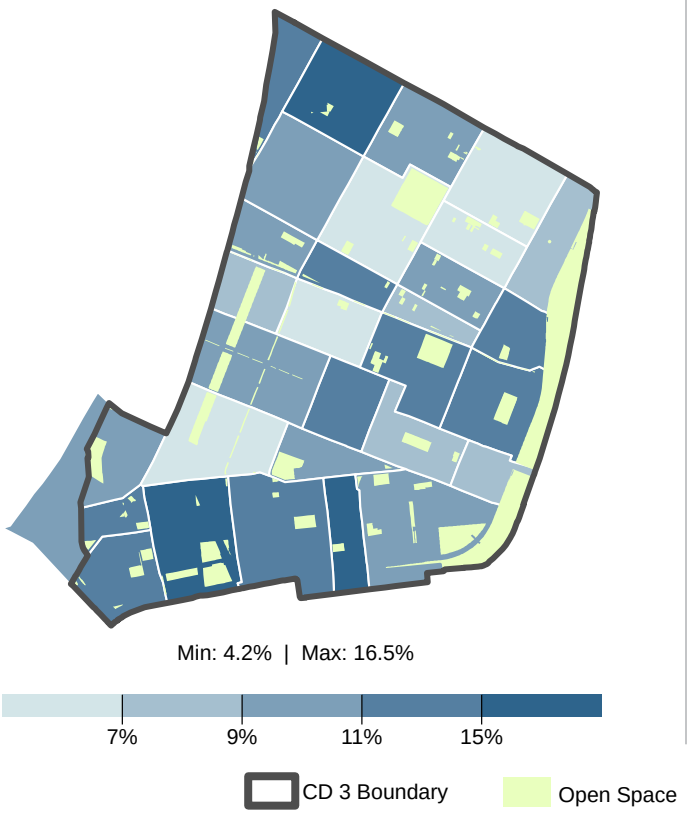
Based on the background research, three areas stand out: Union Square/East Village, the east side of the district, and Chinatown/Two Bridges (see Figure 30).

The **Union Square/East Village area** is characterized by high income, high educational attainment (e.g., college graduate), a high percentage of the White population, and a prevalent young adult population. Health issues to consider in this area might be binge drinking as well as increased accessibility for people with disabilities.

The **east side of the district** is characterized by low income, a high percentage of the Hispanic population, and average educational attainment (e.g., high school graduate or equivalent). Health issues to consider in this area may be STDs,

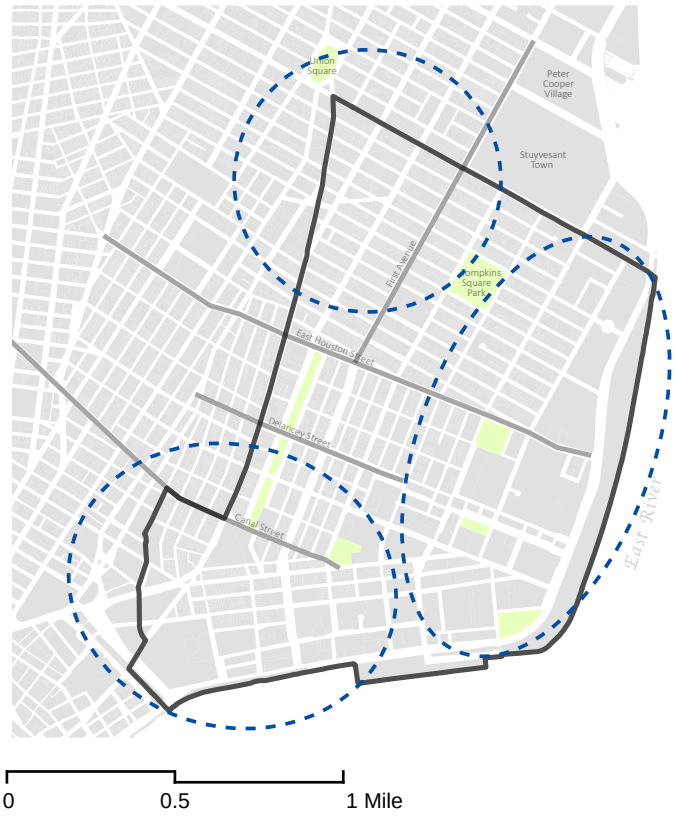
BACKGROUND

Figure 29. Persons Not Covered by Private Health Insurance



Sources: NYC DCP, 2012 ACS 5-Year Estimates

Figure 30. Three Focus Areas



Source: NYC DCP

binge drinking, increased accessibility for people with disabilities, and accessibility of affordable health care.

The **Chinatown/Two Bridges area** is characterized by the lowest income of the district, the lowest educational attainment of the district (e.g., less than a 9th grade education), a high percentage of the Asian population, a high percentage of the aging population (e.g., 65 years old or older), and a high percentage of residents with poor English language proficiency. Health issues to consider in this area may be TB, mental health, language barriers, accessibility for people with disabilities, accessibility of affordable care, and aging.

While some health trends are specific to one of the three identified areas, such as binge drinking and health issues associated with aging, some are more ubiquitous across most of or the entire district, such as health issues associated with high poverty rates and limited accessibility for persons with disabilities. These patterns may be a symptom of unevenly distributed resources for some health issues, or a complete lack of resources for others.

For the populations in each of these areas, every day life is the sum of all of these characteristics. Acknowledging the differences in current health trends as well as the distribution of resources for each population is a critical component of finding holistic solutions to health care gaps in CD 3.

METHODOLOGY

The health issues highlighted in Community District 3's District Needs Statement for Fiscal Year 2015 are mental health, HIV/AIDS, alcohol use, and asthma. However, considering the district's wide range of demographic makeup in terms of race, income, age, gender, disability, educational attainment, and medical insurance coverage, other conditions such as tuberculosis (TB), Hepatitis B and C, sexually transmitted diseases (STDs), and diabetes, were also included in the inventory. Throughout the project, the Human Services Committee participated in the process and gave recommendations on issues to include into this assessment; however due to time constraints, it was difficult to include all of the recommendations in the inventory.

As the goal of this project is to create an inventory that can help evaluate the sufficiency of existing medical facilities, the inventory should not merely list the medical facilities within CD 3, but also have the capacity to collect and organize pertinent information that supports the assessment of accessibility to medical facilities. Furthermore, facility typologies often differed in slight but important ways, making them too numerous to analyze effectively yet too critical to forego. The inventory addresses this by giving "accessibility" a broad definition, subsequently increasing the number of attributes necessary to complete a facility's entry in the inventory. Thus, facility typologies are defined and understood in terms of the way they address health care accessibility.

Sufficiency of medical facilities has been taken to mean that those who are residents of Community District 3 have access to the medical care they need. This section focuses on the development of the concepts that served as the foundation for the structure and content of the inventory.

Assumptions + Definitions

Health care facility usage is one product of health-seeking behaviors. However in this project, it becomes necessary to streamline, condense, and simplify this complex concept into a list of attributes. In this case, health-seeking behaviors were linked with concepts of need and accessibility. The presence of a need leads to the necessity of assessing the accessibility of services that would address this need. For example, high rates of HIV infection in an area should warrant an assessment of whether or not HIV diagnoses and treatment programs are located in the area, are offered at low cost, are open at convenient times, and provide appropriate discretion to patients; all of these affect a patient's behavior in choosing where to go to seek health care and in turn reflects the overall accessibility of that particular service. Accessibility is broken down into many different types of services that could provide accessibility to different types of people. For instance, a facility that provides geriatric services will be more accessible to the elderly and aging population; a facility that provides sexuality-sensitive care will be more accessible to the LGBTQ population. In the inventory spreadsheet then, if a facility provides a given service, a '1' will be entered; if not or is unlikely that it is, '0' is entered. '2' is entered if it is likely that a service is offered, but is not specified through any source of provider information.

Compiling Facilities

Names of facilities were collected from lists other organizations had already created. The two main contributors to the inventory are the Medicare Provider List and the 2012 North American Industry Classification System (NAICS) database. Other organizations also had lists of medical facilities, however they tended to cover only a few types of facilities and were therefore incomplete for the purposes of this project. From

METHODOLOGY

the handful of medical facility listings found, a master list was created, which then became the inventory. However, the consolidation process proved to be difficult as they were in different formats, offered different information, and were sometimes incorrect or outdated.

Developing Facility Categories

Categories were difficult to form because there are so many different ways to organize the types of care offered by a facility. Mainly, two variables needed systematic categorization: facility type and facility services. The initial version of the inventory accounted for the different types of services provided by each facility, such that each facility would have as many entries as services it offered. However, this format is not useful for many types of analysis, namely mapping. Also in the initial version, definitions of facility types (i.e. hospital, clinic, community health center) did not seem to consistently or accurately portray the types of facilities that were listed.

The development of unique health care delivery methods such as mobile clinics also made categorization much more difficult. For a population that is potentially underserved due to poor accessibility, mobile clinics seem to be an important new component to health care in Community District 3. Categorization became even more ambiguous when distinguishing facilities in terms of hospital affiliations, types of practitioners associated, professional associations, and in-patient capacity. It seemed that most facilities were structured differently in terms of financing, ownership, staffing, and in-house capacity.

Inventory Consolidation, Cleaning, and Organization

Because the structure of the initial version of the inventory had limited flexibility for different types of analysis, it became necessary to develop a new structure.

At the same time, it was suggested that the medical facilities listed in the 2012 North American Industry Classification System (NAICS) database be included. Zip codes that fall within Community District 3 were extracted from the full database. From these zip codes, facilities that fell under the medical industry were pulled out. These remaining entries were then merged with the original inventory. It was expected that there would be duplication. However, it was unexpected to find that so many were not repeated, indicating that the NAICS database was missing data.

The advantage of the NAICS data is that it already includes its own typology classification system as well as coordinate systems for mapping. NAICS is typically used for retail analysis and so includes a lot of miscellaneous variables that are more relevant to businesses, such as annual revenue and number of employees.

Even after merging the initial inventory with the NAICS data, the main challenge was still to figure out a useful way of representing the complex socioeconomic factors on a two-dimensional spreadsheet.

Please see Appendix A for additional notes on inventory layout and facility attributes.

LIMITATIONS

Error in the Data

In compiling the different lists, there were many discrepancies in the names of the facilities and at which addresses they are located. While part of the inventory structure attempts to capture whether or not a facility has closed recently, it is difficult to asses the status of some of the smaller facilities because their listing online is inconsistent. It is also possible to double count facilities in one address because there will be two listings and either it is difficult to discern whether it is in the same building but different suite, or if it is actually in the same suite and one had taken over the other. At other times, there would be two different addresses for one facility, or no facility listing at all.

To double check discrepancies seen in the NAICS data, an online search was employed. Sites that were most useful in the online search were manta.com, hippaspace.com, yelp.com, webmd.com, zocdoc.com, and healthgrades.com. These online sites would help verify the location, phone number, and services provided at a facility. If a facility did not show up on the online search or was listed as a non-medical facility, it was deleted from the inventory. However, the quality of information found online cannot be verified, especially for entries with discrepant information. For instance, the NAICS entry would list one address and phone number for a particular facility, while an online search would produce another address and phone number.

While there were many issues with NAICS data, it was immeasurably helpful to use the medical facilities already entered in that database because it provided so many all at once. Without it, the inventory would have had to be arduously compiled through a handful of databases, all with different layouts and categorization schemes. With the NAICS data, there were only a few that needed to be consolidated.

Additionally, some of the categories, upon closer investigation, did not seem appropriate for the analysis for which this inventory is being created.

Limits in Categorization

While the NAICS database accounted for over half of the facilities entered, there were some incorrectly entered addresses and phone numbers, missing facility names, and some questionable choices in categorization of the industry. Accuracy aside, the categories used by the NAICS system does not allow for the types of analysis that is specific to health care. For instance, either by data entry error or the lack of need to differentiate, the SICD category “Office of Surgeons and Physicians” includes not only the private practices of individual physicians, but also hospitals and some community health centers. Perhaps from an industry point of view, all of these facilities possibly provide similar types of services. From the point of view of a health care needs assessment, differentiating these different typologies could give a more nuanced understanding of what health care resources are available.

Another challenge with categorization is the inherent loss of specificity that these different facilities have developed. Some facility type names indicate the types of services that a facility may provide. It then becomes difficult to create a facility type that encompasses many different facility types because based on the original category names, it would have to be in many categories. Therefore, it is left to the attributes to better define each facility. In sum, a facility type is defined in the context of its attributes. However, the challenge remains with how to effectively capture innovative health care methods such as mobile clinics.

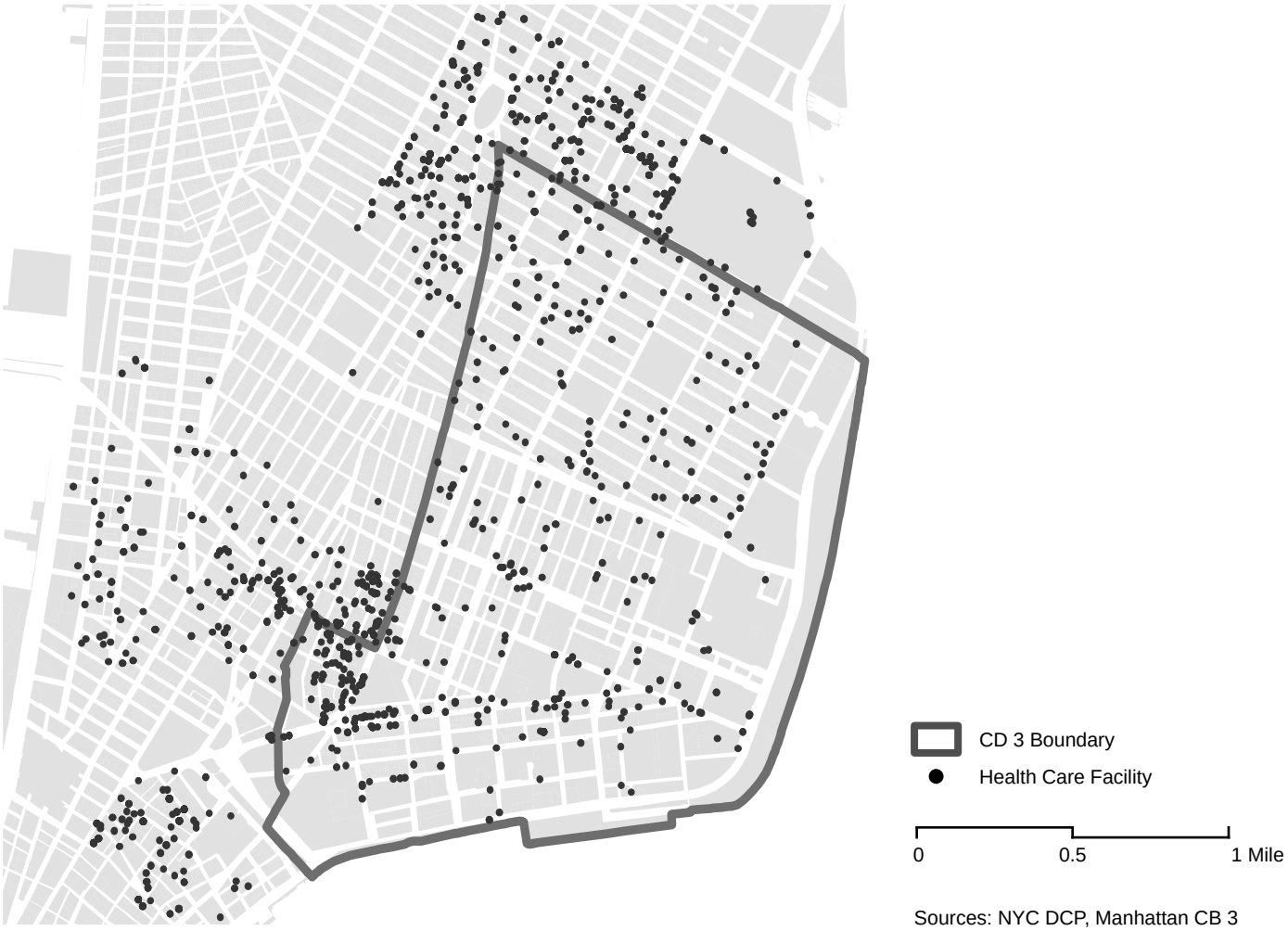
INITIAL ANALYSIS

Initial analysis involved mapping demographic data on income, education, race, poverty, age, medical insurance, and disability, as well as the health care facilities in the inventory. Comparison between and observation of demographics and existing facilities was done visually. The areas and themes that become apparently salient through visual analysis can and should be further explored in the future, especially in terms of how it may affect the population living in these areas.

Findings

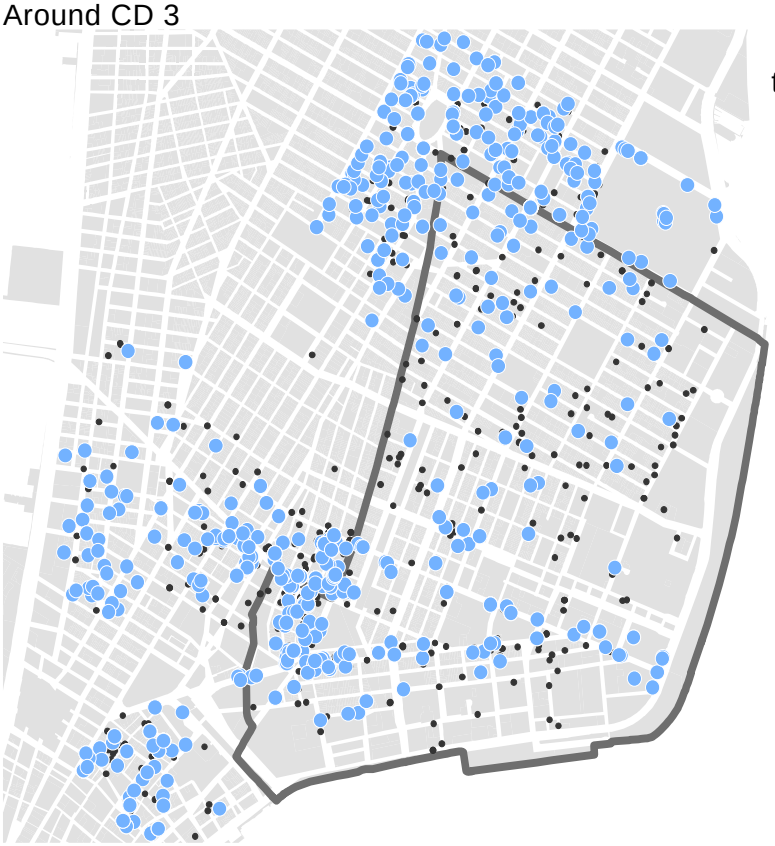
Overall, most facilities are clustered around Union Square and Chinatown (see Figure 31).

Figure 31. Health Care Facilities In and Around CD 3



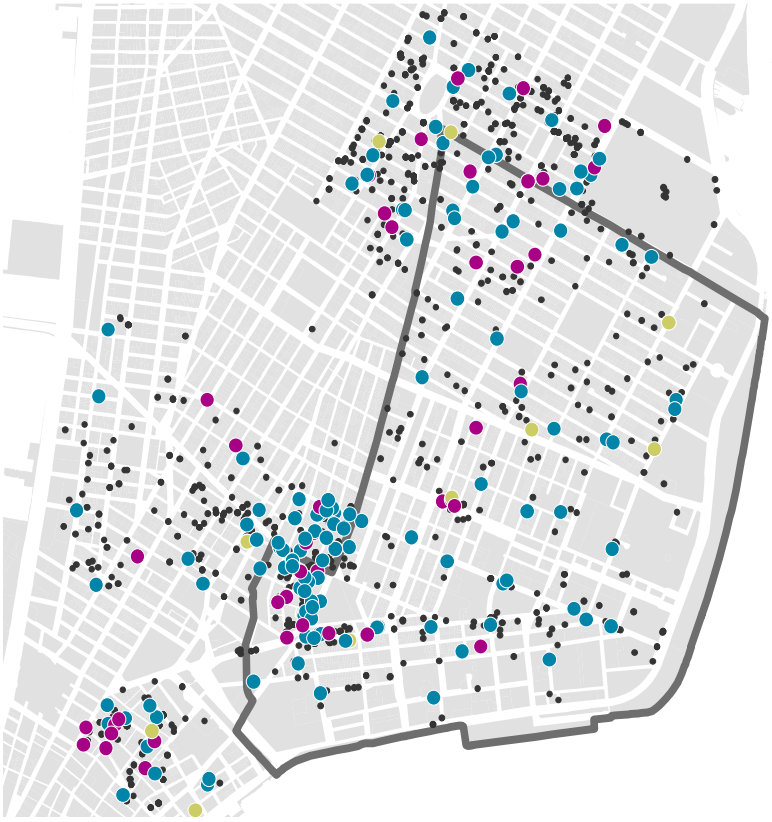
INITIAL ANALYSIS

Figure 32. Private Health Care Facilities In and Around CD 3



Private practices are the dominant facility type (see Figure 32).

Figure 33. Retail Health Care Facilities In and Around CD 3

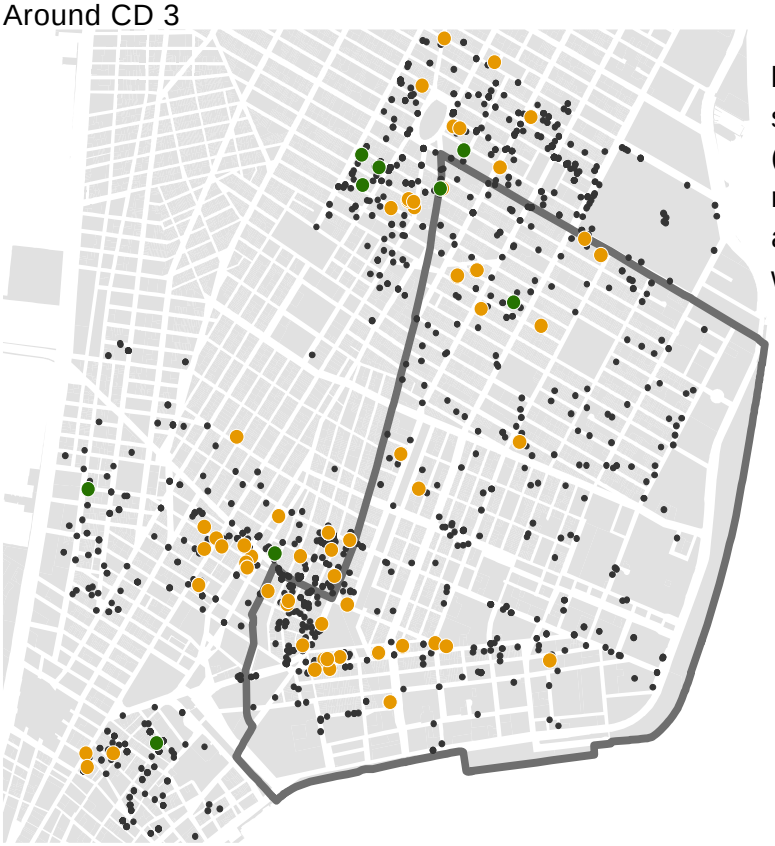


Pharmacies, while not evenly dispersed, seem to cover most areas, including places not reached by other facility types (see Figure 33). There seem to be many more small, local pharmacies in the southern and central portions of the district. On the other hand, in the northern portion of the district near Union Square, most pharmaceutical retailers are chain stores such as Duane Reade or CVS.

Sources: NYC DCP, Manhattan CB 3

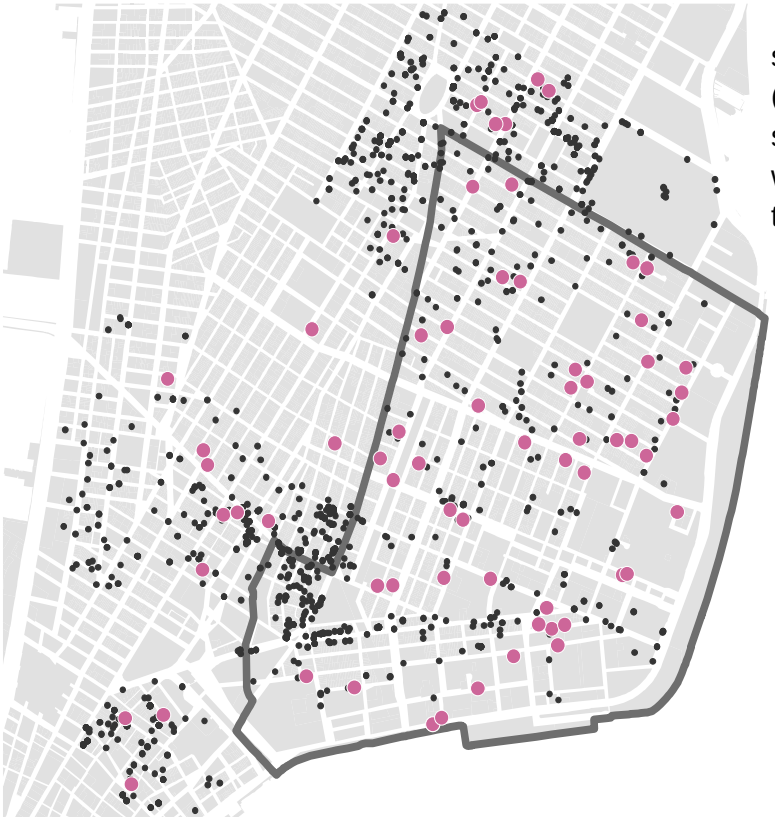
INITIAL ANALYSIS

Figure 34. Alternative Health Care Facilities In and Around CD 3



Chinatown seems to be well served by local medical businesses, particularly ones that specialize in alternative care such as acupuncture (see Figure 34). However, for a population that is relatively low income, low education attainment, and low English proficiency, it is curious as to whom these private clinics are catered.

Figure 35. Public-Serving Health Care Facilities In and Around CD 3



Public-serving facilities are few but scattered relatively evenly throughout the district (see Figure 35). More in-depth investigation should be carried out in order to determine whether or not these facilities are enough or if they are overburdened.

Sources: NYC DCP, Manhattan CB 3

FUTURE FRAMEWORK

This inventory has the potential to identify the gaps in health care coverage for CD 3. However, several more steps need to be taken in order to ensure that results are produced through a rigorous and precise methodology. From suggestions on how to better manage the large quantities of data necessary for this project, to recommendations on how to more comprehensively investigate emerging themes in health care accessibility, the future framework serves as a guide to how the project could be continued and expanded.

Phase One: Organize Data

Action 1: Transfer Excel spreadsheets to Access.

Action 2: Complete empty fields.

Action 3: Check accuracy of data.

Currently, all the data for this project has been collected and organized in Microsoft Excel spreadsheets. Over the course of the project, the inventory evolved from a list of facility names into a comprehensive database of information on all the facilities. While Excel is a powerful and useful tool, it is not the most streamlined interface for database creation. Maintaining all of the spreadsheets simultaneously becomes a tedious and risky task in that if one change is to be made in one spreadsheet, it is likely that there is a corresponding spreadsheet that must also be updated. This leaves much room for human error, as the task of cross-referencing, deleting, re-typing, and adding entries must be done multiple times across multiple spreadsheets.

In Microsoft Access, however, all spreadsheets are connected by a common variable; in this case, it may be the name of a facility or a census tract number. When one item is altered, added, or deleted, the same change is automatically made in all connected spreadsheets, reducing the need for manual updating, thus reducing human error and increasing efficiency of database maintenance. It is therefore highly recommended that all spreadsheets be consolidated into one or two Microsoft Access files before continuing the project.

Phase Two: Incorporate Quantitative Measures

Action 1: Research and adopt measures of income disparity, language proficiency, racial diversity, urgent health needs, and distribution of facilities.

Action 2: Collaborate with NYU Langone on Emergency Care Sensitive Conditions analysis for CD 3.

Action 3: Adapt CD 2 community health care assessment.

The socioeconomic makeup of CD 3 is diverse. However, diversity is sometimes difficult to define as everyone has different perceptions and definitions of this concept. Not to discount the richness, nuance, and external validity that qualitative research brings to any project, but for the purpose of navigating the policy-making world, it sometimes becomes necessary to condense broad themes into succinct numbers.

Incorporating quantitative measures for the income disparity, language proficiency, racial diversity, urgent health needs, and distribution of the types of medical facilities will help bring abstract ideas into context. One great model to follow is the State of New York City's Housing and Neighborhoods report produced annually by the NYU Furman Center. For measuring income disparity, the Furman Center developed their own method of measuring income disparity that compares the 80th percentile with the 20th percentile of income levels. To contextualize English and Math test scores across community districts, the Furman Center also developed a ranking system. A similar system can be adapted or even developed to show English-speaking proficiency which is a critical issue in CD 3. Furthermore, in 2000, the US Census introduced a racial diversity index which can be applied to the racial makeup of CD 3 and then, again, compared

FUTURE FRAMEWORK

across other neighboring community districts.

At the heart of this project is the notion that there are urgent health needs unique to this - and any - community which must be addressed. There are many ways of identifying urgent health needs of a population, and a broad investigation has been made within the *Background* section of this report. However, alternative methods would be useful in understanding the health needs from a different perspective. A relatively new method introduced by John Billings in the early 1990s investigates what he termed, Emergency Care Sensitive Conditions. The logic behind this is that there are certain conditions that can be treated at the primary care level. However, if they start to appear in emergency care settings with greater frequency, it suggests that these conditions are not being treated at the primary care level and that there is a gap somewhere in the health care system. This particular method may be useful in lower income, less advantaged populations where expensive health care is often out of reach. In relation to CD 3, looking at Emergency Care Sensitive Conditions may be especially useful as the district has higher percentages of people living below poverty and higher percentages of people who have limited English-speaking abilities than compared with the rest of Lower Manhattan. Conversations around executing this analysis for CD 3 have already begun with Sue Kaplan of NYU Langone. It is highly recommended in the next phase of this project, that the conversation continue and an increasing involvement in this analysis be made a priority.

Finally, the distribution of the types of medical facilities can be quantified once all the variables of the inventory have been filled in. The completed inventory can then be inputted into programs like STATA or ArcGIS to investigate and statistically validate trends.

Phase Three: Expand the Definition of "Accessibility"

Action 1: Develop and conduct Personal Geography Survey/health care consumer behavior survey.

Action 2: Incorporate findings into database.

Accessibility means more than the monetary cost. The cost of health care can also be defined in terms of:

- *Non-medical costs*
  - *Travel cost*
  - *Child care cost*
  - *Time traveling*
  - *Time waiting*
  - *Time away from work*
  - *Social stigma*
- *Medical costs/insurance coverage*
  - *Reimbursement plan*
  - *Procedures covered*
  - *Medications covered*

The sum of these variables approximates the total cost of health care. These are also variables that can influence an individual's health behavior; knowing what facilities are geographically proximate is not enough to completely determine a person's choice of facility.

To investigate where and why CD 3 residents choose to take care of their health care needs, it is recommended that the continuation of this project includes a Personal Health Care Geography Survey. This survey would ask survey participants to locate on a map where they seek health care and indicate why.

The survey would gather many reasons for the choices CD 3 residents make which could be coded and then statistically analyzed. The data collected from this survey would also include one polygon per participant, the vertices of which would be the locations indicated. The area covered by this polygon would indicate a few things: 1) whether proximity is a factor, and if it is, 2) the most important aspects of proximity. In other words, the shape and size of the polygon

FUTURE FRAMEWORK

could provide insight into, for instance, whether certain subway lines are important or whether the location of their work matters. These polygons can also be overlapped with other geopolitical boundaries such as census tracts, police precincts, community district boundaries, United Hospital Fund boundaries, and even neighborhoods with new zoning changes such as Orchard Street.

Definitions must also be pushed further in the upcoming steps. This is especially true for the concept of "accessibility." Accessibility can be defined in many different ways and is further complicated because every type of person will understand it differently. It would therefore be imperative to widen the scope of accessibility and apply that to the variables included in the inventory.

Phase Four: Investigate Historic Trends

- Action 1: Determine available data.
- Action 2: Collect and organize data on demographic trends.
- Action 3: Collect and organize data on health trends.
- Action 4: Collect and organize data on facility types.
- Action 5: Expand the database to accommodate historic data.

One of the greatest weaknesses of this current project is that it does not include data from previous years. The range of years analyzed may be determined by the researcher who has investigated the availability of all the data.

Phase Five: Analyze Medical Facilities as Medical Businesses

- Action 1: Use time series analysis to show change in facility typology and services offered.
- Action 2: Conduct leakage analysis on services provided in CD 3.
- Action 3: Conduct land use analysis to see how much land is dedicated to health care over time.

Medical facilities, at the end of the day, are businesses (Newhouse, 1969; Asch, Nicholson, and Vujicic, 2013). Medical facilities and the practitioners that run them represent the supply side of the medical economy, while the patients - in this case CD 3 residents - represent the demand side. Much research on health needs and the equity of health care distribution focuses on the patient - the demand. In the realm of health insurance policy research, much of the emphasis is on the motivations behind the way hospitals and practitioners operate and make decisions - the supply side. There needs to be a connection between supply and demand, but there seems to be little focus on this dynamic in the field of health care, although an exception could be made for pharmaceutical companies. Thus, this section recommends that a retail analysis be conducted on the medical industry in CD 3, to investigate possible underlying trends behind the popularity of acupuncture clinics, for example, as well as hospital closings and what is taking their place. Studying the possible social ramifications of these changes in business and real estate would also be helpful in making a case for preventing future hospital closings.

Phase Six: Construct Solutions Through Public Process

- Action 1: Hold charrette with the public.
- Action 2: Hold charrette with health care providers.
- Action 3: Hold combined charrette with the public and health care providers.

With the completion of Phases One through Five, gaps in health care access and services will become more clear. In addition to leveraging existing policies for more resources, a grassroots approach to bridging these gaps is also recommended.

This recommendation consists of engaging with the community to build a network with the existing facilities in the area. The aim is to find

FUTURE FRAMEWORK

ways to extend the reach of current health care infrastructure to better cover communities in need. Focus group meetings would be held to present our initial findings to community members and together formulate an understanding of where the gaps in health care provision lie. To understand the issues from the providers' side, interviews would be conducted to understand the demographics they serve and the ways in which they reach out to the community. This would further compliment the medical facilities as businesses analysis. Finally, joint charrettes with community members and health care providers will be held to create a plan of action that will bridge the need gap through community organizing. An example of this could be community health care workers who are trained to assist vulnerable populations through home visits and counseling. Other possibilities could be to sensitize existing health care providers to the community's varying needs, or to help providers to better reach the population through outreach and non-traditional delivery options.

The primary focus of this step would be to facilitate conversation between residents and the medical practitioners practicing in their community to encourage collective action.

Phase Seven: Push for Better Data

Action 1:	Advocate for more comprehensive research on the LGBTQ population as well as persons with disabilities.
Action 2:	Advocate to the government and research institutions to produce data at the community district level for improved analytical ability.

To carry out these phases will take some time, and the ability to follow through satisfactorily is highly dependent on the data available to future researchers. In his perspective piece, Schneeweiss (2014) makes a similar argument about big health care data, in that the health care industry has accumulated so much data, but has "not generated any actionable insights," in part due to the lack of technical capacity for such analyses. In that vein, it is therefore highly urged that CD 3, in conjunction with all New York City community districts, push the government and researchers at esteemed institutions to produce data at the community district level.

Also, it would be in the best interest of all of New York City to conduct more research on the LGBTQ population and persons with disabilities for a more sensitive and nuanced understanding of the challenges unique to their respective groups. Both are underrepresented in this report, but are critical members of the community, about whom we know comparatively little. Without understanding who they are and how their social environment determines their health, it is difficult to ensure that they will have the appropriate health care resources available to them. In sum, to effectively assess current trends in health care, relevant data must be available.

CONCLUSION

With the quickly changing health care landscape due to hospital closures in the area, it becomes evermore pressing to assess the adequacy of resources in CD 3. At its completion, the inventory will be able to show where facilities and services are available in CD 3. Paired with research on demographic and health needs in the district, the final product of this project will be a map of service gaps. However, this is only the first step. Once these gaps are identified action must be taken to address the disjunction between providers and patients. The recommended steps for continuing the project include ways to find solutions through organizing local organizations and residents. While critical to this cause, funding and political will cannot be guaranteed. In times like these, residents and professionals should invest in and partner with each other to find ways to bridge these gaps. The task of Community Board 3 should be to facilitate these partnerships.*

**According to the New York City Charter, it is within a community board's responsibilities to "prepare comprehensive and special purpose plans for the growth, improvement and development of the community district" (New York City Charter, 2004).*

APPENDIX A: METHODOLOGY

Inventory layout

Every analytical software requires different structures of data. Thus, flexibility between using different programs that offer different types of analysis was a high priority in creating the structure. This layout will allow not only for mapping in ArcGIS, but also statistical analysis in programs like STATA, with only minor changes in the formatting.

The inventory was created using Microsoft Excel. Each row is a separate facility; each column is an attribute of that facility. Column attributes include basic information such as address, telephone number, latitude-longitude coordinates, and facility typology. Also included are attributes that indicate the types of services that each facility provides.

Attributes

The 113 attributes used in this inventory are designed to be comprehensive but not redundant. Attributes include general facility information and factors that affect accessibility (see Figure A.1).

General facility information encompasses contact information as well as identification codes from the North American Industry Classification System (NAICS) database so that this inventory remains comparable with a national, standardized industry database. The reason for including *NAICS[OLD]* and *NAICS[NEW]* is because the classification system has been revised from its original form, however some of the old classification remains useful. Moreover, having both sets should allow for streamlined updating, especially when drawing from outside sources.

Accessibility factors include whether or not certain services are provided, from language accommodations and sexuality sensitivity, to specialized treatments for specific conditions. For every accessibility attribute, a "0", "1", or "2" is given to each facility:

"0" = not offered/unlikely offered

"1" = offered

"2" = not specified but likely offered

The only exceptions are *In*, *Open*, and *ADA*. For these, a "0" or "1" is given:

"0" = no

"1" = yes

This setup not only shows what services each facility provides, but also which facilities provide a particular service. Additionally, this organization helps illustrate which services are most prevalent and where these services lie geographically.

At first, NAICS attributes were adopted to use as facility typologies for this inventory. The rationale was that since NAICS was a long-established database of industries and facilities, it would be a comprehensive system to use. When consolidating an earlier version of the facilities list with those extracted from NAICS, there were several hundred facilities that did not match with the ones found in NAICS, meaning that NAICS did not capture all health care facilities in the area. This also meant that there were several hundred facilities that did not have a NAICS category to use as a facility typology. The uncategorized facilities were then individually assigned a NAICS category by the researcher. However, when it was time to analyze the different facility typologies, it became clear that the categorization scheme adopted from NAICS was insufficient to appropriately assess the health care facilities in terms of health care accessibility for the health needs of the district. Mainly, the issue resided in the "Office of Physicians and Surgeons" category, where, hospitals, small private practices, and some community health centers were all put together.

As this project aims to look at differences in services and location between hospitals, small private practices, and community health centers, having them all in one category, as NAICS had done, was not helpful to the project. To remedy this, a new attribute column called "NEWCAT"

APPENDIX A: METHODOLOGY

Figure A.1. Table of Attributes and Coding System

ATTRIBUTE 1	ATTRIBUTE 2	ATTRIBUTE 3	DESCRIPTION
GENERAL		CONAME	Facility name
		ADDR	Address listed in the NAICS 2012 data
		CITY	“New York City” for all entries
		STATE	“New York” for all entries
		STCODE	State code
		CNTYCD	County code
		ZIP	Zip code
		PHONE	Facility phone number
		WEBSITE	Facility/practice website
		NEWCAT	Facility type; see Figure A.2
	NAICS[OLD]	PRMSIC	Primary Standard Industry Classification Code (8-digit identifying number)
		SICD	Primary NAICS Code Description
	NAICS[NEW]	PNACODE	NAICS 6 digit number code for industry type
		PNATITL	Description of PNACODE
		CALSTS	Call Status
		HDBRCH	Business Status: Headquarters, Branch, Subsidary Headquarters
		LATT	Latitude
		LONG	Longitude
		MATCHCD	Match Code?
		LATITUDE	Latitude
		LONGITUDE	Longitude
ACCESSIBILITY		IN	Within CD 3 boundaries
		OPEN	Still in business
		ADA	Compliant with ADA accessibility requirements
	LANGUAGE	ENGLISH	Services provided in English
		SPANISH	Services provided in Spanish
		CHINESE (NS*)	Services provided in Chinese, non-specified
		MANDARIN (CH**)	Services provided in Mandarin
		CANTONESE (CH)	Services provided in Cantonese
		TAIWANESE (CH)	Services provided in Taiwanese
		YANPINGESE (CH)	Services provided in Yanpingese
		TOISHANESE (CH)	Services provided in Toishanese
		TEOCHEW (CH)	Services provided in Teochew
		HAKKA (CH)	Services provided in Hakka
		FUJIANESE (CH)	Services provided in Fujianese
		THAI	Services provided in Thai
		KOREAN	Services provided in Korean
		JAPANESE	Services provided in Japanese
		ARABIC	Services provided in Arabic
		FARSI	Services provided in Farsi
		FRENCH	Services provided in French
		FUKINESE	Services provided in Fukinese

*”NS” = dialect not specified **”CH” = Chinese dialect

APPENDIX A: METHODOLOGY

		GUJARATI	Services provided in Gujarati
		PUNJABI	Services provided in Punjabi
		HINDI	Services provided in Hindi
		KHMER	Services provided in Khmer
		VIETNAMESE	Services provided in Vietnamese
		RUSSIAN	Services provided in Russian
		YIDDISH	Services provided in Yiddish
		UKRAINIAN	Services provided in Ukrainian
	GENDER	WOMEN	Services include specialized care for women
		MEN	Services include specialized care for men
		TRANSGENDER	Services include specialized care for transgender individuals
	SEXUALITY	LESBIAN	Services include specialized/sensitive care for lesbian individuals
		GAY	Services include specialized/sensitive care for gay individuals
		BISEXUAL	Services include specialized/sensitive care for bisexual individuals
		QUEER	Services include specialized/sensitive care for queer individuals
	AGE	CHILDREN	Services include specialized care for children (0-11 years old)
		YOUTH	Services include specialized care for youth (12-17 years old)
		ADULT	Services include specialized care for adults (18-64 years old)
		SENIORS	Services include specialized care for seniors/elderly (over 65 years old)
	CONDITION	HIV/AIDS	Facility offers services for HIV/AIDS patients
		HOMELESS	Facility offers services for the homeless
		FORMERLY HOMELESS	Facility offers services for the formerly homeless
		ASTHMA	Facility offers services for individuals with asthma
		DIABETES	Facility offers services for individuals with diabetes
		ADDICTION	Facility offers services for individuals with substance addiction
		PSYCHIATRIC DISABILITY	Facility offers services for individuals with psychiatric disability
		LOW-INCOME	Facility offers services for low-income individuals
		FORMERLY INCARCERATED	Facility offers services for formerly incarcerated individuals
		VETERANS	Facility offers services for veterans
	SERVICES	ALLERGY/IMMUNOLOGY	Facility offers allergy/immunology services
		ALTERNATIVE	Facility offers alternative medicine services
		AMBULATORY	Facility offers ambulatory (outpatient) services
		CARDIOLOGY	Facility offers cardiology services
		CASE MANAGEMENT	Facility offers case management services
		CRITICAL CARE	Facility offers critical care services
		DENTAL	Facility offers dental care services
		DERMATOLOGY	Facility offers dermatology services
		DIAGNOSTIC	Facility offers diagnostic services
		EDUCATION	Facility offers health education services
		EMERGENCY MEDICINE	Facility offers emergency medicine services
		FAMILY PLANNING SERVICES	Facility offers family planning services
		FAMILY PRACTICE	Facility offers family practice services
		GERIATRIC	Facility offers geriatric services
		HEPATOLOGY	Facility offers hepatology services

APPENDIX A: METHODOLOGY

		HIV/AIDS	Facility offers HIV/AIDS specific services
		INFECTIOUS DISEASE	Facility offers infectious disease specific services
		INTERNAL MEDICINE	Facility offers internal medicine services
		LGBTQ SERVICES	Facility offers LGBTQ sensitive services
		MENTAL HEALTH	Facility offers mental health services
		NURSE MIDWIFERY	Facility offers nurse midwifery services
		NUTRITION	Facility offers nutrition services
		OBSTETRICS/GYNECOLOGY	Facility offers obstetrics/gynecology services
		ONCOLOGY	Facility offers oncology services
		OPHTHALMOLOGY	Facility offers opthalmology services
		OPTOMETRY	Facility offers optometry services
		ORTHOPEDICS	Facility offers orthopedic services
		PALLIATIVE CARE	Facility offers palliative care services
		PEDIATRIC	Facility offers pediatric care services
		PERINATAL	Facility offers perinatal care services
		PHARMACY	Facility offers pharmaceutical services
		PODIATRY	Facility offers podiatry services
		PRIMARY CARE	Facility offers primary care services
		PULMONARY MEDICINE	Facility offers pulmonary medicine services
		REHABILITATION	Facility offers rehabilitation medicine services
		SEXUAL HEALTH	Facility offers sexual health services
		SOCIAL SERVICES	Facility offers social services
		SPECIALTY	Facility offers specialty services
		SUBSTANCE	Facility offers substance abuse services
		SURGERY	Facility offers surgical services
		TESTING AND COUNSELING	Facility offers testing and counseling services
		URGENT CARE	Facility offers urgent care services

(for "New Category") was added so that a new categorization system for facilities could be entered. The main motive in re-categorizing the facilities was to expand the "Office of Physicians and Surgeons" category and to consolidate other categories; for example, "Optical Goods" and "Pharmacy" were consolidated into one category called "Retail." However, the old NAICS categories are retained in the spreadsheet so that there is the option of differentiating between "Optical Goods" and "Pharmacy" should this or any future project require it.

Facility Typology

The facility typologies, listed under the "NEWCAT" attribute, are purposely broad. However, since there are many ways facilities have set up their services and programs, the facility type is meant to be understood within the context of the attributes. In this way, the inventory is able to capture similar facilities that offer very different services. For example, both the New York Ear and Eye Infirmary and Beth Israel are hospital facilities, but the types of care they offer and specialize in make them very different facilities. In cases like this, the attributes that indicate the types of services and specialties each facility offers will differentiate one hospital from the other (see Figure A.2).

APPENDIX A: METHODOLOGY

Figure A.2. Facility Typologies Listed Under "NEWCAT"

PRIVATE OFFICE (EXCEPT ALTERNATIVE)
RETAIL
SOCIAL SERVICES
ALTERNATIVE MEDICINE
HOME HEALTH SERVICE
SCHOOL-BASED HEALTH CENTER
COMMUNITY HEALTH CENTER
DIAGNOSTIC CENTER
MEDICAL LABORATORY
RESIDENTIAL FACILITY
HOSPITAL
DIAGNOSTIC AND TREATMENT CENTER
HOSPITAL EXTENSION CLINIC

Accessibility Attributes

Accessibility attributes have been separated into a handful of categories: language, gender, sexuality, age, condition, and services. These reflect the different ways a facility can be accessible to residents, either by offering a particular type of service for specific health conditions or offering sensitive care for a particular demographic. Some of these attributes may be slightly similar, but the redundancy is to account for the many ways someone might search for or define a facility.

The languages listed were derived mainly from the spoken languages reported by the 2012 ACS 5-Year Estimates for the CD 3 zip codes. Language services provided by facilities were also added if the language was not already listed. As the number of foreign language speakers in the district is relatively high, language services are critical in assessing accessibility.

Some facilities indicated that they offered services for women's health while other facilities were intended for men, such as a men's only homeless shelter providing mental health services.

Facilities specializing in sexuality-sensitive care is especially important for lowering barriers to the LGBTQ community, and a handful in CD 3 do offer this.

As CD 3 is an aging district, age-specialized care is also important to note.

Conditions and services are two categories that overlap. However, many may know only a condition but not its associated service. Also, many services treat more than one condition. This is why they are two separate categories. In particular, services were numerous and varied in their typology. Therefore, it was necessary to group various types of services under a smaller number of broader service types (see Figure A.3).

Mapping

Mapping was done using ArcGIS 10.1. The demographic data was collected from the 2012 ACS 5-Year Estimates. The facilities mapped were geocoded from the facility inventory.

Demographic data were mapped onto census tracts. All collected data from the ACS were broken into separate spreadsheets, based on subjects. For example, one spreadsheet contains data on educational attainment, language speaking abilities, and poverty level, while another contains data on insurance coverage, including health insurance. It is recommended not to combine these into one spreadsheet because ArcGIS 10.1 cannot support such a large file.

When importing ACS spreadsheets into ArcGIS 10.1, the format of the spreadsheet is important. For all previous versions of the software, CSV or TXT files are desirable. However, with the 10.1 version, Excel files, or XLSX files, function better. This difference in format caused a lot of problems at the beginning of the process. However, once all files were re-imported as XLSX files, all the information displayed correctly.

To display the data is a multi-step process. First, the census tract shapefile is joined with the XLSX table. Due to a formatting problem in the beginning, an additional column in the census tract shapefile was created to match the format of the XLSX table, titled "CT_JOIN"; if this was not done, it would have been difficult to

APPENDIX A: METHODOLOGY

Figure A.3. Service Types

SERVICES TYPES IN INVENTORY	SPECIFIC SERVICES INCLUDED IN SERVICE TYPES
ALLERGY/IMMUNOLOGY	ALLERGY INJECTIONS
ALLERGY/IMMUNOLOGY	ALLERGY/IMMUNOLOGY
ALLERGY/IMMUNOLOGY	ALLERGY/IMMUNOLOGY (ADULT)
ALLERGY/IMMUNOLOGY	ALLERGY/IMMUNOLOGY (PEDIATRIC)
ALLERGY/IMMUNOLOGY	IMMUNIZATIONS
ALLERGY/IMMUNOLOGY	TRAVEL MEDICINE
ALTERNATIVE	ACUPUNCTURE
ALTERNATIVE	ALTERNATIVE MEDICINE
ALTERNATIVE	CHINESE MEDICINE
ALTERNATIVE	CHIROPRACTIC
ALTERNATIVE	MASSAGE
ALTERNATIVE	MEDICAL MESSAGE
ALTERNATIVE	REIKI
AMBULATORY	AMBULATORY CARE
CARDIOLOGY	CARDIOLOGY
CARDIOLOGY	CARDIOVASCULAR DISEASE (CARDIOLOGY)
CASE MANAGEMENT	CARE COORDINATION SERVICES
CASE MANAGEMENT	CASE MANAGEMENT
CASE MANAGEMENT	TRANSITIONAL
CRITICAL CARE	CRITICAL CARE
DENTAL	DENTAL
DERMATOLOGY	DERMATOLOGY
DIAGNOSTIC	BREAST MRI
DIAGNOSTIC	CT ANGIOGRAM
DIAGNOSTIC	CT SCAN
DIAGNOSTIC	CT VIRTUAL COLONOSCOPY
DIAGNOSTIC	DIAGNOSTIC RADIOLOGY
DIAGNOSTIC	DIGITAL MAMMOGRAM
DIAGNOSTIC	DIGITAL X-RAY
DIAGNOSTIC	LABORATORY SERVICES
DIAGNOSTIC	MEDICAL PHOTOGRAPHY
DIAGNOSTIC	MR ANGIOGRAM
DIAGNOSTIC	MRI
DIAGNOSTIC	PATHOLOGY
DIAGNOSTIC	PET/CT
DIAGNOSTIC	RADIATION ONCOLOGY
DIAGNOSTIC	RADIOLOGY
DIAGNOSTIC	THYROID BIOPSY
DIAGNOSTIC	ULTRASOUND
DIAGNOSTIC	WOMEN'S IMAGING
EDUCATION	PEER EDUCATION AND TRAINING
EMERGENCY MEDICINE	EMERGENCY MEDICINE

FAMILY PLANNING SERVICES	FAMILY PLANNING SERVICES
GERIATRIC	GERIATRIC MEDICINE
GERIATRIC	SENIORS
HIV/AIDS	HIV/AIDS CARE
INFECTIOUS DISEASE	HEPATOLOGY
INFECTIOUS DISEASE	INFECTIOUS DISEASE
INFECTIOUS DISEASE	INFECTIOUS DISEASE MEDICINE
INFECTIOUS DISEASE	INFECTIOUS DISEASES
INTERNAL MEDICINE	INTERNAL MEDICINE
INTERNAL MEDICINE	INTERNAL MEDICINE-PEDIATRIC
LGBTQ SERVICES	LESBIAN HEALTH
LGBTQ SERVICES	TRANSGENDER HEALTH SERVICES
MENTAL HEALTH	CLINICAL PSYCHOLOGY
MENTAL HEALTH	COUNSELING
MENTAL HEALTH	MENTAL HEALTH SERVICES
MENTAL HEALTH	PSYCHIATRY
MENTAL HEALTH	PSYCHIATRY-CHILD
MENTAL HEALTH	PSYCHOLOGY
MENTAL HEALTH	PSYCHOSOMATIC MEDICINE
MENTAL HEALTH	SUPPORT GROUPS
MENTAL HEALTH	HARM REDUCTION
NURSE MIDWIFERY	NURSE MIDWIFERY
NUTRITION	DIETETICS AND NUTRITION
NUTRITION	NUTRITION
NUTRITION	NUTRITION COUNSELING
OBSTETRICS/GYNECOLOGY	GYNECOLOGY
OBSTETRICS/GYNECOLOGY	GYNECOLOGY (PELVIC/PAP)
OBSTETRICS/GYNECOLOGY	OBSTETRICS/GYNECOLOGY
OBSTETRICS/GYNECOLOGY	SPECIALIZED WOMEN'S SERVICES
ONCOLOGY	HEMATOLOGY/ONCOLOGY
ONCOLOGY	MEDICAL ONCOLOGY
ONCOLOGY	ONCOLOGY
OPHTHALMOLOGY	OPHTHALMOLOGY
OPTOMETRY	OPTOMETRY
ORTHOPEDICS	ORTHOPAEDICS
PALLIATIVE CARE	HOSPICE/PALLIATIVE CARE
PEDIATRIC	PEDIATRIC MEDICINE
PERINATAL	PERINATAL HOSPICE
PERINATAL	PRENATAL CARE
PHARMACY	PHARMACY
PODIATRY	PODIATRY
PRIMARY CARE	FAMILY PRACTICE
PRIMARY CARE	GENERAL MEDICINE
PRIMARY CARE	ASTHMA TREATMENT
PRIMARY CARE	PREVENTATIVE MEDICINE

PRIMARY CARE	PRIMARY CARE
PRIMARY CARE	MEDICAL AND HOLISTIC CARE
PRIMARY CARE	WELLNESS AND PREVENTION
PULMONARY MEDICINE	PULMONARY DISEASE
PULMONARY MEDICINE	PULMONARY MEDICINE
REHABILITATION	OCCUPATIONAL THERAPY
REHABILITATION	OSTEOPATHIC MANIPULATIVE MEDICINE
REHABILITATION	PHYSICAL MEDICINE AND REHABILITATION
REHABILITATION	PHYSICAL THERAPY
REHABILITATION	SPORTS MEDICINE
SEXUAL HEALTH	SEXUAL HEALTH
SEXUAL HEALTH	STD
SOCIAL SERVICES	SOCIAL SERVICES
SOCIAL SERVICES	CLINICAL SOCIAL WORK
SPECIALTY	ANETHESIOLOGY
SPECIALTY	ANORECTAL DISORDERS
SPECIALTY	AUDIOLOGY
SPECIALTY	BLOOD DISORDERS/HEMATOLOGY
SPECIALTY	BONE DENSITOMETRY
SPECIALTY	CARDIAC ELECTROPHYSIOLOGY
SPECIALTY	CYSTIC FIBROSIS THERAPY
SPECIALTY	DIGESTIVE DISEASES
SPECIALTY	EAR, NOSE, AND THROAT
SPECIALTY	ENDOCRINOLOGY
SPECIALTY	FLUOROSCOPY
SPECIALTY	GASTROENTEROLOGY
SPECIALTY	INTERVENTIONAL ENDOSCOPY
SPECIALTY	INTERVENTIONAL MEDICINE
SPECIALTY	INTERVENTIONAL PAIN MANAGEMENT
SPECIALTY	INTERVENTIONAL RADIOLOGY
SPECIALTY	NEPHROLOGY
SPECIALTY	NEPHROLOGY/KIDNEY DISEASE
SPECIALTY	NEUROLOGY
SPECIALTY	NEUROLOGY (PEDIATRIC)
SPECIALTY	NUCLEAR MEDICINE
SPECIALTY	OTOLARYNGOLOGY
SPECIALTY	PAIN MEDICINE
SPECIALTY	PERIPHERAL VASCULAR DISEASE
SPECIALTY	RHEUMATOLOGY
SPECIALTY	SLEEP STUDY
SPECIALTY	SPEECH AND HEARING SERVICES
SPECIALTY	UROLOGY
SUBSTANCE	BUPRENORPHINE SERVICES
SUBSTANCE	CHEMICAL DEPENDENCY
SUBSTANCE	DETOXIFICATION

SUBSTANCE	OVERDOSE PREVENTION
SUBSTANCE	SUBSTANCE ABUSE
SUBSTANCE	SUBSTANCE ABUSE TREATMENT
SUBSTANCE	SYRINGE ACCESS
SURGERY	CARDIAC SURGERY
SURGERY	CARDIOTHORACIC SURGERY
SURGERY	COLORECTAL SURGERY (PROCTOLOGY)
SURGERY	GASTROENTEROLOGICAL SURGERY
SURGERY	GENERAL SURGERY
SURGERY	GENERAL SURGERY (MINOR)
SURGERY	MAXILLOFACIAL SURGERY
SURGERY	NEUROSURGERY
SURGERY	ORAL AND MAXILLOFACIAL SURGERY
SURGERY	ORAL SURGERY (DENTIST ONLY)
SURGERY	ORTHOPEDIC SURGERY
SURGERY	PLASTIC AND RECONSTRUCTIVE SURGERY
SURGERY	PLASTIC SURGERY
SURGERY	PLASTIC SURGERY (AESTHETIC)
SURGERY	PLASTIC SURGERY WITHIN HEAD AND NECK
SURGERY	SURGERY (MINOR)
SURGERY	SURGICAL SERVICES
SURGERY	THORACIC SURGERY
SURGERY	VASCULAR SURGERY
TESTING AND COUNSELING	HEPATITIS C TESTING AND COUNSELING
TESTING AND COUNSELING	HIV TESTING AND COUNSELING
YOUTH	ADOLESCENT MEDICINE

complete the join. “CT_JOIN” was matched with the “CENTRACT” column in the XLSX file. Once the join is complete, it is important to export the data; this will create a new shapefile which can be named as the attribute to be displayed. Once the data has been joined and exported as its own shapefile, it can be symbolized.

Symbolizing the data, in this case, refers to the process of assigning a gradation of colors to represent the gradation of values in the data. For example, consider the data for the percentage of the population living below the poverty line. In each census tract, there will be a different percentage; some will be higher percentages, some will be lower percentages, and some will fall in the middle. Thus, symbolizing these differences with different colors allows us to see these changes in percentages very quickly on a map.

This process was repeated for all the different attributes that were necessary for this project.

Geocoding was used to map all the facilities. The base map used for this was the 2013 PLUTO Lots shapefile. First, the inventory was imported into ArcGIS 10.1 as an XLSX file, which contained the coordinates of each facility. To display these coordinates, which is one method of geocoding, use the “Display XY” function. In the new window that appears, it is important to adjust the projection. If not, the displayed coordinates will not match up with the base map and the facilities will not appear in the correct location, but rather somewhere else on the map. In this case, the projection is set to WGS 1984, which

APPENDIX A: METHODOLOGY

is located within Geographic Coordinate Systems (not Projected Coordinate Systems). Once the projection is set to this, the facilities should display correctly. Once the facilities have been geocoded, the data should be exported and saved as its own shapefile. Once the shapefile has been saved, it can be symbolized. To directly symbolize the file that has been geocoded will cause problems later on.

After geocoding, the symbolization can begin. The facilities shapefile not only contains the XY coordinates of the location, but also all the different attribute categories listed in Figure A.1. Each of these and/or any combination of these can be symbolized. To symbolize, for instance all facilities that provide alternative medicine services such as acupuncture, use the “Select by Attributes” function to filter all the facilities for only those with the label “Alternative Medicine.” Once these are selected, they will be highlighted on the map. From here, export the data into a new shapefile. The new shapefile contains only the facilities that offer alternative medicine which can be symbolized to stand out.

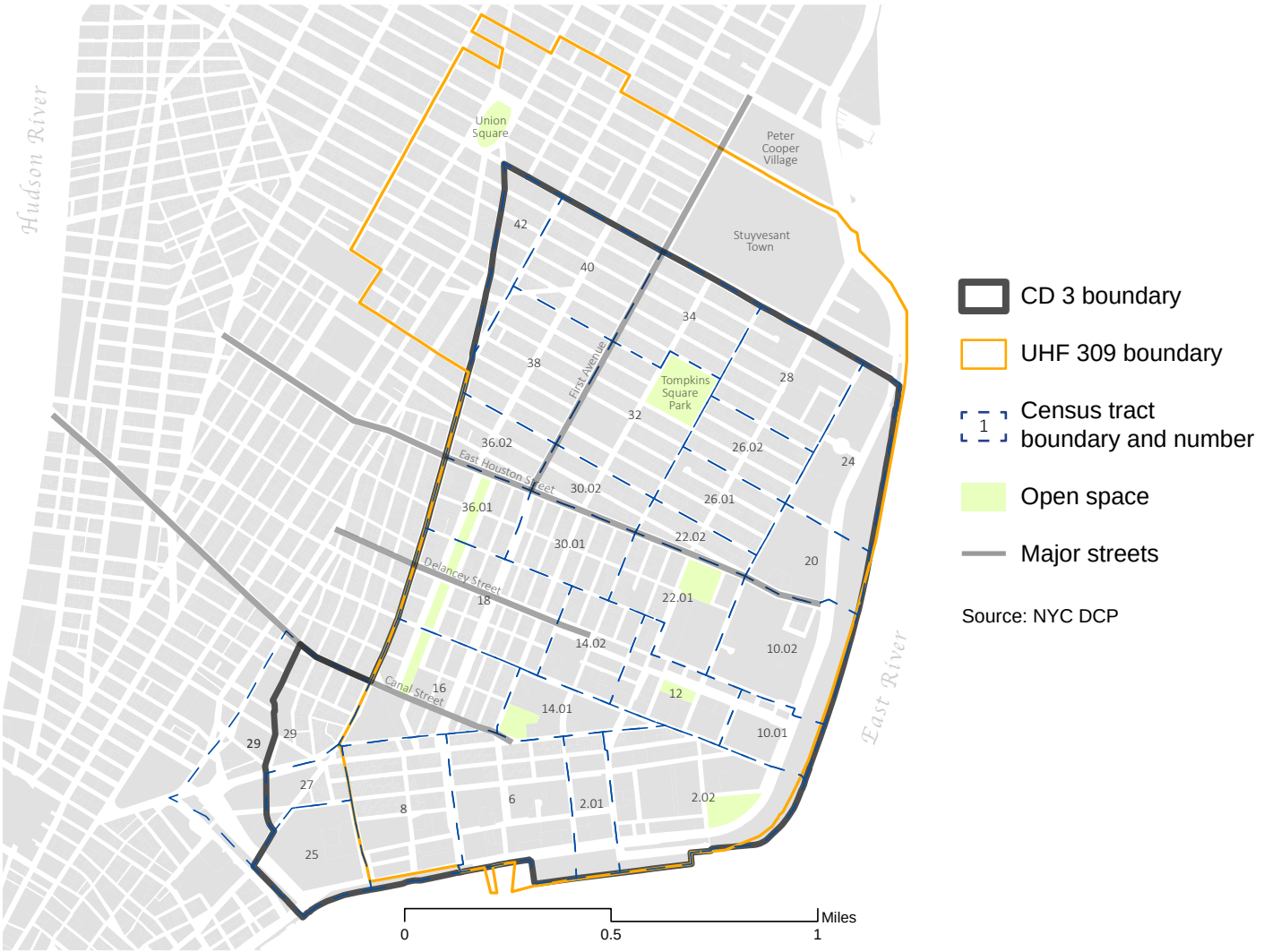
APPENDIX B: DATA

In researching existing conditions, it became difficult to make direct comparisons between the data available and the area of interest. The data presented in this report therefore represents three different geographic boundaries: CD 3, census tracts, and United Hospital Fund (UHF) District 309 (see Figure B.1).

These mismatched boundaries make it difficult to analyze overlapping trends between the population and health issues. While inferences can be made, no direct comparison can happen without matching boundary lines.

Step 7 of the suggested future framework discusses the need to push government and research institutions to collect and provide data in forms that are relevant to existing political and administrative boundaries.

Figure B.1. Data Boundaries



APPENDIX B: DATA

Population Data

For this report, population data was calculated from the 2012 American Community Survey (ACS) 5-Year Estimates. Data was collected at the census tract level which aligns closely, but not exactly, with CD 3 boundaries, making comparisons difficult. Techniques exist to bisect a census tract and its associated data to exactly match the geographic boundaries of CD 3, however it would be an approximation. Because only one census tract protrudes beyond CD 3 (Census Tract 29), and since it encompasses one contiguous neighborhood (Chinatown), this splitting technique was not employed.

The Furman Center, however, was able to calculate several demographic traits to the community district level using the 2012 ACS 1-Year Estimates. Thus, for some traits, exact CD 3 data was available.

Health Data

Health data was sourced from the 2012 New York City Community Health Survey (CHS). Data was publicly available at the city level, borough level, and UHF District level. UHF District 309 most closely aligns with the CD 3 boundary, however its area is shifted slightly further north than CD 3.

Because there was no smaller data available on health than at the UHF District level, many health trends of the neighborhoods were inferred onto populations, the data for which was broken down into census tracts. Furthermore, the CHS is a voluntary survey and therefore the answers collected may over-represent populations that are more willing or able to provide answers, and under-represent populations that are unwilling to or cannot provide answers. The trends presented in this report or any report that uses data from the CHS should be taken with this understanding.

Facility Data

Facilities were compiled from the National Medicare Provider List, 2012 North American Industry Classification System (NAICS) database, New York City Department of Education, New York City Office of Management and Budget, Project Hope Provider Agency List, and miscellaneous facilities found in the process of cleaning and fact-checking the entries. The National Medicare Provider List and the NAICS database provided the bulk of the entries. All other facilities found after that were double checked for redundancy.

REFERENCES

Center for Independence of the Disabled, New York. (2011). *Disability Matters: Unequal Treatment and the Status of People with Disabilities in New York City and New York State.* Retrieved 6 February 2014, from http://www.cidny.org/resources/News/Reports/Disability%20Matters.pdf

Commission on Social Determinants of Health. (2008). *Closing the gap in a generation: health equity through action on the social determinants of health. The Final Report of the Commission on Social Determinants of Health.* Geneva: World Health Organization. Retrieved 5 July 2014, from http://whqlibdoc.who.int/publications/2008/9789241563703_eng.pdf?ua=1

Cutler, D., and Lleras-Muney, A. (2007). *Education and Health, National Poverty Center Brief #9.* Ann Arbor, MI: National Poverty Center. Retrieved 5 July 2014, from http://www.npc.umich.edu/publications/policy_briefs/brief9/policy_brief9.pdf

DeJong, G. (1997). "Primary care for persons with disabilities. An overview of the problem." *American Journal of Physical Medicine and Rehabilitation.* 76(3) Suppl.: 2-8. Retrieved 29 July 2014, from http://ovidsp.ovid.com/

Drainoni, M., Lee-Hood, E., Tobias, C., Bachman, S., Andrew, J., and Maisels, L. (2006). "Cross-Disability Experiences of Barriers to Health-Care Access: Consumer Perspectives." *Journal of Disability Policy Studies.* 17(2): 101-115. Retrieved 28 July 2014, from http://dps.sagepub.com/content/17/2/101

Drobnik A, Pinchoff J, Bushnell G,Terranova E, Fuld J. "Matching New York City Viral Hepatitis, Tuberculosis, Sexually Transmitted Diseases and HIV Surveillance Data, 2000-2010." New York City Department of Health and Mental Hygiene: Epi Research Report, October 2013; 1-12. Retrieved 24 October 2013, from http://www.nyc.gov/html/doh/downloads/pdf/epi/epiresearch-PCSI.pdf

Empire State Pride Agenda Foundation. (2009). *LGBT Health and Human Services Needs in New York State.* Retrieved 30 January 2014, from http://www.prideagenda.org/sites/default/files/PDFs/One-Third%20Transgender%20New%20Yorkers%20Have%20Been%20Homeless.pdf

Gunn-Brooks, J., Duncan, G.J., Klebanov, P.K., and Sealand, N. (1993). Do Neighborhoods Influence Child and Adolescent Development? *American Journal of Sociology*. 99(2): 353-395.

Hayward, M.D., Crimmins, E.M., Miles, T.P., and Yang, Y. (2000). "The Significance of Socioeconomic Status in Explaining the Racial Gap in Chronic Health Conditions." *American Sociological Review.* 65(6): 910-930. Retrieved 5 February 2014, from http://www.jstor.org/stable/2657519

Hwang, J., and Christensen, C.M. (2008). "Disruptive Innovation In Health Care Delivery: A Framework for Business-Model Innovation." *Health Affairs.* 27(5): 1329-1335. Retrieved 28 July 2014, from http://content.healthaffairs.org/content/27/5/1329.full.html

Jasek, J., Perlman, S., Havusha, A., Sanderson, M., Cohen, L., Greene, C., and Farley, T. (2011). *Health Care Reform in New York City – Access to Primary Care Before Reform, Epi Research Report.* New York, NY: New York City Department of Health and Hygiene. Retrieved 24 October 2013, from http://www.nyc.gov/html/doh/downloads/pdf/epi/epiresearch-healthcare-access.pdf

Kirby, J.B., Taliaferro, G., and Zuvekas, S.H. (2006). "Explaining Racial and Ethnic Disparities in Health Care." *Medical Care*. 44(5) Suppl.:164-172. Retrieved 28 August 2014, from http://www.jstor.org/stable/3768359

Lynch, J., and Kaplan, G. (1997). "Understanding How Inequality in the Distribution of Income Affects Health." *Journal of Health Psychology.* 2(3): 297-314. Retrieved 28 July 2014.

Manhattan Community District 3. (2014a). *District Needs Statement FY2015.* Retrieved 29 January 2014, from http://www.nyc.gov/html/mancb3/downloads/cb3docs/fy_2015_needs_statement.pdf

Manhattan Community District 3. (2014b). *SPURA Demography Summary of Findings.*

Mather, M., and Dupuis, G. (2012). *Rising Share of U.S. Children Living in High Poverty Neighborhoods.* Washington, D.C.: Population Reference Bureau. Retrieved 1 July 2014, from http://www.prb.org/Publications/Articles/2012/us-high-poverty-neighborhoods.aspx

REFERENCES

Neri, M.T., and Kroll, T. (2002). "Understanding the consequences of access barriers to health care: experiences of adults with disabilities." *Disability and Rehabilitation.* 25(2): 85-96. Retrieved 28 July 2014, from http://informahealthcare.com/doi/pdf/10.1080/0963828021000007941

Newhouse, J.P. (1969). "Toward a Theory of Non-Profit Institutions: An Economic Model of a Hospital." Santa Monica, CA: The RAND Corporation. Retrieved 8 August 2014, from http://www.rand.org/content/dam/rand/pubs/papers/2008/P4022.pdf

New York City Administration for Children's Services. (2011). *Community Snapshot 2011: CD 3: Lower East Side, Chinatown.* Retrieved 5 July 2014, from http://www.nyc.gov/html/acs/downloads/pdf/cd_snapshots/manhattan_cd3.pdf

New York City Charter. New York Code. Section 2800. (2004). Retrieved 29 July 2014, from http://www.nyc.gov/html/dycd/downloads/pdf/citycharter2004.pdf

New York City Department of City Planning. (2010). *Manhattan Community District 3 Profile.* Retrieved 21 October 2013, from http://www.nyc.gov/html/dcp/pdf/lucds/mn3profile.pdf

New York City Department of Health and Mental Hygiene. Epiquery: NYC Interactive Health Data System - [Community Health Survey 2012]. [Accessed June 2014]. http://nyc.gov/health/epiquery

New York City Department of Health and Mental Hygiene. Epiquery: NYC Interactive Health Data System – [Tuberculosis Surveillance Data 2001-2012]. [Accessed June 2014]. http://nyc.gov/health/epiquery

New York City Department of Health and Mental Hygiene. Epiquery: NYC Interactive Health Data System - [Sexually Transmitted Diseases 2000-2009]. [Accessed June 2014]. http://nyc.gov/health/epiquery

New York City Office of Management and Budget. (2013). *District Resource Statement: Department of Health and Mental Hygiene, Fiscal and Service Reports for Fiscal Years 2013 and 2014.* Retrieved 13 November 2013.

New York University Furman Center for Real Estate and Policy. (2012). *2012 State of New York City's Housing and Neighborhoods.* Retrieved 5 February 2014, from http://furmancenter.org/files/sotc/SOC2012.pdf

New York University Furman Center for Real Estate and Policy. (2013). *2013 State of New York City's Housing and Neighborhoods.* Retrieved 16 June 2014, from http://furmancenter.org/files/sotc/SOC2013_HighRes.pdf

The Community Service Society and The Children's Aid Society. (2013). *Foster Care and Disconnected Youth: A Way Forward for New York.* Retrieved 5 July 2014, from http://www.childrensaidsociety.org/files/upload-docs/report_final_April_2.pdf

The New York Academy of Medicine. (2008). *Toward an Age-Friendly New York City: A Findings Report.* Retrieved 10 November 2013, from https://www.health.ny.gov/diseases/aids/providers/conferences/docs/nyam_age_friendly_report.pdf

Raven, M., and Gould, D. (2012). *Time and Again: Frequent Users of Emergency Department Services in New York City.* New York, NY: United Hospital Fund. Retrieved 26 October 2013, from http://www.uhfnyc.org/publications/880847

Reardon, S., and Bischoff, K. (2010). "Income Inequality and Income Segregation." Unpublished Manuscript. Retrieved 28 July 2014, from http://web.pop.psu.edu/projects/mss/income_inequality_and_income_segregation_jan2010.pdf

Safe Horizon. (2014). *Streetwork: Homeless Youth Facts.* Retrieved 30 June 2014, from http://www.safehorizon.org/page/streetwork-homeless-youth-facts-69.html

Schneeweiss, S. (2014). "Learning From Big Health Care Data." *The New England Journal of Medicine.* 370(23): 2161-2163. Retrieved 8 August 2014, from http://www.nejm.org/doi/pdf/10.1056/NEJMp1401111

U.S. Census Bureau; 2000 Census, SF1. Found in New York City Department of City Planning. (2010). *Manhattan Community District 3 Profile.*

U.S. Census Bureau; 2010a Census, SF1. Found in New York City Department of City Planning. (2010). *Manhattan Community District 3 Profile.*

U.S. Census Bureau; 2010b Census, SF1, Table P12

REFERENCES

U.S. Census Bureau; 2010c Census, SF1, Table P13

U.S. Census Bureau; 2010d Census, SF1, Table PCT12

U.S. Census Bureau; 2012a American Community Survey 1-Year Estimates.

U.S. Census Bureau; 2012b American Community Survey 5-Year Estimates, Table DP02; generated by Amy Yang; using American FactFinder; <http://factfinder2.census.gov>; (2 June 2014).

U.S. Census Bureau; 2012c American Community Survey 5-Year Estimates, Table DP05; generated by Amy Yang; using American FactFinder; <http://factfinder2.census.gov>; (2 June 2014).

U.S. Census Bureau; 2012d American Community Survey 5-Year Estimates, Table S1701; generated by Amy Yang; using American FactFinder; <http://factfinder2.census.gov>; (2 June 2014).

U.S. Census Bureau; 2012e American Community Survey 5-Year Estimates, Table S1810; generated by Amy Yang; using American FactFinder; <http://factfinder2.census.gov>; (18 July 2014).

U.S. Census Bureau; 2012f American Community Survey 5-Year Estimates, Table S1902; generated by Amy Yang; using American FactFinder; <http://factfinder2.census.gov>; (2 June 2014).

U.S. Census Bureau; 2012g American Community Survey 5-Year Estimates, Table S2503; generated by Amy Yang; using American FactFinder; <http://factfinder2.census.gov>; (2 June 2014).

U.S. Census Bureau; 2012h American Community Survey 5-Year Estimates, Table S2701; generated by Amy Yang; using American FactFinder; <http://factfinder2.census.gov>; (2 June 2014).

U.S. Census Bureau; 2012i American Community Survey 5-Year Estimates, Table C18130; generated by Amy Yang; using American FactFinder; <http://factfinder2.census.gov>; (2 June 2014).

U.S. Department of Health and Human Services. (2010). *Healthy People: Disability and Health.* Retrieved October 24, 2013, from http://www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=9

U.S. Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. (2011). *Helping Children and Youth Who Have Experienced Traumatic Events.* Found in The Community Service Society and The Children's Aid Society. (2013).

Wilson, E., Chen, A.H., Grumbach, K., Wang, F., Fernandez, A. (2005). "Effects of Limited English Proficiency and Physician Language on Health Care Comprehension." *Journal of General Internal Medicine.* 20(9): 800-806. Retrieved 28 July 2014, from http://onlinelibrary.wiley.com/doi/10.1111/j.1525-1497.2005.0174.x/pdf

A Preliminary Inventory and Assessment of Health Care Facilities within Manhattan Community District 3

Presented to Manhattan Community Board 3
by Amy Yang, 2014 Community Planning Fellow

July 22, 2014

Project Overview

People and Areas to Highlight

Methodology

Initial Analysis

Summary

Project Overview - Tasks

To determine the demand for certain types of healthcare facilities within Community District 3

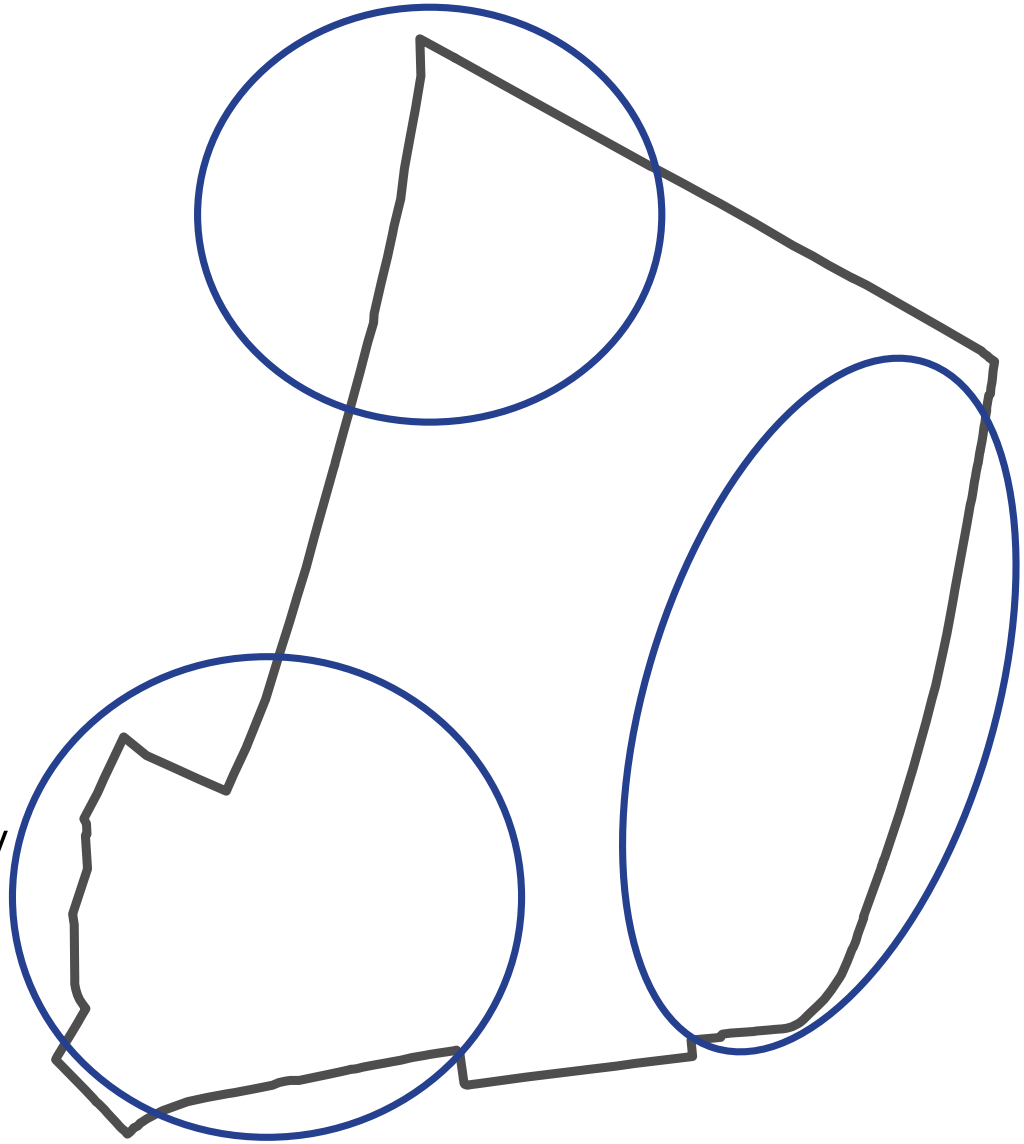
To create an inventory of healthcare facilities within Community District 3

To evaluate if current facilities meet the current demand, and where demand is unmet or saturated

To identify potential solutions to meet the demand

People and Areas to Highlight

Union Square: disability accessibility, binge drinking



East side: care for Spanish speakers, STD care and education, binge drinking

Chinatown/Two Bridges: Care for the elderly, affordable care, disability accessability, care for Chinese speakers, TB is high, youth in poverty, mental health services

Methodology

Compiled lists from various sources

Developed a structure that allows for:
- Flexibility in analysis
- Breadth of issues
- Updatability

Facilities entered: 1629

Challenges
- Many specialized or hybrid service and facility typologies
- Data was
  - Not standardized
  - Missing
  - Incorrect
  - Outdated

Methodology

CATEGORIES

GENERAL		CONAME
		ADDR
		CITY
		STATE
		STCODE
		CNTYCD
		ZIP
		PHONE
		NEWCAT`
NAICS[OLD]		PRMSIC
		SICD
NAICS[NEW]		PNACODE
		PNATITL
		CALSTS
		HDBRCH
		LATT
		LONG
		MATCHCD
		LATITUDE
		LONGITUDE
		WEBSITE
ACCESSIBILITY		IN
		OPEN
		ADA
	LANGUAGE	ENGLISH
		SPANISH
		GERMAN
		CHINESE (NS)
		MANDARIN (CH)
		CANTONESE (CH)
		TAIWANESE (CH)
		YANPINGESE (CH)
		TOISHANESE (CH)
		TEOCHEW (CH)
		HAKKA (CH)
		FUJIANESE (CH)
		THAI
		KOREAN
		JAPANESE
		ARABIC
		FARSI
		FRENCH
		FUKINESE
		GUJARATI
		PUNJABI
		HINDI
		KHMER
		VIETNAMESE
		RUSSIAN
		YIDDISH
	GENDER-SPECIFIC	WOMEN
		MEN
		TRANSGENDER
	SEXUALITY-SPECIFIC	LESBIAN
		GAY
		BISEXUAL
	AGE-SPECIFIC	QUEER
ACCESSIBILITY		CHILDREN

(cont.)		YOUTH
		ADULT
	CONDITION-SPE-CIFIC	SENIORS
		HIV/AIDS
		HOMELESS
		FORMERLY HOMELESS
		ASTHMA
		DIABETES
		ADDICTION
		PSYCHIATRIC DISABILITY
		LOW-INCOME
		FORMERLY INCARCERATED
		VETERANS
	SERVICES	ALLERGY/IMMUNOLOGY
		ALTERNATIVE
		AMBULATORY
		CARDIOLOGY
		CASE MANAGEMENT
		CRITICAL CARE
		DENTAL
		DERMATOLOGY
		DIAGNOSTIC
		EDUCATION
		EMERGENCY MEDICINE
		FAMILY PLANNING SERVICES
		FAMILY PRACTICE
		GERIATRIC
		HEPATOLOGY
		HIV/AIDS
		INFECTIOUS DISEASE
		INTERNAL MEDICINE
		LGBTQ SERVICES
		MENTAL HEALTH
		NURSE MIDWIFERY
		NUTRITION
		OBSTETRICS/GYNECOLOGY
		ONCOLOGY
		OPHTHALMOLOGY
		OPTOMETRY
		ORTHOPEDICS
		PALLIATIVE CARE
		PERINATAL
		PHARMACY
		PODIATRY
		PRIMARY CARE
		PULMONARY MEDICINE
		REHABILITATION
		SEXUAL HEALTH
		SOCIAL SERVICES
		SPECIALTY
		SUBSTANCE
		SURGERY
		TESTING AND COUNSELING

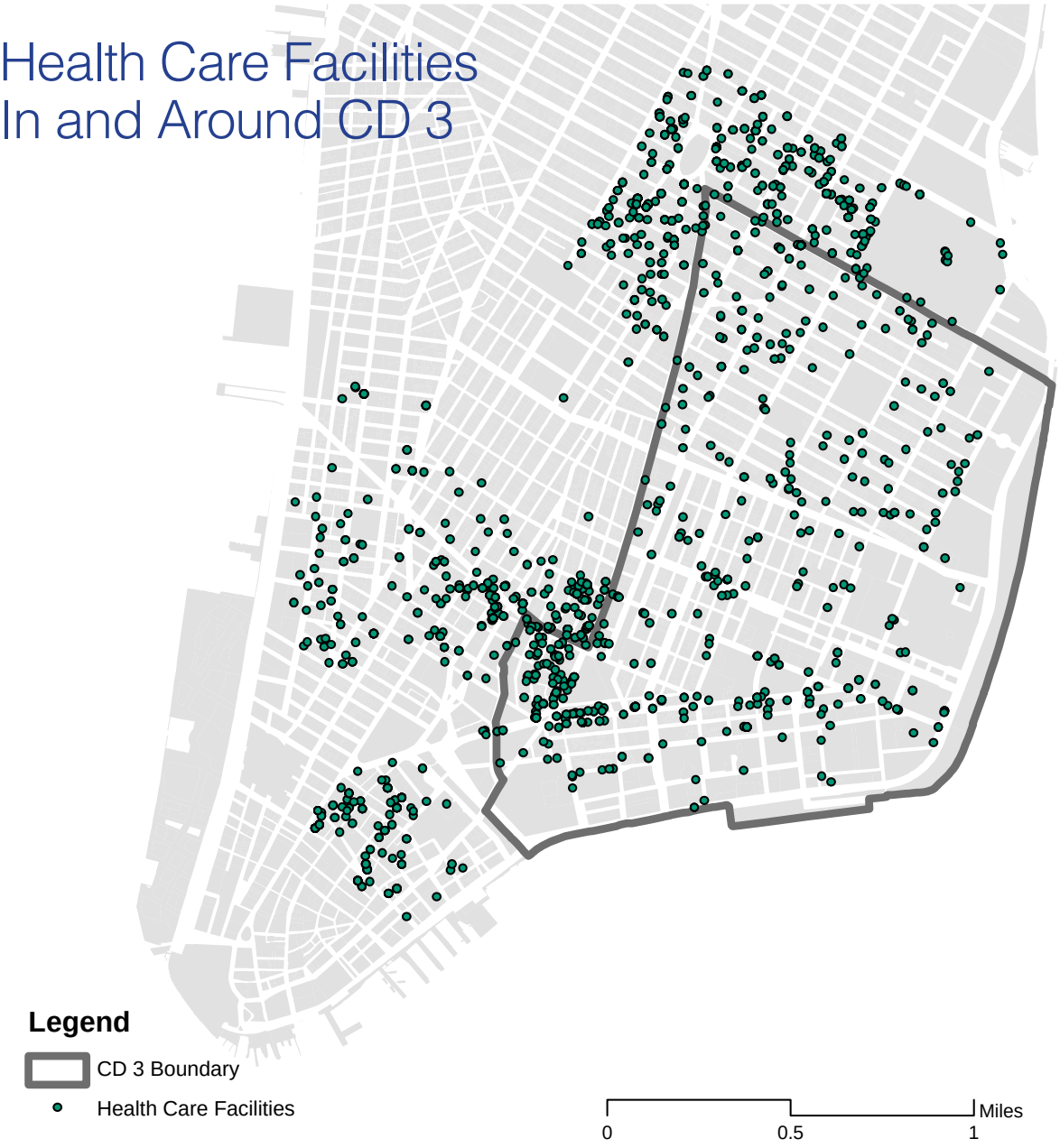
Methodology

FACILITY TYPES

PRIVATE OFFICE (EXCEPT ALTERNATIVE)	DIAGNOSTIC CENTER
RETAIL	MEDICAL LABORATORY
SOCIAL SERVICES	RESIDENTIAL FACILITY
ALTERNATIVE MEDICINE	HOSPITAL
HOME HEALTH SERVICE	DIAGNOSTIC AND TREATMENT CENTER
SBHC	HOSPITAL EXTENSION CLINIC
COMMUNITY HEALTH CENTER	

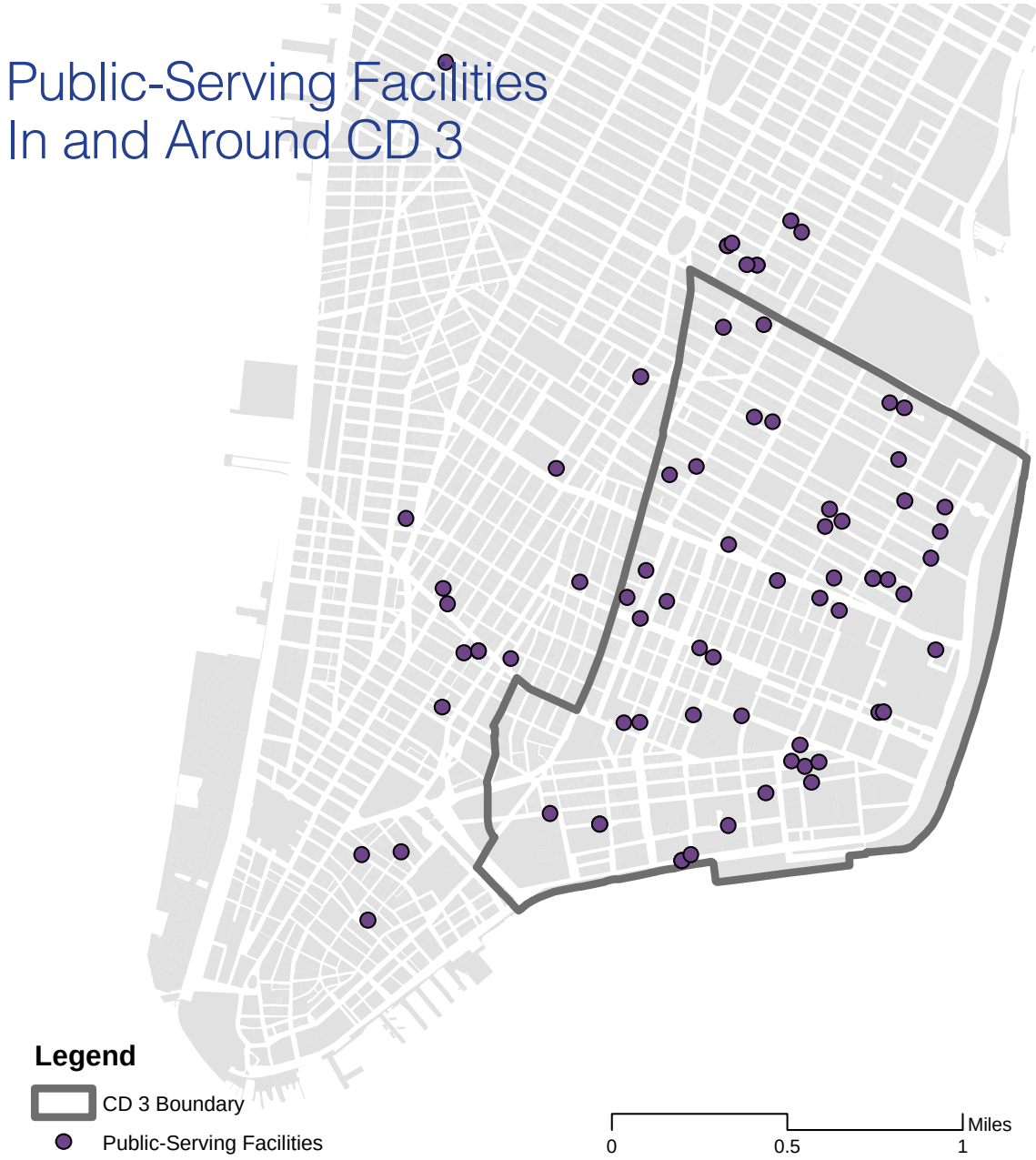
Initial Analysis

Health Care Facilities In and Around CD 3

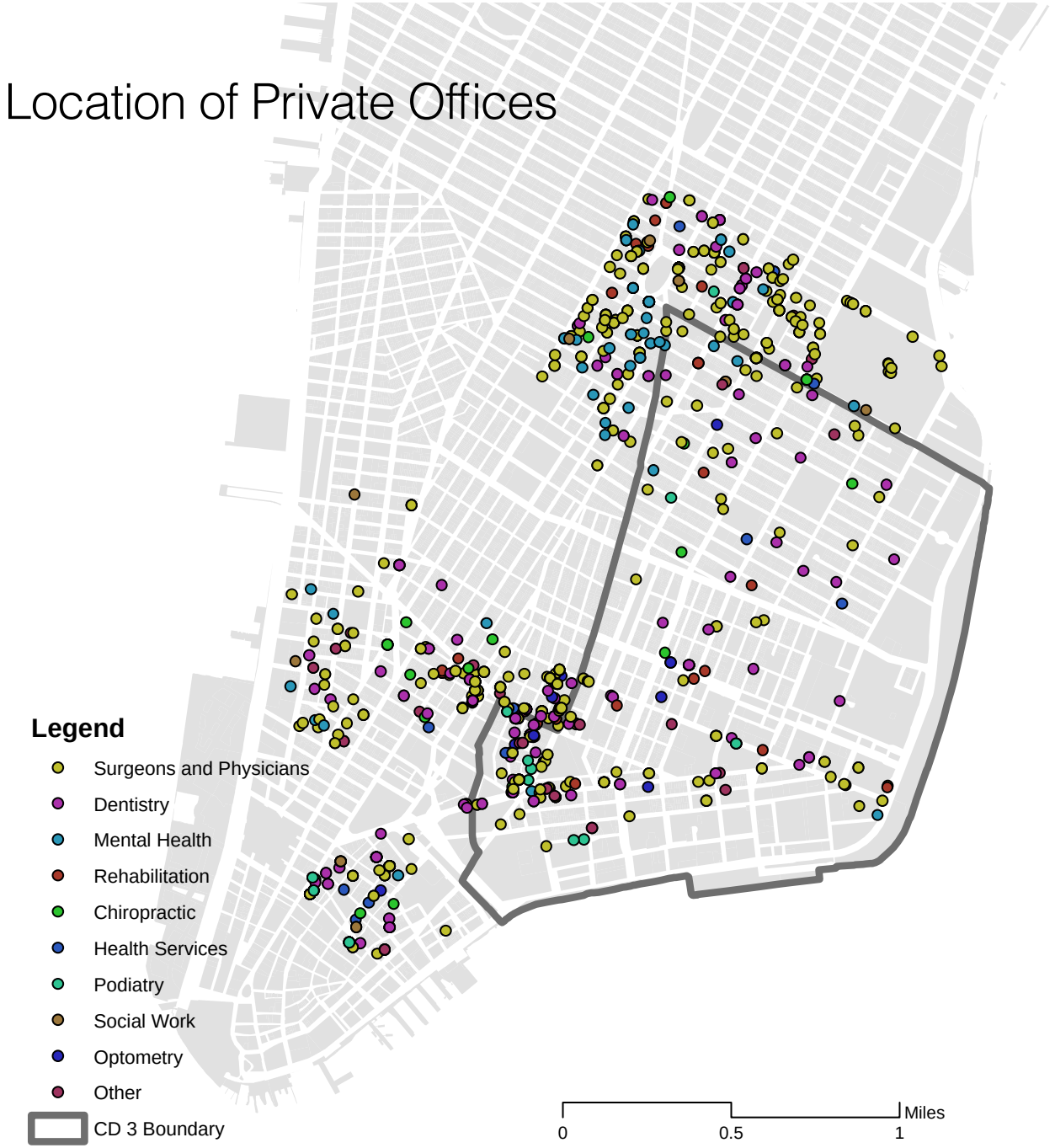


Initial Analysis

Public-Serving Facilities In and Around CD 3



Initial Analysis



Initial Analysis

Initial Analysis

Summary

PHASE ONE: ASSESS HEALTH CARE NEEDS

1. Chinatown/Two Bridges: low-income, low-education, high poverty, high percentage of Chinese population, older population

- Care for elderly
- Affordable care
- Disability accessibility
- TB care and education
- Care for Chinese speakers
- Mental health care

2. East side: high percentage of Hispanic population, low income

- STD care and education
- Binge drinking initiatives
- Care for Spanish speakers

3. Union Square: most affluent area, with pockets of affluence in the middle and northwest, high educational attainment, high percentage of White population, younger population

- Disability accessibility
- Binge drinking initiatives

Summary

PHASE TWO: BUILD THE INVENTORY + CONDUCT INITIAL ANALYSIS

1. Facilities clustered in Union Square and Chinatown

2. High proportion of small practices; mostly acupuncture in Chinatown

3. Pharmacies scattered throughout the District; sometimes reaching places that do not have any other health care resources

4. Public-Serving Facilities are scattered evenly throughout the District

Summary

PHASE THREE: MAKE [POLICY] RECOMMENDATIONS

1. Investigate medical facilities as retail (may provide alternate insight into hospital closings/mergers and the increase of luxury construction in their places)

2. Push for more city-wide research at the community district level

3. Continuing pursuing research on health care behavior to further assess adequacy of resources - personal health care geography survey