

# Mapping for Community-Driven Neighbourhood Planning: The Case of the South Bronx Land and Community Resource Trust

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## Abstract

The South Bronx neighbourhood in New York City has historically been oppressed and left behind by urban planning policies that deliberately created social exclusion in the area. We Stay/Nos Quedamos, a community development organization located in the area, is actively seeking to establish a Community Land Trust, a mechanism designed to provide homeownership affordability to low-income households. This study seeks to identify potential sites suitable for acquisition and for establishing a Community Land Trust in the South Bronx area. Analysis is performed using Geographic Information Systems in combination with official New York City data. Moreover, by leveraging the local knowledge of Nos Quedamos, we propose a critical approach to GIS and official data. The results of this study will help Nos Quedamos and local stakeholders in decision-making, support political efforts and negotiations with local authorities in the establishment of a Community Land Trust, enhance housing affordability, and consolidate community-managed open spaces in the South Bronx. Furthermore, the methodology presented here could serve as a guide for other local organizations seeking to establish similar land trusts in their localities, especially in urban settings with a high demand for land acquisition.

## Keywords:

critical GIS; community organizations; community land trust; housing affordability; land policy

## 1 Introduction

The South Bronx neighbourhood in New York City has historically been oppressed and left behind by urban planning policies that deliberately created social exclusion in the area (Aalbers, 2014; Flood, 2010; Wallace & Wallace, 1998). We Stay/Nos Quedamos, a community development organization located in the area, is actively seeking to establish a Community Land Trust (CLT), a mechanism designed to provide homeownership affordability to low-income households. It works by separating ownership of the actual building from that of the land. By establishing a CLT, Nos Quedamos (NQ) seeks to benefit

current residents of the area, the poorest neighbourhood of New York City, by allowing them access to and ownership of affordable housing while also aiming to increase access to open and recreational space.

Through a CLT Learning Exchange funded by the New York City Department of Housing Preservation and Development, NQ has already created the foundation for this work by studying and defining governance guidelines and outreach goals. Our role as Urban Planning researchers, in association with NQ, is to analyse the land availability in the South Bronx quantitatively. This study seeks to identify potential sites suitable for acquisition and for establishing a CLT in the South Bronx area. Analysis is performed using Geographic Information Systems in combination with official New York City data. Moreover, by leveraging NQ's local knowledge, we propose a critical approach to GIS and official data.

Preservation of community-managed open spaces in the form of community gardens is a priority for the organization. The creation of a Special Purpose District (SPD) –a local planning tool that allows the transfer of development rights within a defined geographic area – would allow the preservation of open spaces by transferring development rights between gardens and vacant sites within the proposed CLT. Clustering analysis was performed to identify potential CLT sites in order to assess the feasibility of creating an SPD for preserving community gardens while allowing higher residential density in nearby vacant sites.

The results of this study will help NQ and local stakeholders in decision-making, support political efforts and negotiations with local authorities in the establishment of a CLT, enhance housing affordability, and consolidate community-managed open spaces in the South Bronx. Furthermore, the methodology presented here could serve as a guide for other local organizations seeking to establish CLTs in their localities, especially in urban settings with a high demand for land acquisition.

## **2 Background**

### **2.1 Mapping and Planning in the South Bronx**

The South Bronx in New York City has been oppressed by several urban policies that deliberately created the decay of the area during the 20<sup>th</sup> century. These policies were a clear example of using maps as instruments of power and knowledge to control social space (Aalbers, 2014; De Certeau, 1984; Foucault, 1980; Goss, 1995; Lefebvre, 1991). Starting in the 1930s, the colour-coded Security Maps, later known as 'Redlining', stigmatized and reduced housing development in the South Bronx (Figure 1). Designed by the Home Owners Loan Corporation as an appraisal tool, Redlining worked as a rating system that undervalued neighbourhoods that were dense, socially mixed or aging (Jackson, 1987). This system classified properties located in racially mixed and predominantly Black

neighbourhoods as too risky to warrant mortgage insurance, thus perpetuating racial discrimination and urban decay in several neighbourhoods across the U.S. (Schwartz, 2015).

Furthermore, in the late 1960s and 1970s New York City introduced policies of ‘Planned Shrinkage’, consisting in the withdrawal of city services from low-income and ethnic-minority neighbourhoods that were ‘dying and could not be saved’ (Starr, 1967). These policies involved the closure of public schools and the removal of mass transit services, among other basic amenities. The objective was to allow poor and racial-minority neighbourhoods to die while relocating services and public investment into newly-developed white middle-class neighbourhoods (Aalbers, 2014; Wallace & Wallace, 1998). The policy had a seriously detrimental effect on the South Bronx along with other non-white neighbourhoods, including Harlem and certain areas in Brooklyn. After a few years, properties in the South Bronx were worth more in fire insurance disbursements than in property value. This, added to the deliberate ‘relocation’ of fire stations (a result of the mapped and government-led RAND Firehouse-Siting Model (Figure 2)), occasioned a ‘fire epidemic’ in the area (Aalbers, 2014; Flood, 2010; Wallace & Wallace, 1998). A large part of the housing stock in the South Bronx was lost due arson and abandonment.

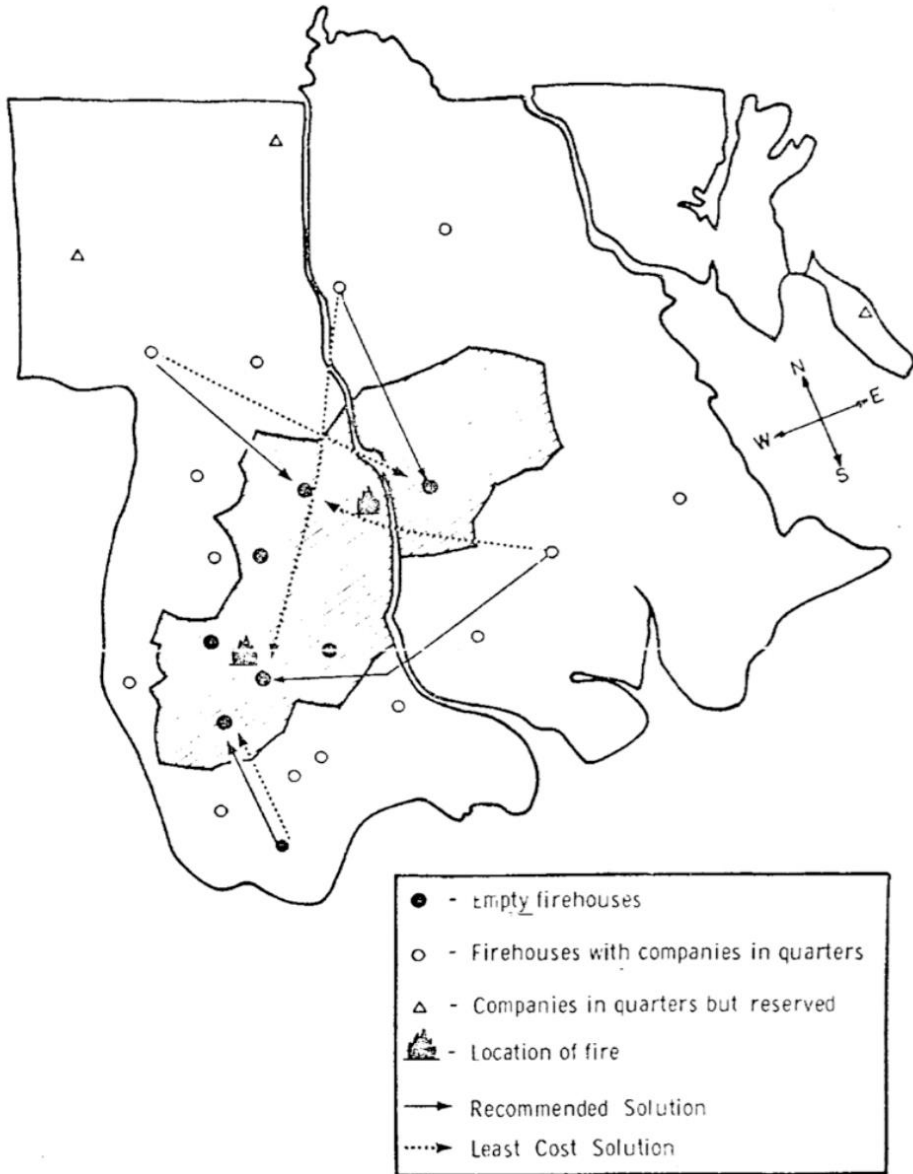
After the economic recession of the 1980s, New York City began to experience an urban renaissance, and officials launched a series of targeted plans to revitalize specific communities. These included an Urban Renewal Plan for Melrose Commons (in the South Bronx) which was originally conceived to create new owner-occupied housing for middle-income households. The plan’s Draft Environmental Impact Statement identified 78 homeowners, 400 tenants and 80 businesses that would be displaced (Stand, Garcia, Bautista, & Olshansky, 1996). In 1993, residents of the Melrose neighbourhood organized the We Stay/Nos Quedamos committee. NQ represented the affected community along with local authorities, who collaborated to develop the new Melrose Commons Urban Renewal Plan after successfully delaying the implementation of the City’s initial plan.

As Aalbers (2014) points out, neighbourhood decline is not some natural phenomenon, but rather the sum of locally contingent conditions as well as the actions of governments, mortgage lenders, brokers, landlords and developers. Public and private actors not only limited their risk in neighbourhoods such as the South Bronx, but actively structured the process of decline. Acts including the withdrawal of mortgage loans and insurance, city services and investment were purposely planned and featured on maps.

Beyond the practical purposes of this study (as described in the Introduction), this paper sees the production of maps as a tool for supporting community-led urban development in the South Bronx. The project aims to allow the South Bronx community access to power and knowledge of their own territory by creating tools that can be used by community organizations such as NQ to fight the threats of housing unaffordability and displacement of residents.



**Figure 1:** Mapping Inequality: Redlining Map of The Bronx and surroundings. The South Bronx (highlighted) was mapped as a Hazardous neighbourhood. (Source: Nelson et al.)



**Figure 2:** Map of the fire-service relocation problem in the South Bronx (source: Aalbers, 2014)). 'RAND used simple maps to show how closing some locations, euphemistically called "relocations", would not affect response time to reported fires too much. In fact, response times increased and the number of fires that had to be tackled from nearby locations quadrupled' (Aalbers, 2014).

## 2.2 Nos Quedamos and the Study Area

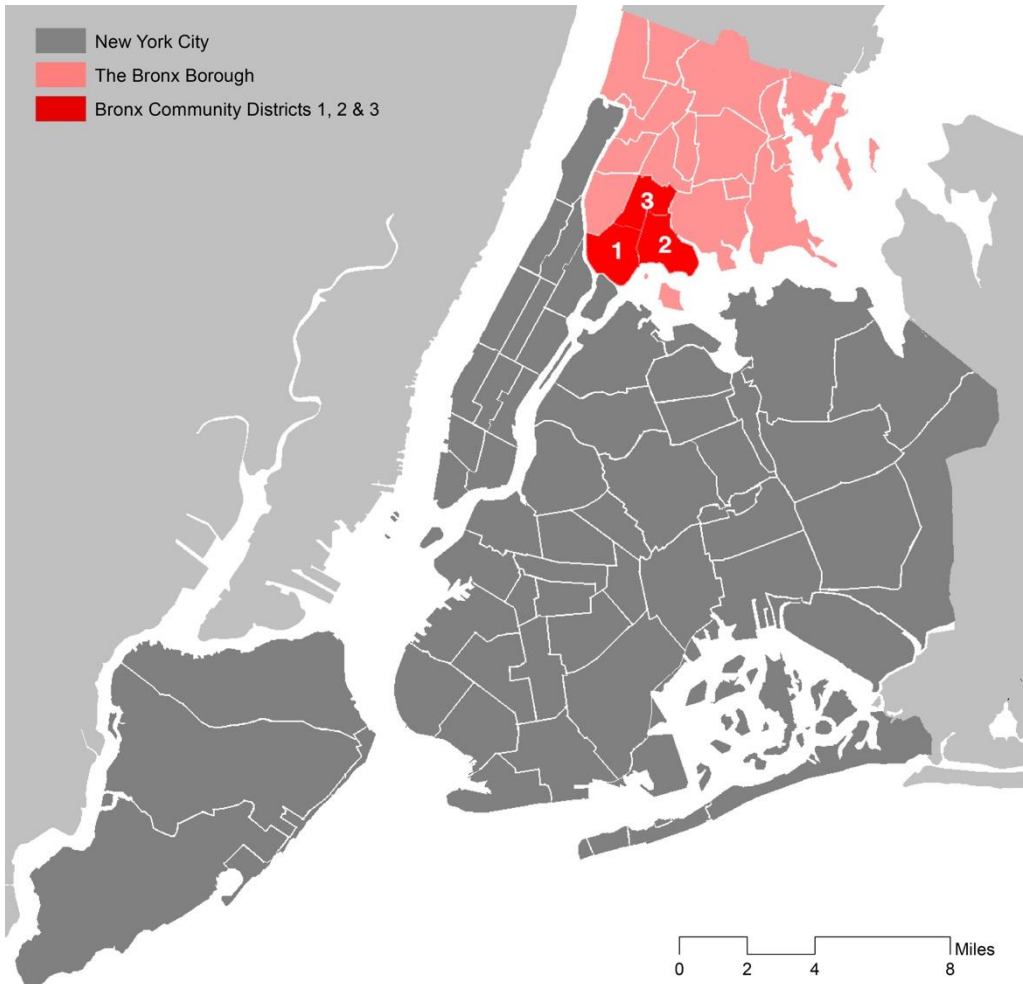
NQ's work in involving the community in the development of their neighbourhood includes the reformulation of the Melrose Commons Urban Renewal Plan and obtaining Leadership in Energy and Environmental Design Certification for the neighbourhood plan (Stand et al., 1996). It also involves continuous work on creating and sustaining gardening associations within the Melrose Community to ensure the existence of community space in abandoned or under-utilized sites (Chacra, 2014).

After years of work within the Melrose Community, NQ is pursuing the creation of the South Bronx Land and Community Resource Trust (SBxLCRT) to ensure the long-term affordability of homeownership and access to open spaces for current residents of the area. NQ is concentrating its efforts in an area that exceeds the original Melrose Commons neighbourhood within Bronx Community Districts (CDs) 1, 2 and 3 (Figure 3). This area includes the neighbourhoods of Mott Haven, Port Morris and Melrose (CD1), Hunts Point and Longwood (CD2), and Crotona Park East, Claremont and Morrisania (CD3).

Residents of the area are among the most vulnerable populations in New York City, threatened by housing unaffordability, rising rents, gentrification and displacement (Stand et al., 1996). Residents belong predominantly to racial minorities and have the highest poverty rate in the entire City. Most are tenants and about a third of them pay more than 50% of their income in rent (Been, Ellen & O'Regan, 2017). Although the area is currently developing affordable housing units, according to the Statements of Community Needs for Community Boards 1, 2 and 3 (2018), current residents often fail to qualify for the new units because the income requirements and rent rates are based on metropolitan-wide Area Median Income (AMI), which is greatly above this area's median income<sup>1</sup>.

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<sup>1</sup> The Bronx CDs 1, 2 and 3 have a median household income ranging from \$26,320 to \$27,850 (Been et al., 2017), whereas New York City's AMI for a family of three is \$93,900, and the lowest income band for affordable-housing financing is up to 30% of AMI, or \$28,170 (NYC Housing Preservation and Development, 2018). At least half of the South Bronx residents earn less than 30% of AMI. However, most affordable housing programs require households to be earning from 30% to 60% AMI. The Extremely Low- and Low-Income Affordability (ELLA) Program finances housing for the lowest-earning citizens. However, it requires only 10% of units to be allocated for households earning up to 30%. (NYC Housing Preservation and Development, 2018)



**Figure 3:** New York City community districts and the study area: Bronx CDs 1, 2 and 3.2

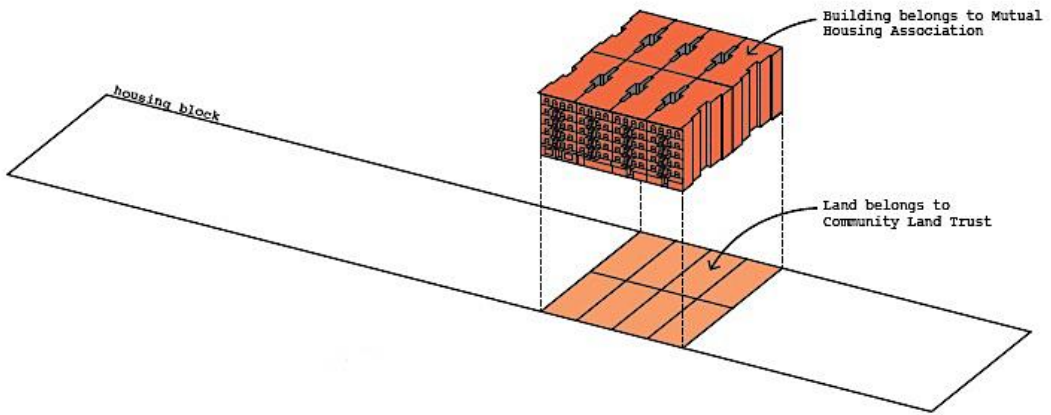
### 2.3 Community Land Trusts and the case of the South Bronx

Community Land Trusts are conceived as a mechanism for providing long-term homeownership affordability to low- and moderate-income households, by separating ownership of the built structure from that of the land on which it sits. Therefore, purchasing a land-trust home includes the price of the structure but excludes the price of the land (Bourassa, 2017). Typically, a CLT is a non-profit organization that administers or owns the land, but the buildings on top of that land belong either to an external asset manager or to a Mutual Housing Association (Figure 4). A CLT is usually managed by a board who represent

<sup>2</sup> Author's design based on: [https://commons.wikimedia.org/wiki/File:New\\_York\\_City\\_-\\_Bronx.PNG](https://commons.wikimedia.org/wiki/File:New_York_City_-_Bronx.PNG)

the multiple stakeholders involved, such as homeowners, external community members, business owners and local authorities.

Commonly, CLTs across the U.S. have turned abandoned or polluted land for which there was little demand into areas suited for affordable housing development. However, unlike most CLTs across the U.S., the South Bronx is currently undergoing rapid redevelopment, threatening current residents with gentrification and displacement. Therefore, the neighbourhood requires timely action from community organizations such as NQ, along with innovative approaches to the land acquisition process.



**Figure 4:** Community Land Trusts own and manage the land on which affordable housing and other community facilities are built.<sup>3</sup>

## 2.4 Special Purpose Districts and Transferable Development Rights in New York City

One of the strategies considered by NQ in creating the CLT was to transfer development rights in order to preserve the open spaces of community gardens. At the same time, this will help to achieve higher residential densities in empty sites within the same CLT area. Local regulations in New York City allow Transferring Development Rights (TDR) between sites within a single block. However, TDR is allowed across broader geographic areas when these have been declared an SPD (Been & Madar, 2013). SPDs that have been successfully established in New York City include West Chelsea, Hudson Yards and the Midtown Theater District. West Chelsea is currently the city’s largest SPD, extending almost one linear mile on Manhattan’s far west side.

<sup>3</sup> Source: Diagram of the Cooper Square CLT at Urban Omnibus: The Value of Land: How Community Land Trusts Maintain Housing Affordability. Retrieved from: <https://urbanomnibus.net/2014/04/the-value-of-land-how-community-land-trusts-maintain-housing-affordability/>



If used along with the establishment of a CLT in the South Bronx, an SPD would be an additional tool to expand NQ's development opportunities while at the same time preserving open spaces. Within the boundaries of an SPD, the South Bronx Land and Community Resource Trust would be able to shift unused 'air rights' (i.e. the right to use, or build on, the space above an existing property) from any site to potential development sites. This would enable the Trust to build more Floor Area Ratio (FAR) for affordable units than would otherwise be permitted by current zoning regulations.

### 3 Methodology

To support NQ in assessing the viability and resources available to establish a successful CLT in the South Bronx, we conducted an analysis of the location and characteristics of potential sites to be acquired and developed by the SBxLCRT.

In line with NQ's acquisition interests, the analysis focused on publicly-owned vacant land in order to find the best sites for potential development within the Bronx CDs 1, 2 and 3. We started by analysing NYC'S official lot-level dataset, MapPLUTO 2017 v2, and sites listed as 'vacant' in the Land Use. However, the NQ team, given their local knowledge, pointed out several inconsistencies between the official data and the actual use of many sites. Often, vacant land in the South Bronx is used for community gardens, many of which are managed by NQ and their partner organizations. Moreover, several large-scale public sites listed as vacant are currently the subject of calls for development proposals.

The second part of the analysis consisted in incorporating NQ's input (the main input was the collection of data for community gardens in Chacra (2014)), as well as the information collected by 596 Acres in their project Living Lots<sup>4</sup> detailing current community-driven uses of vacant lots and updating 'outdated and incomplete data (gotten) from the city'<sup>5</sup>. After updating our data by leveraging local knowledge and alternative data sources, we analysed the possible geographies in which NQ could establish an SPD as a tool to transfer development rights within the CLT. Overall, the analysis focused on:

1. Listing and mapping vacant lots, community gardens, and publicly-owned, tax lien properties (i.e. properties with unpaid tax bills) within the area;
2. Cross-referencing sites with NYC Housing Preservation and Development and NYC Economic Development Corporation for open Requests for Proposals and those already slated for development;
3. For both vacant lots and community gardens: analysing zoning regulations, FAR allowance, and land valuation;
4. Identifying the best area for a potential SPD that would allow for development rights to be transferred within its borders.

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<sup>4</sup> Retrieved from: <https://livinglotsnyc.org>

<sup>5</sup> Retrieved from: <https://livinglotsnyc.org/about/living-lots-nyc-data/>

### 3.1 Vacant Lots and Community Gardens

As mentioned above, we used the MapPLUTO database for land use in NYC to identify sites defined as ‘Vacant’ or ‘Publicly Owned’ (i.e. owned by NYC or by State agencies). After cross-referencing with current requests for proposals and under-development sites, we established our final list. To identify community gardens, we used information provided by NQ for the Melrose area, as well as information gathered from Living Lots. Both data sources were verified using Google Maps. We then filtered and added the data to the MapPLUTO Database. For the purposes of this analysis, we focused only on community gardens that were on publicly-owned land. Finally, we excluded from our analysis all sites that were currently under development or slated for development through the City’s Requests for Proposals.

### 3.2 Development Rights

For Floor Area Ratio (FAR) and Air Rights estimations for each site, we based our analysis on the City’s classification (as listed in the MapPLUTO database): Residential FAR, Commercial FAR and Facilities FAR. Total Air Rights correspond to the developable square footage allowed ‘as of right’. It is calculated by multiplying each site’s lot area by its FAR. The aggregated value is simply a sum of all individual sites’ Air Rights by zoning category.

### 3.3 Special Purpose District

Identifying the best potential area for an SPD was based on a Kernel Density analysis of publicly-owned vacant sites (including gardens whose land use is classified as ‘vacant’). It considers the location of existing NQ properties as centroids for this potential district, drawing a 0.5-mile buffer around the NQ properties that acts as a ‘constraint measure’. This constraint is based on an estimate of the maximum area allowed by the City for establishing an SPD with Air Rights Transfer allowance.

## 4 Analysis and Findings

### 4.1 Publicly-Owned Sites and Current Status

The first approach to mapping our data aims to locate, display and filter possible sites for acquisition and further development within the SBxLCRT. As mentioned above, NQ’s interests are in acquiring publicly-owned sites. Starting from MapPLUTO 2017 v2, we found 682 lots listed as vacant within the study area, amounting to more than 7.5 million sq ft. Among these, 201 are publicly owned (meaning city-owned, of mixed public–private ownership, or owned by some other public authority), with an area over 4.2 million sq ft. (Figure 5). We found that publicly-owned lots constitute a greater total land area and have a higher total assessed land value (over \$27.6 million) than private sites.

To corroborate current availability of the public vacant sites listed in the official lot-level dataset, we compared the PLUTO dataset with the location of housing projects currently under development, by looking at the City's previous, ongoing and future Requests for Proposals (RFPs)<sup>6</sup>. To assess community use of the vacant sites, we used the information provided by NQ and Living Lots referred to earlier.

We found that of the 201 publicly-owned sites originally classified as vacant, only 95 were actually vacant and without community uses. Of these 95 lots, 28 so-called vacant ones were either under development or had been identified as potential sites for development under open RFPs submitted by Housing Preservation and Development. It is noteworthy that most of the vacant lots that had been, or are currently being, auctioned off through an RFP cycle were among the largest vacant lots (Figure 7).<sup>7</sup> The high turnover of publicly-owned vacant lots through the RFP process is indicative of how public efforts and the private market have created a more speculative real estate market in our study area.

Overall, initial acquisition efforts should focus on sites that are more suitable for residential development due to their proximity to other vacant lots, allowable FAR, and total square footage. It should also be noted that most remaining large sites are zoned for manufacturing. Therefore, negotiations with the City authorities will be crucial in order to rezone areas for future development.

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<sup>6</sup> NYC Housing Preservation and Development RFEIs / RFPs/ RFQs  
<https://www1.nyc.gov/site/hpd/developers/rfp-rfq-rfo.page>

<sup>7</sup> Figure 6 shows all 93 community gardens on Publicly Owned land. Only 68 of the sites are listed as vacant in MapPLUTO. The other 25 garden sites are listed as open space. We found that 6 of the 201 sites were actually parks and excluded them from our analysis.

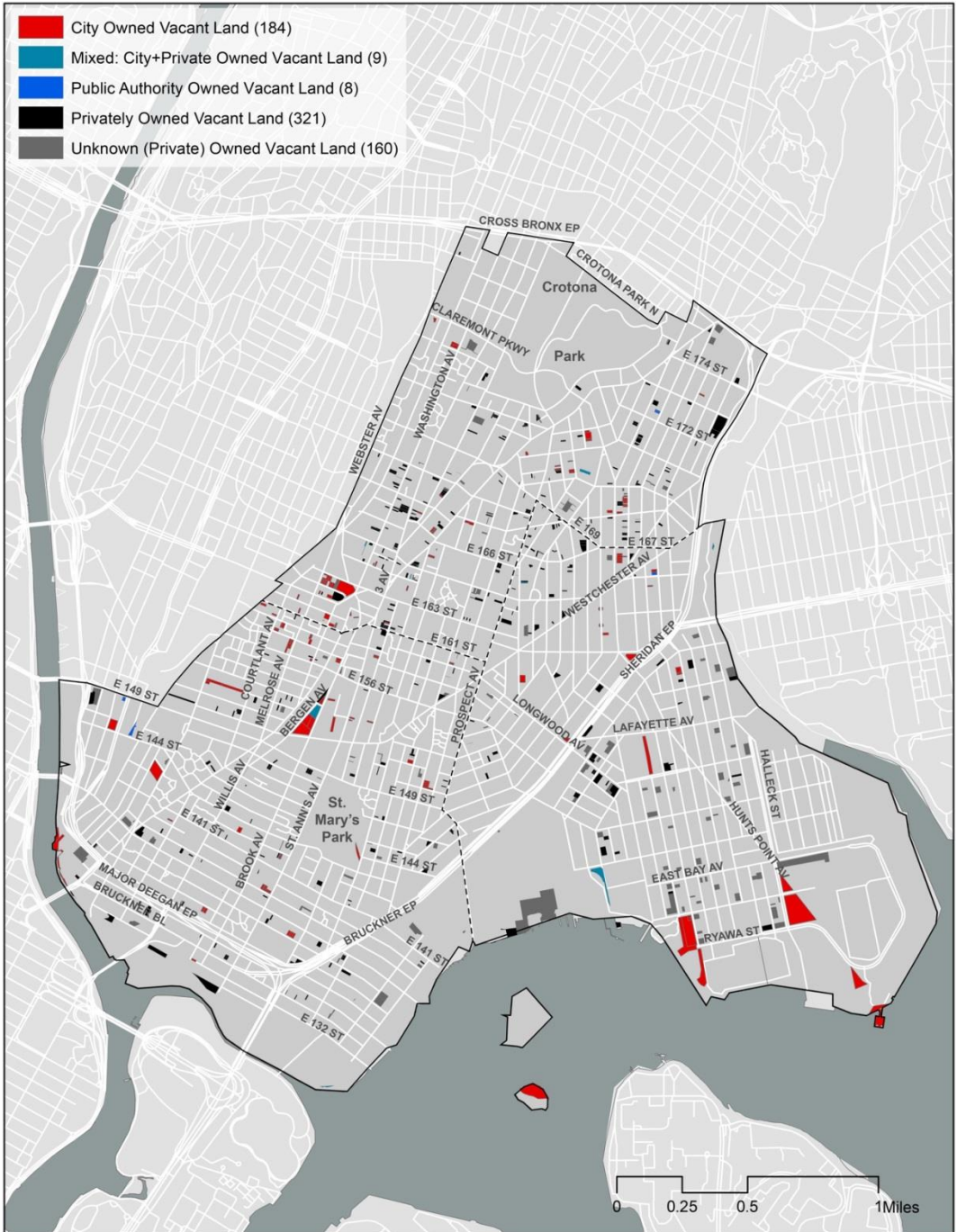


Figure 5: Vacant Lots by Owner Type



Figure 6: Actual Use of Publicly-Owned Lots listed as Vacant (in MapPLUTO)

## 4.2 Special Purpose District: Hotspot Analysis and Clustering

NQ is considering the creation of an SPD as a tool to redistribute unused development rights from community gardens to potential development sites on currently vacant lots. We evaluated the geographic feasibility of creating an SPD by searching for clusters of vacant lots and community gardens. For the purposes of this report, a ‘cluster’ is defined as a group of two or more vacant lots that are geographically adjacent to one another and which may therefore be merged into a single larger lot. Figure 7 shows a Kernel Density (Esri, 2017) analysis of publicly-owned sites in our study area, including vacant sites used as gardens. Darker colours denote a higher concentration of vacant sites.<sup>8</sup>

We identified four main clusters. Cluster #1 (the most concentrated among the clusters we identified) is nearest NQ’s headquarters in the Melrose area. Cluster #2 is in the Morrisania/Concourse area; Cluster #3 is in Foxhurst, and Cluster #4 is in the Mott Haven neighbourhood. Following NQ’s idea to use the sites as an anchor for the prospective SPD, *Figure 8* overlays the clustering analysis on the existing set of NQ-owned properties, with a 0.5-mile buffer around the properties (see section 3.3 above). We found that Clusters #1 and #2 are within the NQ property buffers.

In *Figure 9*, we mapped hotspots against current land uses. Although Clusters #1 and #2 concentrate the majority of potential acquisition sites, these are in fact mostly active community gardens. The remaining non-garden vacant lots within Clusters #1 and #2 are small, scattered sites. Cluster #3 is the most balanced cluster in terms of having both community gardens and medium- to large-sized non-garden vacant lots. Although it falls outside the half-mile buffer around existing NQ properties, Cluster #3 may be a good option for creating an SPD. The decision to pursue Cluster #3, however, is contingent upon an active decision to gain ownership of sites that are more than half a mile from current NQ properties.

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<sup>8</sup> The parameters used were a search radius of 1,000 feet and a grid size of 200 feet. Therefore, the map displays density of sites within 1,000 feet in 200 feet cells.

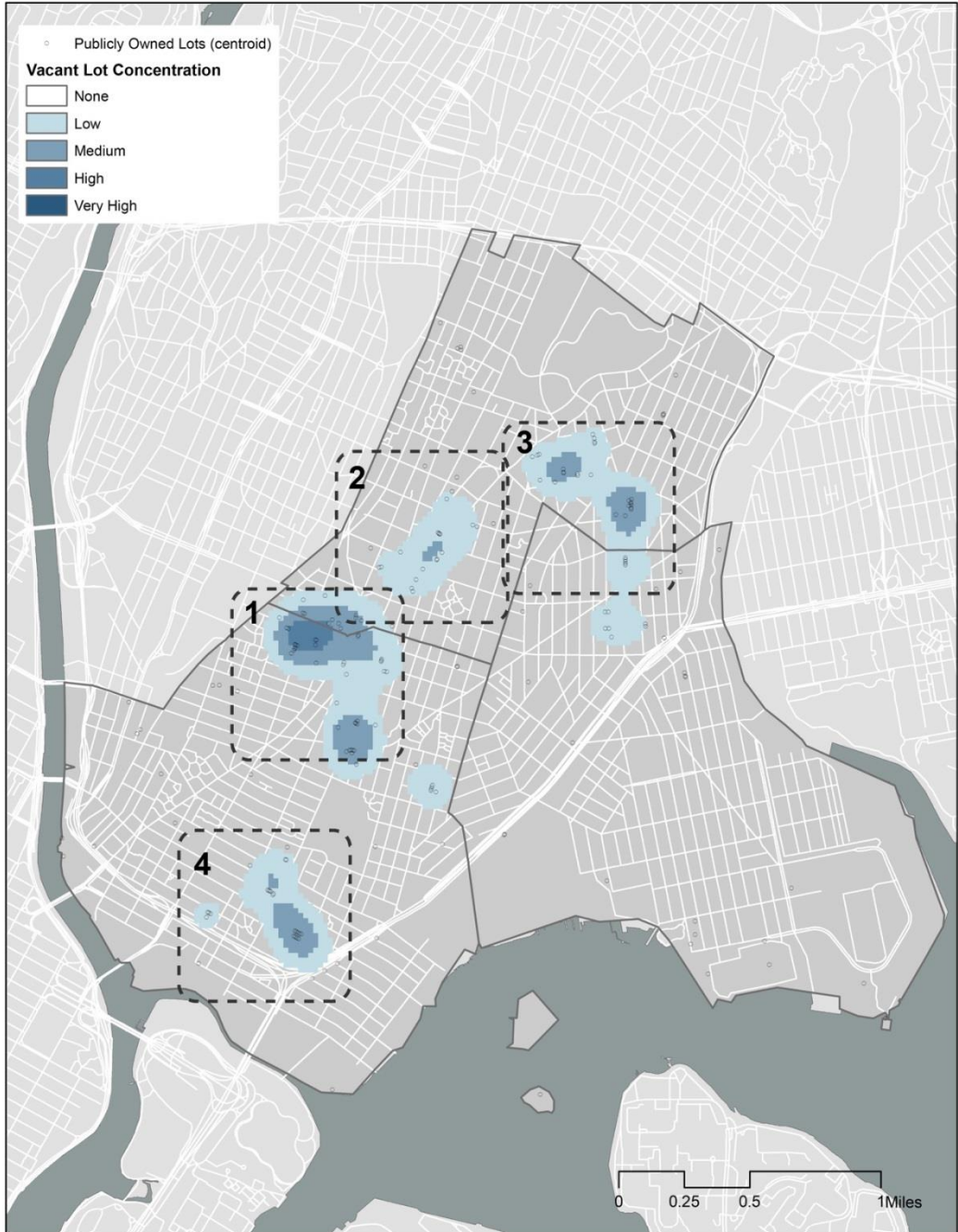


Figure 7: Hotspot Analysis of Vacant Sites and Community Gardens.

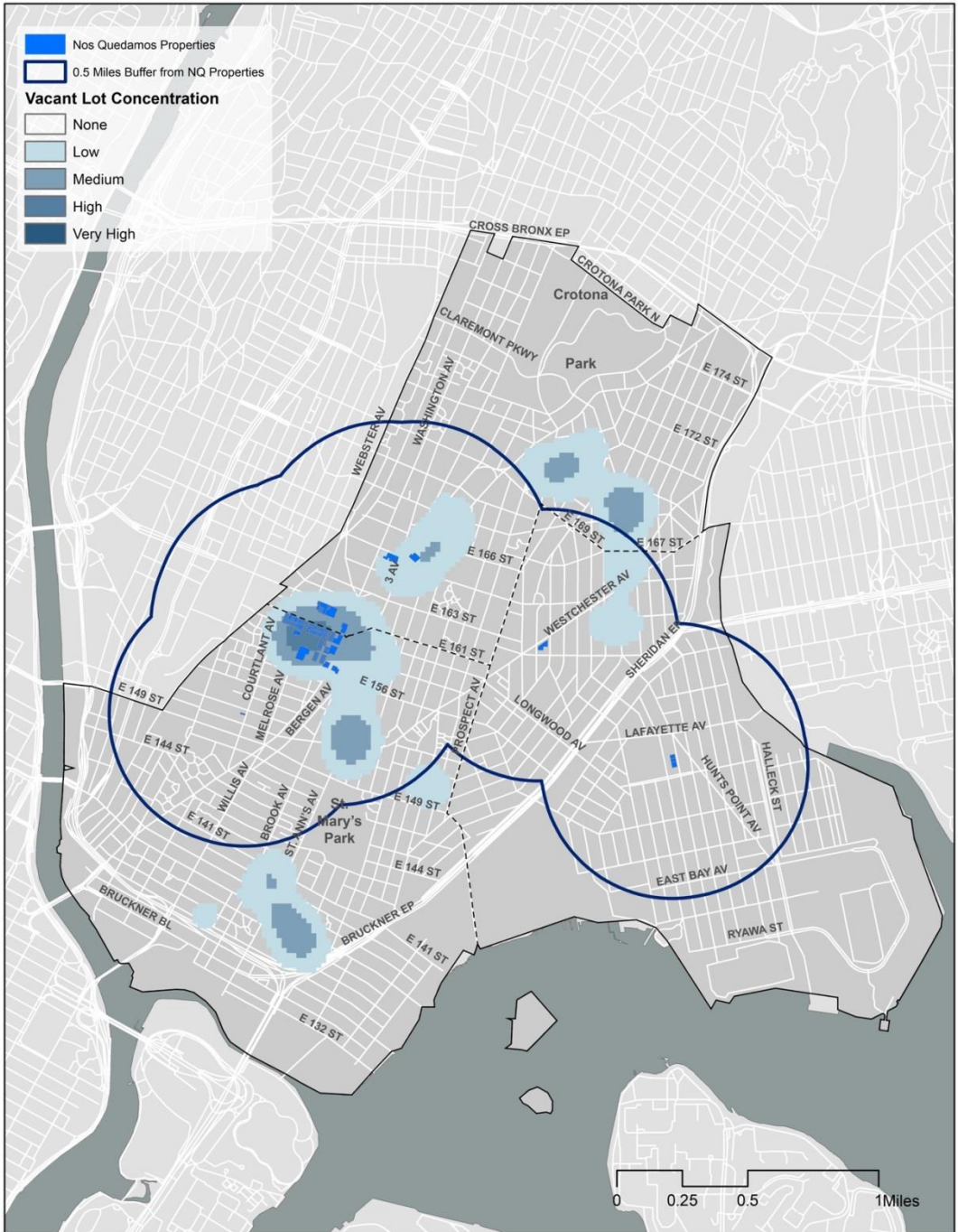


Figure 8: Hotspot Analysis and NQ Properties



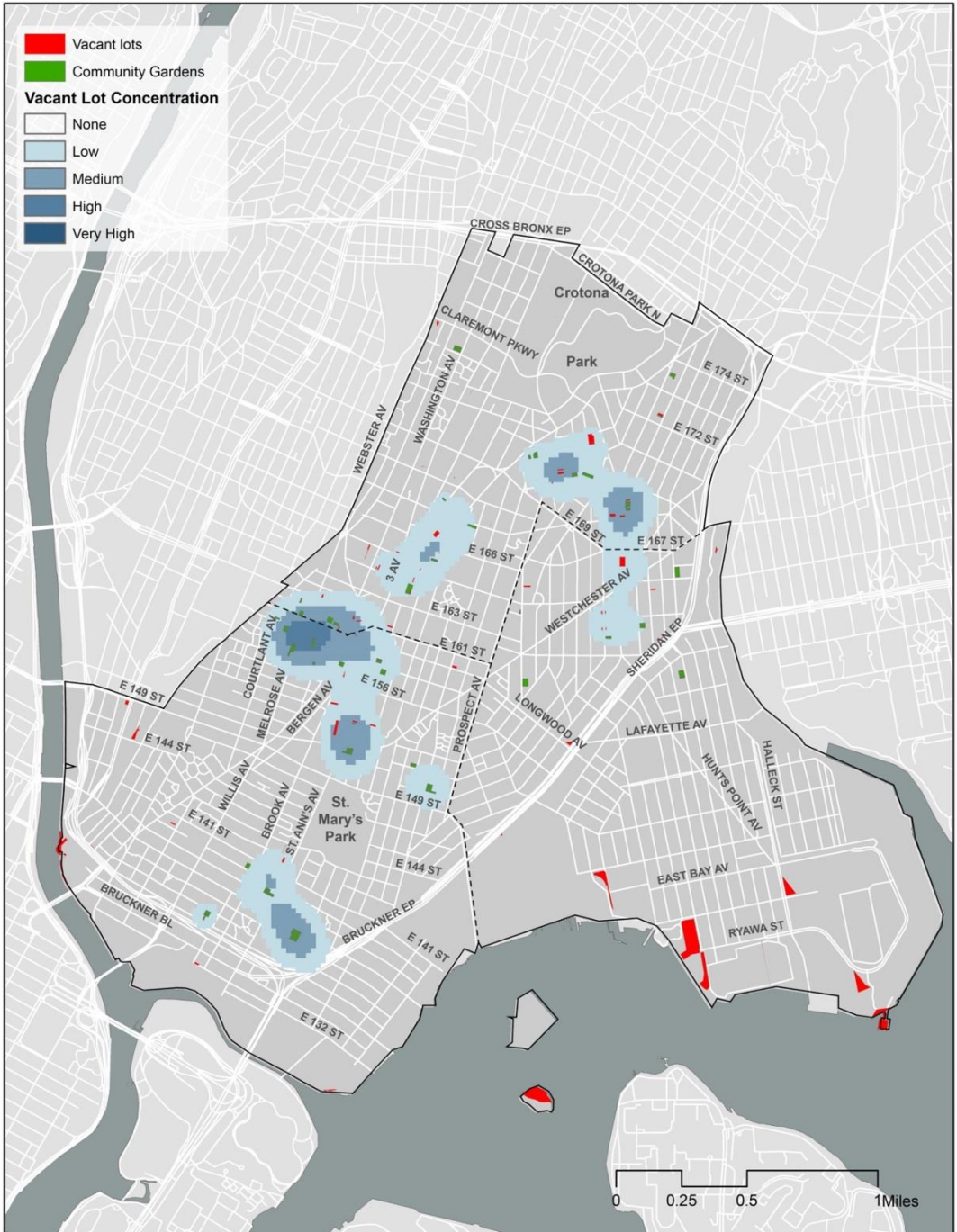


Figure 9: Hotspot Analysis and Current Use

## 5 Special Purpose District: Area Proposals

On the basis of the Kernel Density analysis and geographic relationships between the vacant sites, community gardens and NQ properties, we identified two areas suitable for creating an SPD. Careful attention was paid to simultaneously include the highest possible number of vacant lots, and the optimum balance between lots that are actually vacant and ones that are already used as gardens, while accumulating the highest spatial concentration possible of development rights.

### 5.1 Special Purpose District Area – Alternative 1

The first layout (Figure 10) is located within Clusters #1 and #2 and includes the vast majority of current NQ properties (125 of NQ's 130 properties). It is an 8.8 million sq ft area surrounding Melrose Commons, straddling the border between CDs 1 and 3. The area's 25 vacant lots (53,000 sq ft of land) account for 177,500 sq ft of residential air rights. The area also includes 39 community garden sites covering 139,000 sq ft of land – a total of 300,000 sq ft of residential air rights. With the air rights of the vacant lots alone, we estimate that approximately 177 residential units could be developed. If we add the community gardens' air rights, 300 additional units could be developed.<sup>9</sup> Thus, an SPD in Alternative 1 could yield approximately 477 residential units.

### 5.2 Special Purpose District Area – Alternative 2

The second proposed area (Figure 11) is more than half a mile from existing NQ properties, but it has the advantage of including larger sites and adjacent sites. It has an area of 2.6 million sq ft, is located in the heart of the Foxhurst neighbourhood, and straddles CDs 2 and 3. The area includes 16 vacant lots (totalling 60,000 sq ft) and 14 community gardens (61,000 sq ft). The vacant lots' total residential air rights as permitted by current zoning amount to 206,000 sq ft; the community gardens' total residential air rights amount to 198,000 sq ft. We estimate that 206 residential units could be developed using the vacant lots' air rights alone, and that an additional 198 could be developed after transferring the residential air rights from the community gardens, giving a total of approximately 404 residential units.

Although both proposed Special District Areas have a large total number of sites and a similar number of garden and vacant sites, for the purpose of TDR alternative 1 has the advantage of NQ's roots in this community. However, the non-garden sites in this area are scattered and few of them are large enough to be considered developable sites. If NQ decides to pursue the creation of an SPD or simply develop in the Melrose area, we recommend considering current gardens that are zoned residential as potential development sites, especially those that include several neighboring vacant sites.

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<sup>9</sup> A residential unit here corresponds to a two-bedroom dwelling of 750 sq ft, plus 30% extra area for walls, access routes and other common space, an estimated total of 1,000 sq ft. per housing unit.

The area in Alternative 2 includes a smaller number of sites but provides a good balance between vacant lots and community gardens. Although the area does not include existing NQ properties, this zone is highly advantageous for allowing TDR between gardens and vacant sites.

Finally, we would recommend that NQ should formalize a stance on the CLT's balance between preserving community gardens and developing affordable housing. We recommend considering development on community garden sites that do not have any 'protected' status or designation as Parks, and which have suitable characteristics for development – i.e. occupy medium- to large-size sites, or are adjacent to other vacant lots.

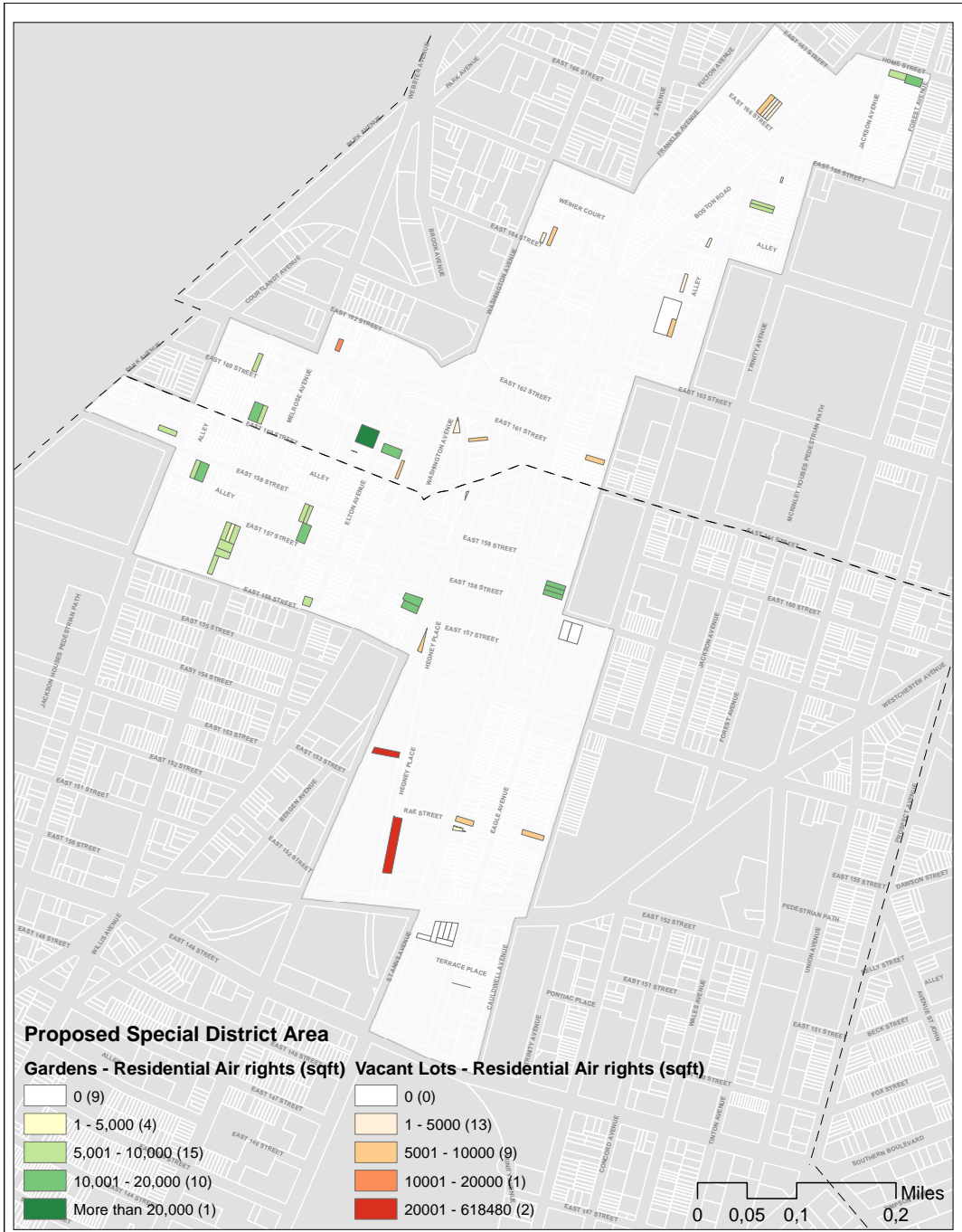


Figure 10: Special Purpose District Alternative 1. Sites displayed by Air Rights.

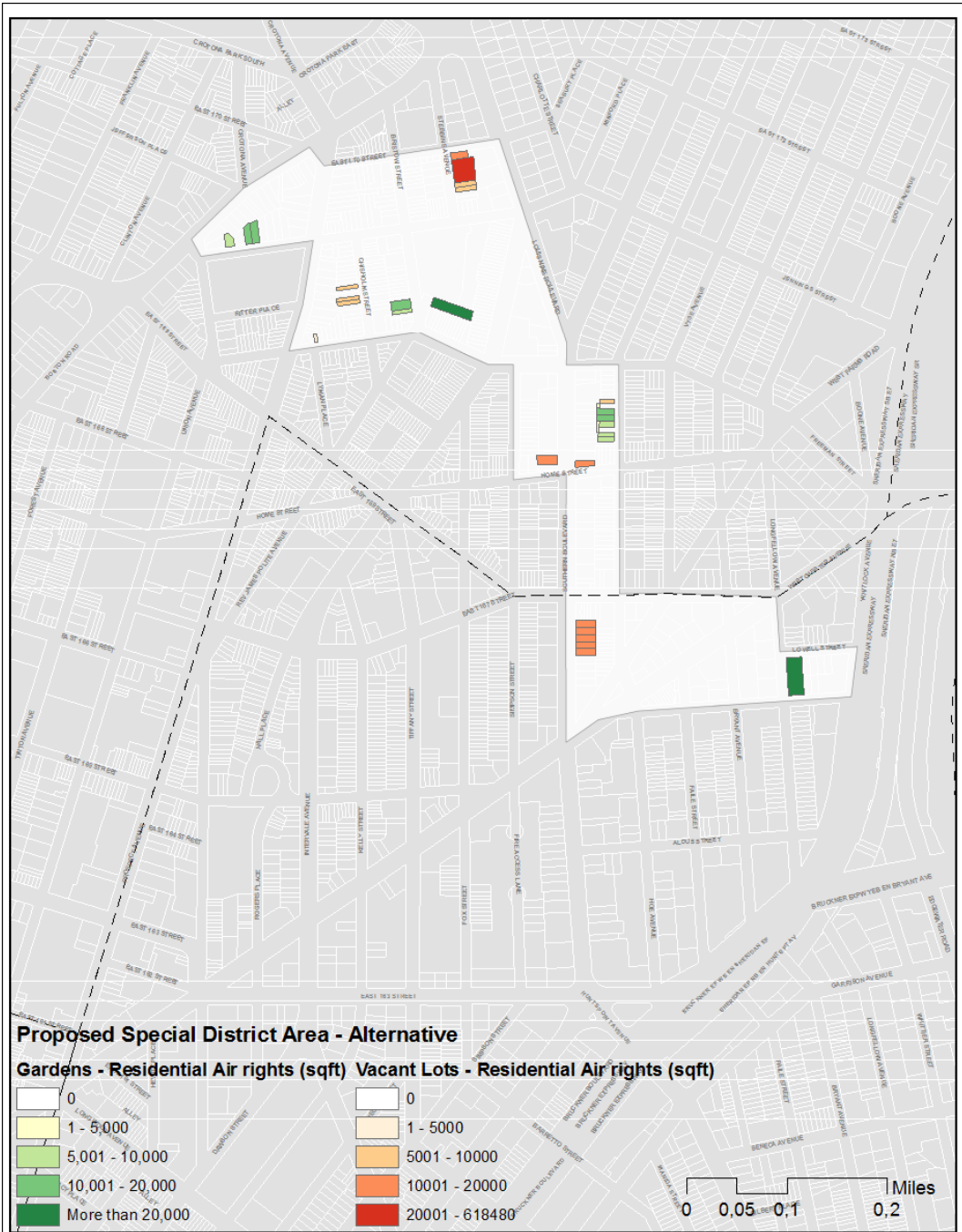


Figure 11: Special Purpose District Alternative 2. Sites displayed by Air Rights.

## 6 Conclusions

In many ways, the old image of the Bronx biased our initial assumptions: that land would be easy to acquire, and communities might lack detailed knowledge of the variety of policy tools that they could use. Delving into the landscape of Melrose, a far more complex reality emerged. The South Bronx is undergoing rapid transformation, and like other previously-blighted neighbourhoods in New York City, its property values are increasing and new developments are proliferating on formerly vacant lots. This makes the work of establishing the South Bronx Land and Community Resource Trust (SBxLCRT) all the more urgent. It presents an opportunity for the residents of Melrose, Mott Haven and Morrisania to ensure that their neighbourhoods continue to serve the residents' needs.

In the past, NQ has played a pivotal role in bringing community voices to the development process, increasing the community's power and knowledge. It now occupies a unique position to form a new Community Land Trust that will exemplify these historical values while also consolidating a vibrant community that looks forward into the Bronx's future. As one of the eleven organizations that was supported in the creation of a CLT by the New York City Department of Housing Preservation and Development, NQ is a key agent in preventing displacement, developing affordable housing, and fostering economic opportunity for the residents of the South Bronx. As far as land availability and the land-acquisition process are concerned, our research shows that although there is still land available for development, NQ should act quickly in acquiring the remaining large and mid-size sites, and should work in partnership with the City in the creation of an SPD.

The power and knowledge of former planners designed and mapped the decay of the South Bronx in the 20<sup>th</sup> century. We hope that our work will help to bring power and knowledge back to the community, and that the maps and recommendations presented in this paper will allow NQ and the community they represent to stand up for the development of their vision for their own neighbourhood – a vision of transformed geography that is affordable for its long-oppressed residents.

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