Calling for Shelters: A Search for Optimized Locations for Homeless Shelters in NYC

Gaurav Bhardwaj
Center for Urban Science and Progress
New York University
Brooklyn, NY, USA
gb1877@nyu.edu

Yuwen Chang
Center for Urban Science and Progress
New York University
Brooklyn, NY, USA
ywchang@nyu.edu

Yu Chen
Center for Urban Science and Progress
New York University
Brooklyn, NY, USA
yc3300@nyu.edu

Emily Padvorac
Center for Urban Science and Progress
New York University
Brooklyn, NY, USA
ep2247@nyu.edu

***Abstract*—New York City plans to open 90 new homeless shelters across the city over the next few years in place of existing cluster sites and hotels. Existing shelters sponsored by the City are clustered around Bronx and Brooklyn. Following the idea of Fair Share to distribute city facilities equally, we will try to search for new locations with some of the responsible variables to allocate new shelters throughout the city. Meanwhile, we also take into account the continuation of children education and accessibility to jobs that are core concerns to families undergoing homelessness. We applied several variables that measure these aspects as indicators and generate scores that evaluate the suitability of setting a shelter in each ZIP Tabulation Area in NYC. The score has been set after standardizing the variables and taken equal distribution of 5. Then, we utilized several spatial buffering analysis to find optimal locations that have better transit access while covering a range of schools. The results show that while existing shelters in Bronx and Brooklyn are necessary, more considerations may be drawn to lower Bronx, Harlem, East Harlem, and far into Brooklyn.**

Keywords—homeless, shelters, fair-share, gentrification, location, New York City

I. Introduction

1.1 Background

One of the many problems that New York City is facing is the homeless population. New York City has one of the highest homeless populations in the United States. In the past year, New York City has over 60,000 homeless people sleeping in shelters each night. Thousands of more are sleeping on the city's streets, subway systems, or public spaces [1]. In New York City, homelessness has reached some of the highest numbers since the Great Depressions in the 1930's. According to Coalition for the Homeless, the number of people sleeping in shelters in New York City is 77% higher than it was 10 years ago[1]. There are many different factors to consider on why a person has become homeless. Some are due to the person losing their job, the person was evicted from their home, or the person was unable to locate affordable housing, and so forth.

Some agencies in New York City are working to better accommodate the homeless, such as Department of Homeless Services (DHS), The Department of Social Services, and 311. DHS and 311, for example, have teamed up to help locate and assist the homeless that are living on the streets. The public can call or submit a report to 311 that tells the location of where they saw a homeless person. This allows for the city to better assist the homeless population and try to get them off of the streets and into shelters.

According to the OneNYC report and the Turning the Tide on Homelessness executive summary, homelessness in New York City has reached a record high[2]. The strategy to mitigate the homelessness consists of three major parts: community-based prevention, sheltering, and permanent housing.

1.2 The Homeless Challenge

New York City is one of the top cities in the United States. Because of this, there is a geographic advantage of being in a highly populated area. The city is at an advantage with being able to see more monetary rewards. This would hopefully allow for more money to be distributed to helping the homeless population in the region. However, there are some challenges to this. One of the challenges is that the homeless person you are trying to help may prefer to get actual money instead of some other form of assistance. Other assistance includes food, food stamps, coupons, etc. This could be due to some of the homeless population being addicted to drugs or having some form of health issue (physical, mental, etc.). Another challenge faced could be the quota restrictions each shelter is assigned in order to receive funding from the city. For each shelter, the maximum capacity is fixed accordingly. This could be challenging for high density areas, like Manhattan, that most likely will have higher demand from homelessness but limited supply. Under these circumstances, overcrowding may happen and will affect the safety and sanitary standard which could eventually be harmful to the people whom lives within. Additionally, in order to keep normal function, some shelters may fasten the flow of rotation. This means that having a place to stay for the night does not necessarily guarantee a place to stay for the following night. Shelter here might receive funding compared to shelter in the Bronx.

1.3 Problem: Placing the Shelters in the Right Place

February 2017, Mayor Bill de Blasio revealed a plan addressing the critical homeless issue in NYC. The executive summary five year homelessness reduction plan that would open 90 new shelters and expand 30 existing ones in the city. This will ease the stubbornly high level of homelessness and discard cluster sites and hotels. This statement aims to locate the group around the neighborhood where they originally lost their residency, jobs, and schools. However, the plan also states the long-term goal of ending the use of cluster apartments and hotels as shelters, posing potential city-wide shelter capacity concern. Furthermore, concerns from different communities started to rise regarding where to put these 90 new shelters. The fear toward exposure to potential danger and unstableness, the concerns of repugnant image of homelessness, plus the inadequate information on the placement of the shelters are the factors challenging local neighborhoods' acceptance.

1.4 Objectives

This paper will focus on conducting an optimization strategy for the 90 new shelters, focusing on keeping local communities intact, but efficiently relocating the homeless.

Homeless people have always been a concern for city officials. They could be a possible source of crime, economic instability, and eventually a liability to the city. In order to curb this, the city council has taken multiple steps to prevent homelessness, manage it, and help find people affordable permanent accommodation. They city council has been spending around $400,000 per day by paying for hotels and cluster homes to accommodate the homeless. Due to this fact, the Mayor has announced 90 new homeless shelters across the city. But now, the question is how to build these homeless shelter, and where the best place to locate them would be. There has been discussion about where to place these shelters on social media and other platforms. some discussion has been about how the shelter home would be clusters. Would the shelter homes be clustered to certain part of the city, or would they be equally distributed across the city? By the means of this paper, we intend to render the viable locations for the 90 new shelters that the Mayor has proposed.

II. Literature Review

We examined the literature of past work to understand the city's overall strategy, the reasons for homelessness, the major concerns, and the relationship between shelters and schools as the basis for developing recommendations for the locations of upcoming shelters

2.1 Homelessness in NYC

Shortage of low cost housing, inability to maintain physical and mental integrity, as well as maintaining employment are the largest contributors to homelessness [4]. Over the past 10 years, numbers from New York City Comptroller's office prove that households has experienced the highest growth among the lowest income groups. Many lost their houses due to the inability to afford one. What's worse, based on the study conducted by Desmond and Gershenson in 2016, losing houses would likely lead to losing jobs[5]. This study explains why most homeless people are less likely to have a job to maintain livelihood. Now, these homeless people do not choose to stay on the street, but the substandard shelter environment and lack of work skills leave them fewer choices. 87% of the total randomly investigated shelters have found safety and sanitary concerns, and more than half have rats, rodents, and other pests[6].

Targeting this concerns, New York City agencies have forwarded policies in the pursuit of creating more operational reforms for homeless people; this allows recently-turned homeless people to stay in their neighborhoods and assists in preparing them for social life as soon as possible.

A more detailed plan that the New York City is working on regarding reducing homeless population is to remove the cluster apartments and hotels that are currently being used to house the homeless and build 90 new homeless shelters that will be spread throughout the city. Each year until 2021, New York City plans to open 20 shelters annually. In addition to closing the cluster apartments and hotels, the city plans on adding 60 beds to shelters that are designated to families that have children. The main goal for adding shelters is so people do not have to move away from their current neighborhood, job, school, family, friends, and so on[7].

2.2 Fair Share for Public Services

Fair Share is a concept of sharing the resources judiciously all across the city without being partial. It means take things out of neighborhoods with over-concentration of it and supply it to another where there's deficit. There are certain limitations to this concept. Museums and theatres can not be moved to every neighborhood in the city, but police stations and emergency medical centers can. As an obligation of the city, the fair share also considers the homeless shelter across the study. From the research article by New York City Comptroller's office[8] we have the information on number of homeless shelters in each borough. From the 2011 census data we know that there are 149 shelters in Bronx, 127 in Brooklyn, 74 in Manhattan, and almost negligible in Queens and Staten Island. The numbers itself tell us that the shelters are not evenly distributed across the city and therefore violates the Fair Share policy. People have different views on this distribution, some say homeless shelter should be made in the areas of homeless' neighborhood while other say it would just concentrate the shelters to the low income areas with limited access to subways, hospitals, buses, etc. Liu's study also shows that the location of homeless shelters have positive correlation with the median household income of the neighborhood. For instance, Hunts Point, Longwood neighborhood in Bronx has median income of $19,982 and has 19 homeless shelters. Similarly, Bedford-Stuyvesant in Brooklyn has a median income of $31,945 and has 25 shelters. The City of New York uses three mechanisms for sitting shelters across the city: Uniform Land Use Review Procedure (ULURP), City's procurement process and per-diem (non-contracted) arrangements.

ULURP is the city's formal public review process for making land use decisions and it is there to establish a standardized procedure where applications affecting the land use of the city would be publicly reviewed. Facilities that are under ULURP have to go through an application process for site selection and acquisition of public facilities. Agencies need to submit the application to the Department of City Planning for review and certification which then notifies the community boards about the change. The community board then notifies the public and holds a public hearing to discuss the aspects of the new application. Based on some cases, the public hearing is then by the Borough President, City Planning

Commission, and City Council before relating the certification to the agency.

The procurement process of the city includes the facilities that have private contract with private providers to establish city facilities. The facilities that do not come under ULURP is subject to article 9 of Fair Share criteria which includes facilities "such as contracts with private providers that establish city facilities" (Liu, 2013). The Procurement Policy Board (PPB) states that certain type of services should be procured via the Competitive Sealed Proposal (CSP) method of procurement. While making the decision about the award of contract, the city agency can include the quoted price, proposed approach, prior experience, and organizational capacity of the company for the services it had applied for. All of the details regarding the contract are filed in the document called Request for Proposal (RFP). DHS then analyzes these documents and awards the contract to whoever they may seem fit.

The non-contracted shelters are the private facility owners, to whom DHS pay to provide shelter. These shelter owners do not sign any agreement with the agency and is more of a handshake deal. The owners have no obligation to comply with any rule under either Fair Share Policy, ULURP Article 9, or any other policy that other shelter comply with. As they are not considered in any micro-level analysis.

2.3 Shelters and Schools

Homelessness is especially influential on children regarding education. There has been research analyzing the plight for high mobility and homeless students, in terms of school attendance, academic performance, retention, graduation rate, and social engagement. Fowler-Finn pointed out that students with higher mobility have lower achievement and are more likely to be retained a grade compared with their less mobile counterpart[9]. Brumley et al. also identified that homeless experience will affect the academic performance and social engagement even when controlled for income and other risks[10]. In other words, being homeless is not just being economically disadvantaged.

One dominant issue is where students should go to school. There are situations when the temporary staying place and the school are not in the same district. What is even worse is that children's education may not be top priority for parents. Through various interviews Taylor et al. found that housing stability and job opportunities are all concerns that bother the parents even more[11]. This may lead to discontinuity of education or high school mobility for children, which not only hinder their learning experience by also interrupt their social development.

The introduction of the McKinney-Vento Act solved a part of the problem regarding residency requirement and school-based barriers[12] by ensuring the rights for students to access public schools regardless of where they are. The acy was the first national response to the homeless youth. It redefined the homeless population, enlarged school options, and required immediate enrollment for homeless transfers and providing more supportive facilities like school buses[13]. But that may not be sufficient since the nearest school is not necessarily the best choice for students as mentioned above. Cunningham et al. conducted a summary on the previous mentioned problems and research and move on to discuss the importance of transportation between temporary (or highly mobile) housing and school[14]. They identify two primary purposes of transportation: improve school continuity, and attendance. Furthermore, transportation of students also affects whether or not the parents can focus on their jobs and ensure family income. However, they also pointed out that schools have disincentive to provide such services as the costs will be way beyond the funding of Mckinney-Vento grants.

It is stated on the website of New York State Technical and Education Assistance Center for Homeless Students (NYSTEACHS) that "under the Mckinney-Vento Act and New York Education Law §3209, students in temporary housing are entitled to transportation to help students stay in school." However, in a news article by Nathanson, a mother complained about how the bus ride can take up to two hours from her temporary house in the Bronx to the original school that's located in Lower Manhattan, and sometimes the bus doesn't pick up her child[15].

Thus, while housing stability, even as temporary as supportive housing, has continued to be emphasized as effective and essential in improving the children's educational experience[16], the location of such housing and transportation method to school remain crucial. Just last year, there were more than 111,500 homeless students in New York City schools[17]. Instead of arranging the transportation for all of them with high costs, perhaps we need to consider shelter locations that meet such needs (e.g. within walking distance or a reasonable range combines with MTA coupons) from the beginning.

2.4 Shelters and healthcare, transportation, jobs

When it comes to being homeless, healthcare is a issue. There has been research on trying to see if people who are homeless and living in shelters are in poorer health compared to those who do not live in shelters.

Lester and Bradley, conducted a study where they asked general practitioners about their experience in dealing with homeless people. In the study practitioners said that "Homeless people were deemed costly."[18] to have in their practice. Practitioners also said that the homeless people that they treated were very appreciative in receiving care.

Menke and Wagner, conducted a study that compared the health of children who were homeless either currently or were homeless vs. children that have never been homeless. In the study they studied mental and physical health of the children.

They found that almost all of the children who were homeless either currently or at some point in their lives were in good health[19].

Douglas et al. did a study on the needs of healthcare for both sheltered and unsheltered homeless people in Michigan. They discovered that people who live in shelters vs. those who do not reside in shelters have similar health problems. Those who live in shelters deal with "drug and alcohol, vision, dental, walking problems, high blood pressure, and asthma" [20].

2.5 Shelter Location Optimization

Regarding the model for shelter location optimization, there is not much on homeless shelters. However, there are plenty of research on hurricane and disaster shelter allocation. Although they are quite different by nature, there are methods and variables we may take into account. Regarding methods, Tai et al. adopted spatial clustering and statistics, such as Moran's I to analyze road network and how people may evacuate[21]. In our case, this may be used to evaluate adjacency to schools, transits, and employment opportunity for homeless shelters.

Other than the logistics and network aspects, other research also focused on coverage and bi-level equilibrium model. One option derived from the coverage problem is to approach the homeless shelters by looking at whether or not the shelters cover the city well. Not only is this in compliance with Fair Share, but it is especially important when it comes to issues like the school attendance of homeless children.

Another option is to develop an equilibrium model as Li et al. worked on. They targeted the upper level problem as how shelters are placed and the lower level problem of the equilibrium model of user dynamics[22]. But this may not be as useful due to the fact that the screening and designation process is controlled by the city agency.

III. Data and Methodology

3.1 Data

The data for this project was collected from Enigma Public Elementary and Secondary School Survey, NYSTEACHS, DHS, MTA open data, Longitudinal Employer-Household Dynamics (LEHD), PLUTO land use data and zoning data, and New York City Health and Hospitals Corporation (HHC).

Daily report from DHS provides us with the daily number of families and individuals that are residing in the DHS shelter system and the daily number of families that are applying to the DHS shelter system. According to the report, there were approximately 13,000 families with children that require allocation assistance every night throughout 2016. Our study will test the relevance of education, transportation, healthcare, and job opportunities to shelter allocation with a focus on family homelessness.

The New York City Facility Map provides detailed information to all NYC schools. In our research, we adopted all K-12 public and charter schools. Enigma Public Data also provides a listing of both public elementary and secondary schools across the United States, 9 in New York. It gives us information on school names, locations, and other statistic description on the student body. Meanwhile, NYSTEACHS delivers homeless data entry on the charter schools sector. It defines charter schools homelessness related responsibility as:

1. Requirement on appointing a McKinney-Vento liaison to identify students inability in permanent housing, assistance on school enrollment, and off campus support like transportation.
2. Distribution of a housing questionnaire to all enrolled student and requirement on in time address updates for students who change addresses

Transportation data is acquired from MTA open subway data, which provides us a variety of information on subway entrance and exits. New York City annual subway ridership increased to 1.76 billion, utilizing 22 interconnected subway routes and 472 stations.

Healthcare wise, HHC gives us a list of the eleven acute care hospitals, four skilled nursing facilities, six large diagnostic and treatment centers and community based clinics across New York City. HHC is a $6.7 billion integrated public healthcare delivery system that serves inpatient, outpatient, and in-home services to more than 1.3 million New Yorkers in 70 locations across 5 boroughs.

Longitudinal Employer-Household Dynamics (LEHD) data are the product from the Census Bureau. It was created to provide information on local job market and to improve the Census Bureau's demographic data programs. LEHD data is conducted on different administrative sources, primarily Unemployment Insurance (UI) earnings data, the Quarterly Census of Employment and Wages (QCEW), censuses and surveys. In LEHD data, employment information is combined to generate job level quarterly earnings history data, which include information on where workers live and work, and firm characteristics such as firm industry.

This data was geocoded in zip codes and merged with land use and geographic data at the tax lot level in a ESRI shapefile and geodatabase table format from the Primary Land Use Tax Lot Output Map (MAPPLUTO), together with Land Use Data from ZoLa. Operated by the Department of City Planning, MAPPLUTO contains data from PLUTO and tax lot features from the Department of Finance Digital Tax Map (DTM). In order for us to find ideal shelter locations, we took land use status into consideration. The data for vacant land can be obtained from ZoLa which can tell us about such land throughout the city whereas for empty building we used PLUTO data

3.2 Descriptive Statistics

We plan on looking at many different variables to help us determine where the best locations are to help us place new homeless shelters.

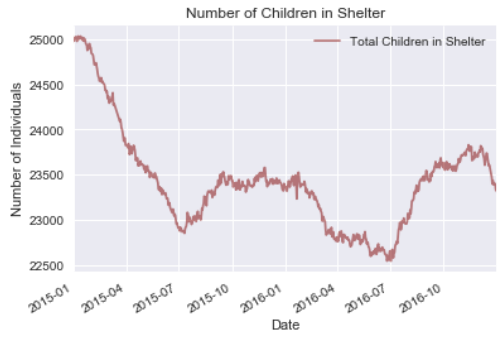

Fig. 1: Number of children residing in homeless shelters from Jan. 2015 - Dec. 2016

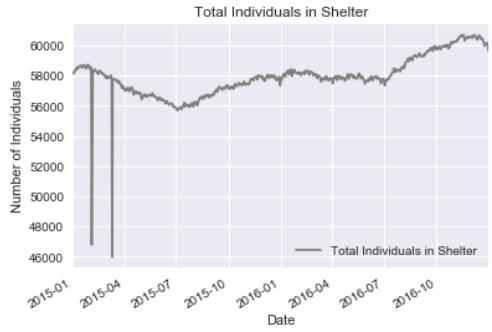

Fig. 2: Total number of individuals residing in homeless shelters from Jan. 2015 - Dec. 2016

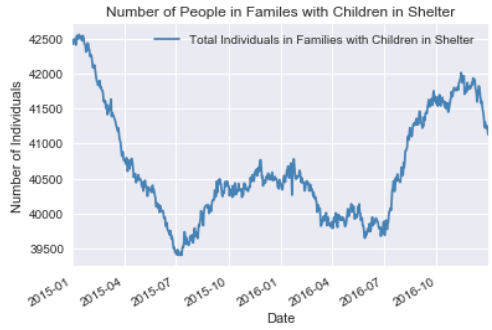

Fig. 3: Number of individuals in families with children residing in homeless shelters from Jan. 2015 - Dec. 2016

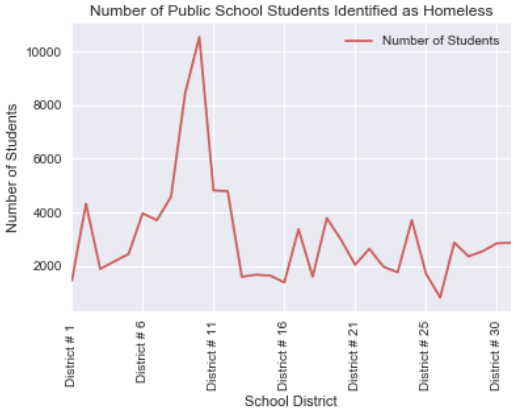

Fig. 4: Number of public school children in each school district

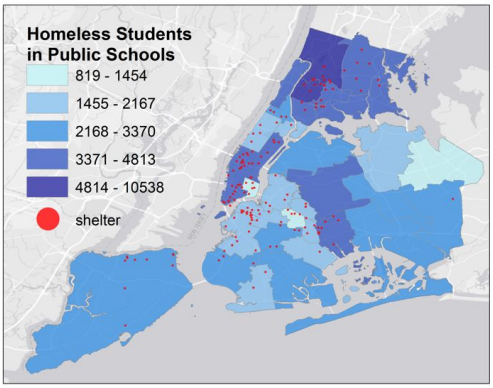

Fig. 5: Map showing the number of homeless public school students per school district and non-official homeless shelter locations.

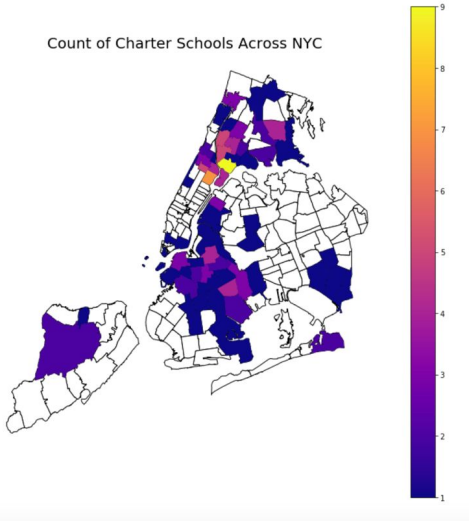

Fig. 6: Map that shows the number of charter schools per zip code in New York City

Tens of thousands of people are homeless and living in shelters in New York City each night. Figures 1,2, and 3 show how many people are sleeping in shelters during 2015-106. The average number of children living in shelters is 23,435. This is about half of the average total number of people living in shelters each night, which is 57,982. The average number

of people who are in families that have children is 40,662. Children account for approximately 40% of the number of people living in homeless shelters. Families with children account for approximately 70% of the total number of people living in homeless shelters. Figure 4 and 5 shows a distribution of the number of homeless children that attend public school. School district 10 has the highest amount of homeless children than any other school district with 10, 538. School district 26 has the least amount of homeless children. Looking at Boroughs, Bronx has the most amount of homeless public school children with 36,852. Staten Island only has 2,860 children. Figure 6 shows the number of homeless students who attend charter school across New York City.

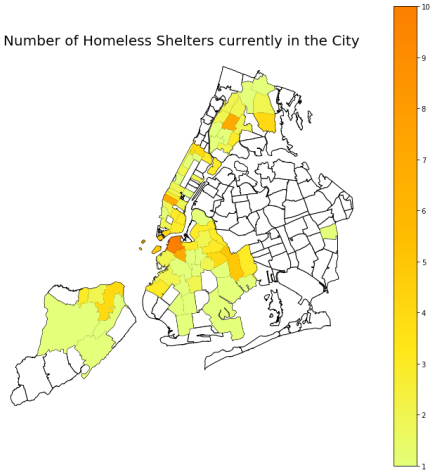

Fig. 7: Map of the number of homeless shelters aggregated by zip code in New York City

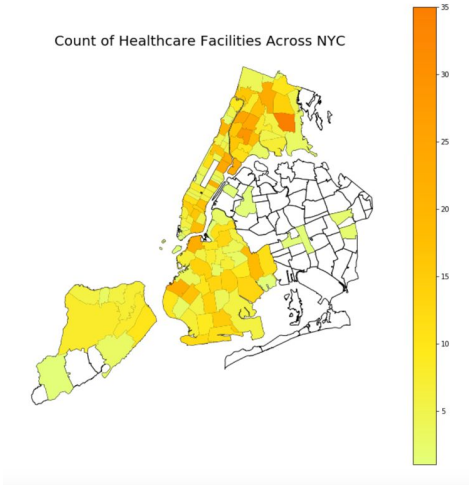

Fig. 8: Map showing the number of healthcare facilities aggregated by zip code in New York City

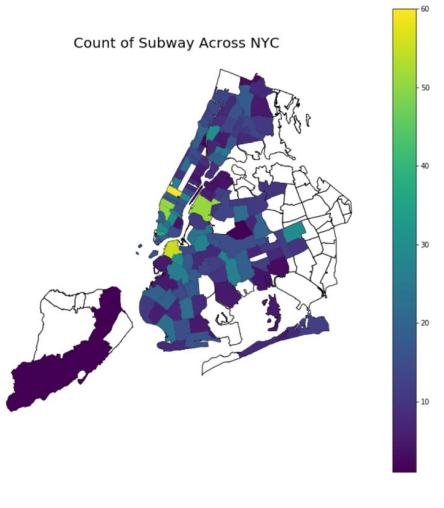

Fig. 9: Map showing the number of subway stations per zip code across New York City (including SIR in Staten Island)

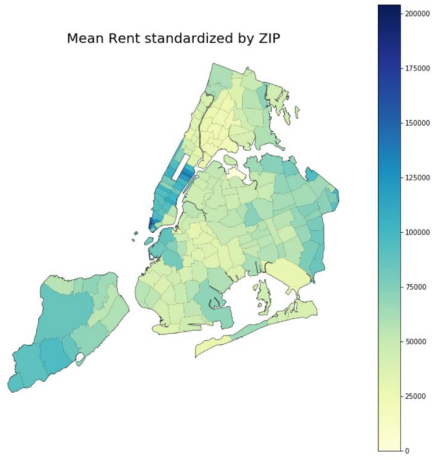

Fig. 10: Map showing the mean rent for each zip code in New York City

Figure 7 shows a map of the current number of homeless shelters that are located in New York City. Most of the homeless shelters are currently located in Brooklyn, Bronx, and a few locations are located in Manhattan.

There are many healthcare facilities that are located throughout New York City. Figure 8 represents the number of healthcare facilities that are in each zip code in New York City. The types of facilities that are included in this map include hospitals, diagnostic treatment centers, adult health care programs, school based clinic and treatment centers, etc. Figure 9 gives us a map of all of the subway stations in New York City. Most of the stations are located in Manhattan, with very little subway stations in Staten Island and Queens.

The last variable we looked at for our model is median rent for each zip code, figure 10. Rent is the most expensive in Manhattan and Staten Island. The least expensive areas of rent are located in the Bronx, Brooklyn, and Queens.

3.3 Methodology

Following the guideline of fair share policy, our location-allocation model spatially assess the optimal zip code for new homeless shelters based on impartial accessibility to city's resources. Our variables have been obtained from different data sources and merged together which gave us the zip codes that satisfy all our criteria i.e. is intersection of all the variables considered. As the median household income we received from census data was at tract level, we aggregated the data by taking the mean of household income across the zip codes. For other variables such as schools, healthcare facilities and subway station, we took the count of each variable for each zip. Once we had the scores, we assigned each zip with their score and plot a choropleth that gives us the idea which zip code is most efficient according to our analysis.

The analysis of optimum location is incomplete without the proper study of land use to see if there is enough space to build a new shelter home, or if there is an existing building that is vacant and can be used for shelter home. We took the land use data from ZoLa and vacant public owned land from NYC Open Data platform to get the sense of geography and see where do we have vacant locations. For vacant building we considered 311 data that gave us the data about the location of vacant buildings across the city. Once we had our analysis of vacant land, we combined the two maps to see how our analysis fits with land use.

Each resource variable (transportation, school, health care) is of the same significance level assuming that demand for each category is equivalent. A score of 1 to 5 is assigned to each variable given their place on quantile scale and the scores are then added up to give the neighborhood a score out of 20 (5 for each variable). The score range was decided by taking the minimum and maximum of each variable and then dividing the difference between minimum and maximum by 5 so that we get equal 5 equal intervals.

Next, we created buffer zones for MTA/SIRR stations and K-12 public/charter schools based on Euclidean distances. In order to ensure a walking distance for children, the buffer distance is set to 0.3 miles for schools. The distance 0.5 miles for subway stations so that accessing to transit and job opportunity is not costing the parents too much time.

Meanwhile, in order to reach the best efficiency, it would be best if the shelter covers as many schools as possible so that most children can stay at their original schools. Therefore, the buffer areas for schools are overlaid with darker colors.

Location of hospitals were considered as well. However, due to the high coverage of hospitals and clinics, their buffer zones do not really add more value to current analysis.

3.3 Limitation on Current Methodology

Fair share policy encourages nonpartisan resource-sharing across the New York City. However, multiple figures have shown that Queens, despise its broad land use availability, its scarcity in capital strictly constraints further development.

Figure 9 indicates that Queens is not well connected to the MTA subway system, which is less likely to enable job opportunity access that is mostly located in Manhattan or downtown Brooklyn. This result may be improved if buses were included.

The large gap in Figure 8 implies our limitation in data acquiring. While hospitals, diagnostic treatment centers, adult health care programs, school based clinic and treatment centers are incorporated, our data does not include any primary care doctors, or clinics in drugstores (CVS, Walgreens, etc.).

Our current vacant building dataset was acquired from 311 open data, which may perform inability in timely reporting and updating on land use status.

Regarding the buffer analysis, if we adopted route distance and accounted for commuting time, it would be more precise in capturing the effective area than Euclidean distance.

The major limitation lies in data accessibility. The current shelter data we have is scraped from unofficial shelter listing website. Meanwhile, it is also difficult to capture the landscape of homelessness across the city, including their characteristics, employment status, and temporary residential area that they spend the night.

We try to overcome this limitation by focusing on families first, which are anchored by jobs, and schools, if they have children. Also, they are more likely to show up for help regarding temporary residence.

It would also be helpful if we have data such as where people became homeless, and how homeless students are being relocated.

IV. Results

Our model that we used to find the ideal shelter locations was coded and plotted using python. We then used ArcGIS to run spatial buffer analysis in order to give us optimal locations in terms of transportation and schools.

The result, as in Figure 12, showed that while most of Manhattan and Bronx have transit coverage, some areas have denser clusters of schools than others. In particular, Mott Haven and High Bridge in Bronx; Harlem, East Harlem, Upper West, and Lower East in Manhattan; and Crown Heights, Brownsville, and East New York in Brooklyn have the most clusters.

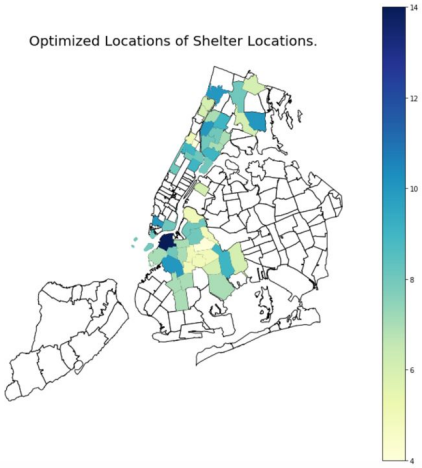

Fig. 11: Optimized locations of homeless shelters across New York City

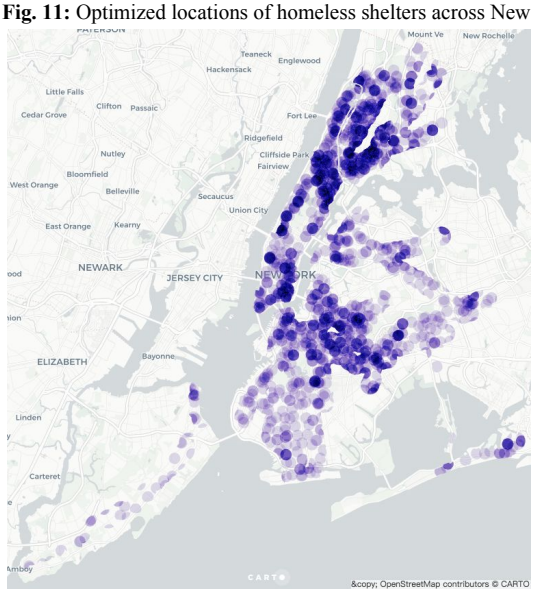

Fig. 12: Intersections of areas that are within 0.3 mile to schools and 0.5 mile to a subway station. Darker areas mean more overlapping schools.

The access-oriented model that is presented in figure 11 shows the optimal locations of where to place the new shelters across New York City. According to our model, the best locations would be to place the homeless shelters in Brooklyn and the Bronx. Our model also tells us that it would be ideal to place some shelters in lower Manhattan and in the Upper West Side and Harlem.

V. Discussion and Conclusion

While our model shows us ideal locations to place new shelters, in terms of schools and transportation, there are still limitations to the results.

Our model analysis in terms of where to place shelter locations is poor. Currently there are barely any shelters located in queens. After running our model analysis, it is still not ideal to place any shelters in Queens. This could be due to the fact that we didn't use any bus data, and that there are not many subway locations in Queens.

Our model showed new locations being placed where current shelters are located.

Another thing that draws our attention is that Queens and Staten Island boroughs remain blank in our research. Not only are there few shelters currently, but our score does not suggest particular suitability for allocating shelters either. Further research is required to understand whether there is less demand for shelters or

References

[1] Coalition for the Homeless, "Basic Facts About Homelessness: New York City"

[2] "OneNYC 2017 Progress Report", April 2017

[3] "Turning the Tide on Homelessness", Feb. 2017

[4] F.E. Werner, "On the Streets: Homelessness Causes and Solutions", Clearinghouse Review, vol 18, issue 1, pp. 11-17, 1984

[5] Desmond, M., & Gershenson, C., Housing and employment insecurity among the working poor. Social Problems, 63(1), 46-67, 2016

[6] E. Durkin, "City Controller Audit finds 87% of Homeless Units Threaten Residents' Health or Safety", 2015

[7] H. Palacio, S. Banks, "Turning the Tide on Homelessness.", 2017

[8] New York City Comptroller, "Down and Out: How New York City Places its Homeless Shelters", May 2013

[9] T. Fowler-Finn, "Student Stability vs. Mobility", School Administrator, vol 58, issue 7, pp. 36-40, 2001

[10] B. Brumley, J. Fantuzzo, S. Perlman, M.L. Zager, "The Unique Relations between Early Homelessness and Educational Well-being: An Empirical Test of the Continuum of Risk Hypotheses", Children and Youth Services Review, vol 48, pp. 31-37, 2015

[11] J. Taylor, B. Gibson, K. Hurd, "Parental Preschool Choices and Challenges when Young Children and their Families Experience Homelessness", Children and Youth Services Review, vol. 56, pp. 68-75

[12] G. Ernst, M. Foscarinis, "Education of Homeless Children: Barriers, Remedies, and LItigation Strategies", Clearinghouse Review, vol. 29, pp. 754

[13] P.M. Miller, "An Examination of the Mckinney-Vento Act and its Influence on the Homeless Education Situation", vol. 25, issue 3, pp. 424-450, 2011

[14] M. Cunningham, R. Harwood, S. Hall, "Residential Instability and the McKinney-Vento Homeless Children and Education Program: What we Know, Plus Gaps in Research", Urban Institute, 2010

[15] R. Nathanson, "Educating Homeless Kids in New York City", 2017

[16] S. Hong, K. Piescher, "The Role of Supportive Housing in Homeless Children's Well-being: An investigation of Child Welfare and Educational Outcomes", Children and Youth Services Review, vol. 34, issue 8, pp. 1440-1447, 2012

[17] E. Harris, "10% of New York City Public School Students were Homeless Last Year", 2017

[18] H. Lester, C. Bradley, "Barrier to Primary Healthcare for the Homeless: The General Practitioner's Perspective", European Journal of General Practice, vol. 7, pp. 6-12, 2001

[19] E.M. Menke, J.D. Wagner, "A comparative Study of Homeless, Previously Homeless, and Never Homeless School-Aged Children's Health", Issues in Comprehensive Pediatric Nursing, vol. 20, pp. 153-173, 1997

[20] R.L. Douglas, R.E. Torres, P. Surfus, B. Krinke, L. Dale, "Health Care Needs and Services Utilization Among Sheltered and Unsheltered Michigan Homeless", Journal of Healthcare for the Poor and Underserved, vol. 10, pp. 5-18, 1999

[21] C.A. Tai, Y.L. Lee, C.Y. Lin, "Urban Disaster Prevention Shelter Location and Evacuation Behavior Analysis", Journal of Asian Architecture and Building Engineering, vol. 9, issue 1, pp. 215-220, 2010

[22] A.C. Li, L. Nozick, N. Xu, R. Davidson, "Shelter Location and Transportation Planning Under Hurricane Conditions", Transportation Research Part E: Logistics and Transportation Review, vol. 48, issue 4, pp. 715-729, 2012