

The background image shows a vibrant public space, likely a park or plaza, with people walking and interacting. There are colorful, modular structures in shades of green, blue, and purple. A black table in the foreground has a white logo that reads "BROWNS" and "LEADERSHIP COUNCIL". The scene is set against a backdrop of brick buildings and lush green trees.

Public Space: The Critical Connection in a Sometimes Lonely City

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About this Document

This document presents a study conducted between September 2022 and March 2023 on eight public spaces in New York City. The study focused on four pedestrian plazas and four community gardens to investigate the relationship between public space governance and configuration and their impact on social connection and visitors’ loneliness levels. The research involved extensive observations, place inventory, and original data collection from more than 180 public space visitors, as well as engagement with 15 public space managers. The enclosed report is the product of this study.

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Executive Summary

This study examines how the governance and design of public spaces influence the qualities of social interactions and loneliness levels experienced by visitors. By analyzing eight distinct pedestrian plazas and community gardens in New York City, this study highlights the role of public spaces in promoting social well-being and identifies common characteristics that facilitate meaningful social connections.

Loneliness is a critical yet often overlooked social issue with significant mental and physical health implications. The growing prevalence of loneliness in recent decades, particularly in the wake of the COVID-19 pandemic, underscores the significance of public space as a critical platform for social connection. While previous research on loneliness and interventions to address the crisis laid the groundwork for understanding the state of the issue, the review of past literature revealed gaps in current knowledge. In particular, there is a lack of consistent methods for measuring loneliness, empirical evidence to support the link between loneliness and specific features of the built environment, and proof of the effectiveness of existing interventions at a local level.

This study explores how specific features of existing public spaces relate to visitors’ social connections and levels of loneliness. By examining

a diverse set of public spaces in New York City, the study reveals distinct governance structures and design qualities that facilitate meaningful social connections and impact levels of loneliness.

Approach

The study selected four pedestrian plaza and four community gardens case studies, focusing on neighborhoods in New York City with relatively greater racial diversity and lower median household income and gathered data from multiple sources, including observational data on the public life and documentation of physical features of all eight sites, a field survey that engaged over 180 visitor respondents, and interviews with 15 public space managers and designers.

Findings

This study outlines seven key findings related to public space governance structure, programming, stewardship, openness, physical features, locality, and seasonality.

Governance. Distinct governance structures help explain the discrepancy in loneliness levels observed between plazas and gardens.

On average, plazas have a 20% lower share of visitors experiencing loneliness compared to community gardens. The difference in governance structures between the two types of public spaces helps explain this discrepancy. While plazas capture a wider audience, gardens are managed by community volunteers and tend to attract individuals actively seeking connections they may lack in their daily lives. As a result, community

gardens serve as a platform for those experiencing loneliness to interact and build relationships with others.

Programming. Regular programming contributes to the formation of place identity and positively impacts both regular visitors and passersby.

Public spaces with consistent programming fostered a sense of place and observed lower levels of loneliness despite variations in type, audience, duration, and timing of programming across sites. In comparison, spaces with budget and human resources constraints saw higher levels of loneliness and less interaction among visitors.

Stewardship. The act of stewardship and caring for public space plays a critical role in connecting local visitors.

Public spaces with higher levels of stewardship observed fewer lonely visitors. Overall, volunteer-based community gardens saw a higher percentage of active participation as visitors’ meaningful social interactions, as did the 34th Ave Open Street Plaza and Osborn Street Plaza—both with strong networks of volunteers. While city management to ensure public space quality is necessary, additional community stewardship fostered a sense of purpose and thus helped build more meaningful connections.

Openness. The intended function and the extent of public accessibility affected the quality of interactions within a public space.

Public spaces’ nature and form shape visitor interactions. Plazas promote spontaneous and brief interactions with 24/7 accessibility and public right-of-way location, while gardens, with their “hidden gem” quality, typically function

as gathering spots for specific groups, encouraging planned, longer-duration, and focused interactions.

Physical Features. Quality seating, art, and greenery invite people to stay and support visitors’ meaningful interactions in public spaces.

Public seating is the top enhancer of visitors’ interactions, with 53 percent of the visitors surveyed referencing this element. Public art, trees, and plantings also play a role, with over a third of visitors acknowledging their contribution to their meaningful interactions.

Locality. Attention to local demographics and character helps cultivate a strong sense of community.

Public spaces analyzed in this study mainly draw in local residents, with around 60 percent of visitors residing in the same zip code as the location. Local visitors showed appreciation for the nuances that reflect the local demographics and character, including events that celebrate local culture, programs that address neighborhood needs, and opportunities for intergenerational interactions in an age-diverse community.

Seasonality. Activation in the cold remains an opportunity for social connection.

Observations made between January and March 2023 revealed that public spaces studied during the winter season are underutilized or primarily serve as mobility corridors rather than venues for social interaction and community engagement, despite the increased need for activation during a season when instances of loneliness and suicide attempts often escalate.

Recommendations

Insights gained from this study provide considerations for different stakeholders, including public space planners and designers, researchers, and city governments. For planners and designers, this means considering both physical and non-physical elements in public space design to promote social connections, such as supporting community-based stewardship and creating high-quality spaces that encourage diverse uses and staying. Researchers should further explore the relationship between specific public space features, loneliness, and social connection using consistent evaluation methods. Additionally, more public space types should be studied to understand how governance structure and design quality impact social connection and loneliness. City governments should systematically measure loneliness on a large scale and encourage conversations and collaborative efforts among public health, design, research, and community sectors, while examining policy impacts on loneliness.

Conclusion

Public spaces serve as a critical foundation for social connections in our increasingly complex world. This study provides evidence linking governance and public space design to the quality of social interactions and levels of loneliness in public spaces. By leveraging existing knowledge and applying evidence-based strategies, planners, designers, researchers, and city governments can design cities for connection, shaping the lives of future generations with better physical, psychological, and social outcomes for all.

Project Timeline

September 2022	November 2022	January 2023	March 2023	May 2023
Background & Research on Existing Literature	Methodology Development	Data Collection & Site Visits	Insights, Patterns & Findings Development	Final Deliverables

Project Overview

By employing a mixed-methods approach, this study seeks to inspire and equip urban planners and designers, researchers, and city governments to intentionally design and program public spaces to support more meaningful social connections.

Statement of Issues Addressed

This capstone, in collaboration with client Gehl Studio, investigates the relationship between public space features and visitors’ experiences of loneliness and social connection in pandemic-recovery New York City. Loneliness is the subjective feeling of inadequate meaningful connection to others. The level of loneliness experienced by American adults has drastically increased since the 1970s (Crowe et al. 2022). While loneliness at times is normal, chronic loneliness is detrimental to physical and mental well-being. The global health crisis of COVID-19 has exacerbated the adverse impact of loneliness as millions of people were quarantined in their homes and nations locked down to implement social distancing to contain the spread of infection. To ease loneliness, public spaces have emerged as crucial assets to provide essential opportunities for social connection, recreation, and livelihood.

Although public spaces are often highlighted in studies and guidelines as essential measures to cope with the crisis of loneliness and social isolation, what objective quality and composition of public spaces positively impact loneliness is still unclear (Astell-Burt et al. 2022; Bergefurt et al. 2019; UN Habitat 2020). Moreover, few city governments have taken action to address the exacerbated challenge. Despite the lack of awareness, the

absence of evaluations of intervention effectiveness and inconsistent measurement of loneliness on a large scale may also contribute to the gap in knowledge and actions. In addition, most existing studies regarding public space and loneliness focus on green spaces. Knowledge of which and how features in other types of public spaces help increase social connection and reduce loneliness is still limited. As such, this capstone evaluates different types of public spaces in pandemic-recovery New York City to investigate the following research questions.

Research Questions

The study design is guided by three overarching questions.

- 1 To what extent are features of existing public spaces associated with visitors’ levels of social connection and loneliness?
- 2 How do urban planning and design influence the sociability of public spaces and the prevalence of loneliness and social connection in cities?
- 3 What can we learn from the successes and challenges of existing public space design in promoting social connection and mitigating loneliness?

Client Organization

Gehl Studio is a global urban planning, design, and research consultancy. The studio is committed to making cities, neighborhoods, and places where people have control over their health and well-being and are enabled to make meaningful, climate-conscious decisions in their daily lives. The studio is continually building upon the knowledge of human behavior, eye-level experience, and the built environment to deliver a greater impact on equity, health, and sustainability.

Gehl Studio’s approach to urban planning and design is grounded in the study of people’s well-being. From master planning of cities to setting post-occupancy evaluation frameworks for urban environments, the studio’s approach begins with an understanding of life, activities, user groups, and behavior patterns. This knowledge is then used to inform the design of buildings, public spaces, and infrastructure that support and enhance public life.

In line with this mission, the studio is interested in investigating the issue of loneliness and social connection. This study supports Gehl’s work in public space and public life and builds upon existing knowledge of how public space design and programming can promote social connection in the face of the

increased loneliness associated with the COVID-19 pandemic.

The findings of this study, including site-specific results and cross-cutting themes across public space types, will be used to inform how interventions can increase social interaction in public spaces and improve the quality of social connections. Findings of this study will also inform the studio’s approach to future projects and provide actionable guidelines for how the features and programs of public spaces can be adapted or enhanced to increase the sociability of these spaces and mitigate urban loneliness.

New York City as the Study Area

This capstone chooses New York City as the study area to examine the relationship between public space features and visitors’ experiences of loneliness and social connection. With

its large, diverse population, as well as its variety of public spaces of different compositions and qualities, the City provides a rich setting for exploring the relationship between the built environment, social connection, and loneliness. Additionally, the COVID-19 pandemic has had a profound impact on the City, leading to changes in the way that people use public spaces and interact with one another. Studying urban loneliness in New York City at this time can provide valuable insights into how the design and programming of different types of public spaces can support social connection and reduce loneliness. This research’s findings may also apply to other metropolitan areas experiencing growth in population density and rising rates of loneliness.

Plazas and Community Gardens as Public Space Study Types

This study selects community gardens and pedestrian plazas as the two in-focus public space types. Although public spaces come in many forms, previous research has predominantly concentrated on green spaces (Astell-Burt et al. 2022; Nguyen et al. 2021; Houlden et al. 2018). Exploring other types of public spaces is essential for comprehending their role in promoting social connections and decreasing loneliness. The quality of the City’s 600 community gardens and 75 pedestrian plazas may differ, with some being more effective than others in achieving these objectives (GrowNYC 2011; City of New York Department of Transportation n.d.). The study’s primary goal is to identify the factors that may or may not contribute to social connection and loneliness reduction in community gardens and pedestrian plazas. Based on this evidence, the study aims to offer evidence-based recommendations for built environment interventions that may help alleviate loneliness.





PHOTO: 97TH STREET BLOCK ASSOCIATION GARDEN, FACEBOOK

Background

Literature Review

The literature review provides an overview of various aspects of loneliness, including its health impact, definition, and increased prevalence. It also highlights current interventions and the measures used to assess loneliness, social connection, and public space qualities. The review unveils the need to investigate the relationship between public spaces and social interaction to develop effective strategies for reducing loneliness.

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On Loneliness

Loneliness is a common yet often overlooked condition that can have a significant impact on the quality of life for individuals. Although loneliness at times is normal, chronic loneliness has been linked to a range of physical and mental health issues (Crowe et al. 2022; Yanguas et al. 2018). The risk of prolonged loneliness has been found to be potentially as harmful to our physical health as smoking, obesity, and physical inactivity. Loneliness is also considered a risk factor for coronary heart disease and stroke, as well as an independent risk factor for higher all-cause mortality (Valtorta et al. 2016; Yu et al. 2020). Additionally, loneliness and limited social connectedness are also associated with emotional disorders, including higher rates of depression, anxiety, suicide attempts, and completed suicide among older adults (Fässberg et al. 2012).

While stereotypically associated with aging and women, loneliness can occur at any stage of life and among any gender. In addition to senior age groups, adolescence, young adulthood, and early thirties are periods in

which loneliness rises; peaks are also observed in peoples’ fifties and eighties (Barreto et al. 2021; Cigna 2018; Hawkey et al. 2022; Lee et al. 2019; Schultz and Moore 1988). Gender differences in loneliness are also frequently assumed, and some evidence suggests that women report more loneliness than men, regardless of age (Pinquart and Sörensen 2001; Nikolaisen and Thorsen 2014). However, differences in loneliness reporting might also reflect gender-specific tendencies to admit to feeling lonely. Research suggests that men are more reluctant to acknowledge loneliness than women and that male loneliness is more stigmatized than female loneliness (Borys and Perlman 1985). This stigma, however, may vary across cultures, indicating a potential interplay between gender, age, culture, and the experience of loneliness.

The urgent need to address loneliness and promote social connection has become increasingly clear in the past few decades, and particularly since the COVID-19 pandemic. In the 1970s, the prevalence of loneliness in the U.S. was estimated to be as low as 11% (Crowe et al. 2022). Today, one in three American adults over the age of 45 feels lonely (Anderson, 2010), and

about 22% of adults in the U.S. often or always feel lonely or socially isolated (DiJulio et al. 2018). The COVID-19 pandemic has exacerbated the adverse effects of loneliness, as people’s ability to be physically close to others has been limited in many places. A systematic review of longitudinal studies found that, on average, the prevalence of loneliness has increased by about 5% since the start of the pandemic (Ernst et al. 2022). The increased prevalence of loneliness calls for an urgent need to develop evidence-based interventions that promote social connection and reduce loneliness, as well as robust data on the effectiveness of interventions.

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Definition of Loneliness and its Relationship to Social Connection

Loneliness is a subjective phenomenon, a feeling that takes place when there is a mismatch between the social connection we have and the social contract we want (Peplau and Perlman 1982). This discrepancy theory of loneliness is frequently employed in research on the topic, despite variations in definitions (Murphy 2020; Tiwari 2013; Broome 2015). The feeling of loneliness may arise from various factors, including personal factors such as health and personality, social factors such as culture and social support, and environmental factors such as neighborhood characteristics, as well as broader societal factors such as technology and politics (Lyu and Forsyth 2022).

The subjective nature of loneliness highlights the importance of distinguishing it from objective isolation, which refers to a physical state of being alone without social contact (Hawkey and Cacioppo 2010). This distinction clarifies why individuals may experience loneliness despite being surrounded by others. Loneliness also differs from solitude, which

denotes a voluntary or peaceful state of aloneness. Thus, social interaction quantity is not an effective measure of loneliness, as it is deeply subjective and varies among individuals (Jones 1981). Instead, social connection quality is more critical to the experience of loneliness.

Cacioppo and Patrick (2008) argue that quality social connection is essential for physical and mental well-being. Similarly, Dr. Vivek H. Murphy (2020) explains that loneliness is our body’s signal to connect with others, just as the feeling of hunger is our body’s way of telling us to eat.

Hawkey and Cacioppo (2005) identified three dimensions of loneliness that reflect individuals’ mental representations of connectedness and loneliness. These dimensions are individual or emotional loneliness, relational or social loneliness, and collective loneliness. Individual loneliness refers to the longing for comfort with themselves and their fit in the social world, as well as an intimate partner or close confidante with whom one shares a deep connection, while relational social loneliness reflects a desire for quality social companionships, such as close friends and family. Collective loneliness denotes the yearning for a community that shares common interests and provides a sense of identity and belonging. Missing any of these dimensions can result in feelings of loneliness, and the judgment of this, as previously mentioned, is subjective (Austin 1983; Russell et al. 1978). Therefore, different people may experience loneliness differently, even under similar social configurations in various cultures and times (Peplau and Perlman 1982; Klinenberg 2018).

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Links to the Increased Prevalence of Loneliness

Although there is no clear-cut explanation for increased urban loneliness, a growing body of research has identified possible influences. A major factor discussed in various loneliness studies is the advancement in technologies (Bergefurt et al. 2019; Murthy 2020). This includes the way mobility and online innovation transformed how we live, work, and play in the 21st century. While advances in mobility have made traveling across-country or across the world more accessible than ever, more and more of us are moving farther away from friends and families. Additionally, the advancement in technology has allowed us to enjoy all the convenience of community without directly interacting with any people. As of 2022, 66 percent of the global population are internet users (Statista 2022). Today, we place orders for a whole meal or any goods imaginable online, and they will be delivered to our doorsteps without meeting the local restaurants that produced them or the courier that delivered them. We read and stream content in the comfort of our tablets without the need to go to a people-filled theater or library. Many of us also telecommute, virtually working with colleagues and customers without directly interacting with them, if at all. The COVID-19 pandemic furthered the normalization of working from home, online connections, and commerce as people are more accustomed to spending time at home. However, these virtual and indirect relationships often only act as a veil for the desire for true connection, which is often only achievable through in-person interaction. An excessive amount of time spent on screens has been linked to various adverse mental health effects, including an increased likelihood of depression, anxiety, and loneliness (Pandya and Lodha 2021; George et al. 2018). Additionally, in John T. Cacioppo and William Patrick’s (2008) pioneering research

on loneliness, they note that “the mind that seeks to connect is first about the body and leaving the body behind can make human connections less satisfying” (259).

The high prevalence of loneliness is often associated with socio-demographic shifts in the late 20th and into the 21st centuries (Crowe et al. 2022; Fried 2020; Murthy 2020). Factors such as changes in family structure and location, longer lives with high rates of loss of significant others in older age, and an environment fostering independence and individual performance make communities harder to build and prioritize and thus have heightened the crisis of loneliness in cities.

Additionally, the design of the built environment also plays a role in social isolation and loneliness. Urban areas are growing rapidly, and about 56% of the world’s population lives in cities today. This trend is expected to continue, with the urban population more than doubling its current size by 2050, at which point nearly 7 of 10 people will live in cities (The World Bank 2022). In this context,

over the past few decades, cities globally have primarily been focused on growth and development. Many cities prioritize building density and housing infrastructure, while planning and design for local institutions that strengthen social capital become secondary concerns. For instance, increasing population density is found to be associated with higher odds of loneliness (Hammoud et al. 2021; Jacobson et al. 2018; Lee et al. 2019). People living in cities are also more likely to live in high-rise structures, and those who live in high-rises are reported to be more socially isolated and know very few of their neighbors (Gifford 2007). In addition, research has found that the tremendous increase in solo living, particularly in major cities, may be one of the factors bearing upon loneliness (Snell 2017). While cities are prioritizing developing and implementing strategies to accommodate urban population growth, less attention is paid to meeting residents’ mental well-being and social connection needs. Hence, the lack of social infrastructure needed to provide spaces for connection has contributed to the heightened loneliness prevalence in cities.

The rise of loneliness is not a personal choice or individual problem but one that is rooted in place design, social norms, and systemic injustices. With the growing challenges of loneliness in cities, urban planners and designers are challenged to plan for spaces and services that serve people’s social connection needs, and create intentional designs that encourage positive social interactions, rather than ones that alienate individuals. Recognizing the impact of loneliness and understanding existing design and programming of public space may help combat loneliness and allow planners and designers to develop inclusive and healthy public spaces that foster social connections and promote a sense of community and belonging.

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Existing Interventions for Loneliness

Although much is at stake if loneliness is left unaddressed, interventions to combat loneliness and documentation on their effectiveness are scant in the U.S. Overall, most extant interventions lie in the public health domain and require individual effort. These include ongoing clinical interventions, counseling, education, and small group social activities (Crowe et al. 2022; Lyu and Forsyth 2022). Extant knowledge presents a significant gap in the built environment interventions for loneliness.

Policy options that shift the focus of intervention from individuals to community contexts primarily focus on urban greening or providing equitable access to green spaces. The benefits of access to green spaces for our physical and mental health are well-documented (Astell-Burt et al. 2022; Nguyen et al. 2021; Houlden et al. 2018). In light of these benefits, some U.S. cities have initiated strategies to increase access to parks, including New York City, Seattle, Boston, and others (Department of Parks and



PHOTO: HANNAH WEI VIA UNSPLASH

While technological advancements provide convenience, they also transform the way we interact with each other, often resulting in reduced opportunities for in-person connections.



PHOTO: ROBERT BYE VIA UNSPLASH

Growth-oriented urban areas lacking social infrastructure investment fuel loneliness. Current strategies tend to prioritize urban greening, but their effectiveness remains unclear.

Recreation, City of New York 2019; City of Boston 2018; City of Seattle 2018). The effectiveness of these interventions on visitors’ loneliness and social connection is not consistently measured, indicating a gap in the evidence base on what works to tackle loneliness.

While increasing the number of natural settings is plausible, studies have pointed out that merely increasing the amount of green space is not enough: the quality and configuration of urban green space may be as important as the amount of green space to the mental health of urban residents (Ha et al. 2022; Nguyen et al. 2021). The most evident example for this argument is the establishment of Privately Owned Public Spaces (POPS) as a community benefit. Many studies have found that even well-equipped and highly accessible POPS can be exclusive or underused (Lee 2022; Garrett 2015; Tempey 2015). Systematic investigations, as well as interventions to address the quality aspects of public spaces for loneliness, remain limited. Not to mention that built environment interventions to ameliorate loneliness

beyond green space are clearly an area for future development.

Looking beyond the U.S., few governments globally have taken action to combat loneliness and isolation. The United Kingdom and Japan are the two pioneers that have taken this issue to the national level. In the United Kingdom, Prime Minister Theresa May launched the world’s first government strategy for tackling loneliness in 2018 (Department for Digital, Culture, Media & Sport, Office for Civil Society, and Prime Minister’s Office 2018). The strategy was the government’s first major contribution to the national conversation on loneliness and the importance of social connections. The government aims to tackle the crisis by reducing the stigma on loneliness, supporting civil society organizations to connect people, and improving the evidence base on loneliness. A significant portion of the loneliness strategy was the £1.8 million of funding allocated to increase the number of community spaces available by engaging with youth to co-design and co-operate underutilized areas, such as community cafes, art spaces or gardens. The data and evaluation of

the impact of these efforts remain to be seen.

In Japan, at the instruction of Prime Minister Yoshihide Suga, the government also appointed a minister, Tetsushi Sakamoto, to be in charge of loneliness and isolation in 2021. The government promises to offer around-the-clock consultation services through telephone and social media, promote resources to the vulnerable, and work with local non-profit sectors to build communities (Minister for Loneliness and Isolation, Government of Japan, and Noda 2021; The Japan Times 2021). Other details on the implementation plans and effects are not easily found as the plan is still new, but some in the country already expressed concern that this is just “a catchy title” that delivers vague promises (Ryall 2021).

Existing interventions to tackle loneliness, from sources in academic literature and practice, have revealed gaps in current knowledge. There is a need for more consistent measurement of loneliness on a large scale to build an evidence base and make a strong case for action. Additionally, more research is needed to examine the relationship between loneliness and the objective quality and composition of the built environment, including a focus on public spaces beyond just green spaces. Furthermore, more diverse studies, both geographically and economically, are necessary, as many existing studies are located in high-income regions of only a few countries. Finally, additional investigation is needed to evaluate the effectiveness of extant interventions aimed at reducing loneliness and improving social connection. In short, there are numerous opportunities for studies to examine specific features of the built environment in order to inform evidence-based interventions for loneliness and social connection at a local level.

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Measuring Loneliness

To understand what the loneliness landscape looks like on a large scale, researchers like Daniel Russe and Gierveld DeJong over several decades developed different tools to measure loneliness (1978; 1985). A common approach is to use self-report measures, in which participants are asked to complete a questionnaire that assesses their general feelings of loneliness. Today, two prevalent scientific approaches toward measuring loneliness are the UCLA Loneliness Scale and the De Jong Gierveld Loneliness Scale (de Jong-Gierveld and van Tilburg 1999; Russell et al. 1978).

Amongst all the loneliness measures, the UCLA Loneliness Scale is one of the most widely used self-report measures that assess an individual’s subjective feelings of loneliness and social isolation. Over the years, several different versions of the UCLA Loneliness Scale have been developed. The original version of the scale, developed by Russell, Peplau, and Ferguson (1978), consists of 20 items. The latest and third version of the scale, known as the UCLA Loneliness Scale-3, was developed in 2004 and consisted of only three items and a simplified set of response categories. The scale asks participants the following three questions: “How often do you feel that you lack companionship?” “How often do you feel left out?” “How often do you feel isolated from others?” with “Hardly ever, some of the time, or often” as answer options (Hughes et al. 2004). This version of the loneliness scale has been validated in various populations and is a reliable and valid measure of loneliness (Hughes et al. 2004; Liu et al. 2020).

Other than the scales to measure the general loneliness in individuals, a method known as the Ecological Momentary Assessment (EMA) has

been developed to measure the momentary emotions of people. EMA uses a smartphone app that “pings” research targets several times daily to assess loneliness and social context (Compernelle et al. 2022; Wu et al. 2021). In these studies, at the time of each ping, participants were asked one question, “Did you feel lonely?” with response options: not at all, slightly, moderately, very, or don’t know. This method is often used in large-scale studies, with data collection spanning over a period of 12 months or more. While these studies have yielded key insights, it is yet unclear how well momentary assessments reflect an individual’s overall mental well-being.

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Measuring the Meaningfulness of Social Connection

The opportunity to interact with others is widely considered important for well-being, and particularly for mitigating loneliness (J. T. Cacioppo et al. 2008). However, in order for the interaction to have an impact on social connection and loneliness, scholars argue that interactions between individuals must be meaningful (Baumeister and Leary 1995; Wigfield et al. 2022). Evidence in research has shown that engaging in more frequent, high-quality interactions may protect against loneliness, enhance community resilience, and improve other health outcomes (Kuczynski et al. 2022; Wigfield et al. 2022; Office for Public Management and Department for Communities and Local Government 2011). Similar to the subjective determination of loneliness, the definition of “meaningful” or “high-quality” interaction is also self-reflective and varies by studies. Generally, meaningful interactions are those that are positive, with people who are valued by the individual and translate beyond the moment to produce a more general respect for others (Mayblin et al. 2015; Amin 2002; Wigfield et al. 2022).

To date, there has yet to be a clear consensus on how meaningfulness should be measured holistically for social interactions. Nevertheless, prior studies have highlighted factors that independently facilitate meaningfulness during social interaction. These various factors include: who is involved; what happens before, during, and after the interaction; the number of interactors; activities in the interaction; and whether the interaction is memorialized (Thoits 2011; Peters and Bolkan 2009; Litt et al. 2020; Reis and Wheeler 1991; Long and Sanderson 2012; Diehl et al. 2016). One measurement instrument that emerged from this review is a ten-item measurement survey used to examine the depth of meaningful time experiences between older parents and their family members (Peters and Bolkan 2009). This survey asks participants to rate their agreement with ten statements exploring the meaningfulness of the shared time experiences with family. For instance, one of the statements is, “Overall, you feel that you can ‘be yourself’ when you speak or visit with this person,” and the survey asks participants to rate from one to ten, where the higher ratings mean a stronger agreement that reflects our current relationship. This measure was subsequently tested for reliability and validity in a pilot study, but no other widely tested measurement instrument was found for social connection.

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Measuring the Quality and Configuration of Space

The attributes of public space that facilitate social interaction have been the subject of much study over the years. Significant works identifying the quality criteria contributing to successful public spaces include works by Gehl (1987), Jacobs (1961), Whyte (2001), Carr (1992), Carmona (2010), Skjaeveland and Garling (1997), and Project for Public Spaces (n.d.), a non-profit organization. Collectively these works identified the influence and impact that the various physical features of public spaces can have on social interaction.

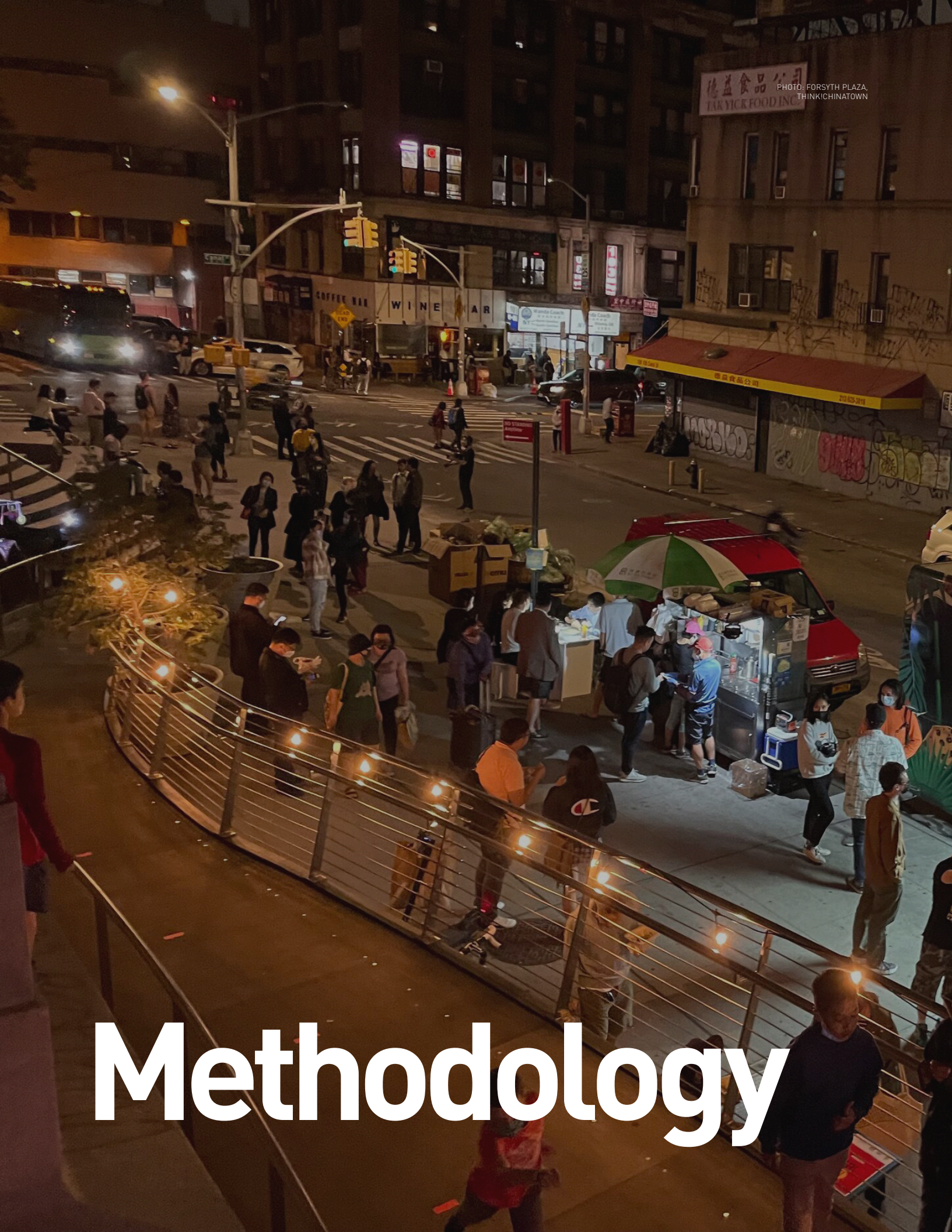
Danish architect Jan Gehl (1987) developed 12 quality criteria for good design of public spaces with attention paid to human senses. The quality criteria consist of three themes: protection, comfort, and enjoyment. The first theme protection dealt with the preconditions to staying outside and included criteria such as protection against traffic and accidents, harm by others and unpleasant sensory experiences like heat. The second theme, comfort, deals with opportunities for spending more time in public spaces and includes criteria such as opportunities for walking, standing, sitting, or playing. The third theme, enjoyment, includes criteria of opportunities for enjoying positive aspects of climate, aesthetic quality, and positive sensory experience.

Public spaces and city streets and the ways they could be designed to foster diversity, safety, and vitality within communities were explored and evaluated in an early seminal work by Jane Jacobs (1961), *The Death and Life of Great American Cities*. William Whyte (2001) highlighted the importance of seating, proximity to food and retail, and the space’s relationship to pedestrian flow and external stimuli in *The Social Life of Small Urban Spaces*.

Concerns for people’s needs in public spaces in terms of comfort, relaxation, passive engagement, active engagement, discovery, and encounter with a place were identified by Carr and colleagues (1992). The Place Diagram developed by The Project for Public Spaces (n.d.) identified four main criteria of access and linkage, uses and activities, comfort and image, and sociability. In addition, studies done on public space management have argued that maintenance qualities such as cleanliness, tidiness, accessibility, safety, and security, as well as programming qualities including robustness and capacity for fulfillment, are also key quality criteria of public spaces (Carmona 2010; Skjaeveland and Garling 1997).

While these sources and frameworks are widely used to evaluate the quality of public spaces, there is a lack of research on their effectiveness in promoting social interaction. Frumkin (2003) has noted the need for more empirical evidence to support guidelines for improving public spaces. The current gaps in this area suggest that understanding the relationship between the objective quality and configuration of public spaces and social interaction can foster positive social interactions and reduce loneliness.





Methodology

Overview of Approach

This study employs a mixed-methods approach to examine the relationship between New York City's public spaces and visitor levels of loneliness and social connection, with a focus on two types of public spaces: pedestrian plazas and community gardens. Four methods are utilized in this study, including case study site selection, observation, field survey, and semi-structured interviews.

The relationship between public space features and visitors' loneliness levels and social interaction is investigated through a mixed-methods approach. First, a site selection analysis is performed to identify case study sites, selecting four sites for each public space type. The analysis prioritizes sites with greater racial diversity, lower median household income, and varied residential densities to provide contextual diversity. Subsequently, field observations and place inventory are conducted for each site to document

public life and physical features. On-site field surveys are administered to understand visitors' backgrounds, loneliness levels, and most frequent meaningful interactions. Furthermore, the study conducts interviews with the managers and designers of each selected public space case study to comprehend each site's governance structure, stewardship level, and programming details to assess the effectiveness of measures fostering social connections.

1 Case Study Site Selection

Site selection analysis helps select four sites for each public space type, prioritizing those with greater racial diversity, lower median household income, and varied residential densities to provide contextual diversity.

3 Field Survey

Field survey reveals the relationship between public space features and visitors' loneliness levels and social interaction. It includes three parts: participant background information, their loneliness level, and their most frequent [meaningful] interaction.

2 Observation and Place Inventory

Observation documents visitor behavior and engagement with the space, while place inventory creates a database of physical features that can support public life.

4 Semi-structured Interviews

Interviews with public space managers and designers delve deeply into the site's governance and its patterns of use over time.

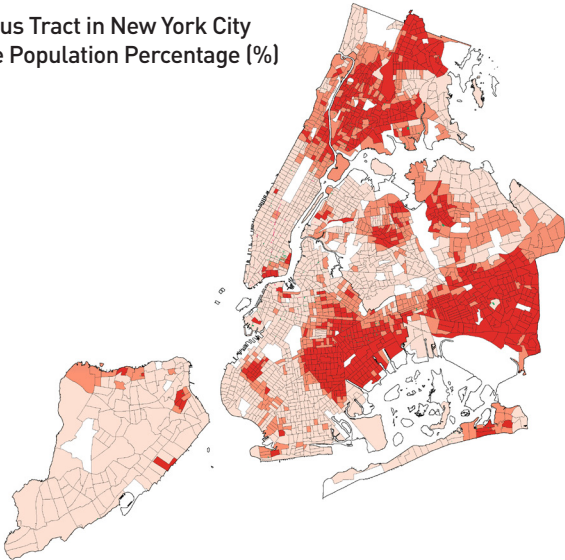
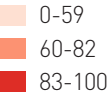
1. Case Study Site Selection

To learn from a diverse range of public spaces, this study conducts a site selection analysis to choose four sites of each public space type. This analysis is based on publicly available data on demographics, including race and median household income, land use, and residential density. The anticipated variation in visitor loneliness levels and social connections by site and by type are taken into consideration.

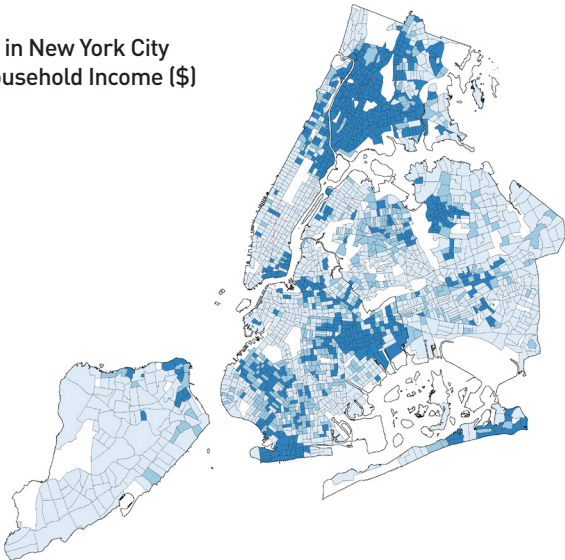
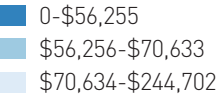
In order to accurately interpret the data collected, it is necessary to control for contextual factors. This allows the study to determine if differences in the results are primarily due to the quality and configuration of the space, rather than contextual differences. To do so, the study pairs one community garden with one pedestrian plaza within a ten-minute walking distance of each other. The selection of pairs of public spaces in proximity to one another helps reduce the influence of other factors outside the scope of this study and holds the “context” factor relatively constant for the two types of public spaces.

The study employs the City’s MapPLUTO and the American Community Survey (ACS) 2017–2021 5-year estimated demographic dataset to allocate attributes, including racial diversity, median household income, and residential density, to each pair. Building upon extant literature, the investigation selects four pairs of public spaces and prioritizes those with relatively greater racial diversity, lower median household income, and varied residential densities to offer contextual diversity. A summary of the chosen case study sites is presented in the table at right. All chosen case study sites are situated in Neighborhood Tabulation Areas with median household income levels below the city average and a higher percentage of the non-white population than the city average.

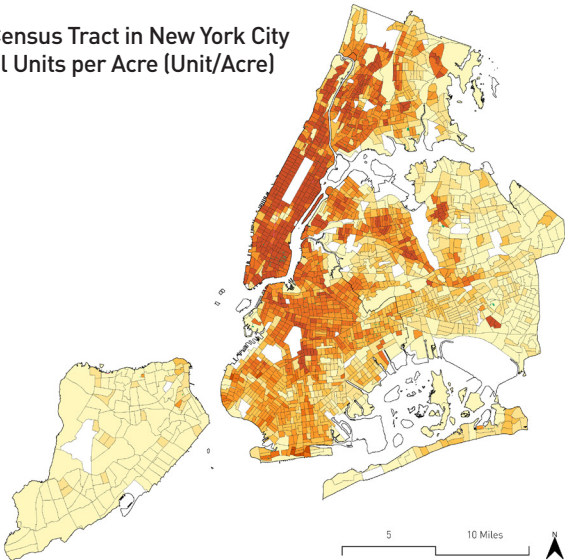
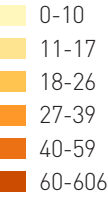
Racial Diversity by Census Tract in New York City
Measured by Non-White Population Percentage (%)



Income by Census Tract in New York City
Measured by Median Household Income (\$)



Residential Density by Census Tract in New York City
Measured by Residential Units per Acre (Unit/Acre)



DATA SOURCES:
U.S. CENSUS BUREAU, ACS 2017-2021 5-YEAR ESTIMATES SUBJECT TABLES, TABLE S1901 INCOME IN THE PAST 12 MONTHS).
U.S. CENSUS BUREAU, ACS 2017-2021 5-YEAR ESTIMATES SUBJECT TABLES, TABLE B02001 RACE.

Selected Case Study Sites at a Glance

Neighborhood	Case Study Sites	Public Space Type
Brownsville, BK	Osborn Street Plaza	Pedestrian Plaza
	Amboy Street Community Garden	Community Garden
Jackson Heights–North Corona, QN	34th Avenue Open Streets Plaza	Pedestrian Plaza
	97th Street Block Association Garden	Community Garden
Lower East Side–Chinatown, MN	Forsyth Plaza	Pedestrian Plaza
	Children’s Magical Garden	Community Garden
Manhattanville–Hamilton Heights, MN	Montefiore Square	Pedestrian Plaza
	Frank White Memorial Garden	Community Garden

Brownsville, BK



Brownsville has the largest concentration of public housing in the nation.

Brownsville is a close-knit and diverse community in eastern Brooklyn, with a residential density of around 33 units per acre. Home to the largest concentration of public housing in the US, the neighborhood has a majority of 76% Black and 20% Latino residents, and the lowest median household income in NYC (NYC DOH 2018). Despite facing challenges such as high poverty and crime rates, the community remains active and engaged, with ongoing efforts to revitalize the neighborhood through infrastructure improvements and community programs. However, the quality and accessibility of public spaces remain a concern. Brownsville has a strong network of community organizations, such as the Brownsville Partnership and Brownsville Community Justice Center, which provide resources and support to residents, including job training, education programs, health clinics, and youth development initiatives.

Demographic Characteristics

- M** High Racial Diversity
92% Non-White Population
/ Citywide: 62%
- \$** Low Median Household Income
\$29,738
/ Citywide: \$70,633
- Medium Residential Density
33 Units/Acre
/ Citywide: 36 Units/Acre

Neighborhood Highlights

- 1 High Concentration of Public Housing
- 2 High Poverty Rate
- 3 Engaged Community



Neighborhood Land Use Map with Case Study Sites Highlighted

- Single Family Residential
- Multi-Family Residential
- Mixed-Use
- Commercial and Office
- Industrial and Manufacturing
- Transportation and Utility
- Public Facilities and Institutions
- Open Space and Outdoor Recreation
- Parking Facilities

Osborn Street Plaza

From a dead-end street to a vibrant public space, Osborn Street Plaza is a community gathering place for the intergenerational population that navigates the area. The plaza's reimagination was led by local youth from the Justice Center. Located at the back entrance of the NYCHA Langston Hughes Apartments and the Belmont Avenue commercial corridor, the plaza now features a state-of-the-art asphalt mural, planting, solar-powered benches, and free Wi-Fi access, inviting everyday activity and community-based programming.

- PARTNER ORGANIZATION** / Brownsville Community Justice Center
- TYPE** / Pedestrian Plaza
- SIZE** / 3,800 SF
- YEAR OPENED** / 2015
- CHARACTERISTICS** / NYCHA adjacent, Participatory art design



Amboy Street Community Garden

From a former dumping ground to an active oasis in the heart of Brownsville, the Amboy Street Community Garden is a vibrant green space with vegetable and flower beds, lawns, benches, picnic tables, a pergola, a gazebo, and a play area. The garden targets residents in the immediate vicinity, providing a space for sustainable practices such as healthy food growth, physical exercise, communal meditation, and artistic experiences. The garden fosters a sense of community and is a valuable asset to the neighborhood.

- TYPE** / Community Garden
- SIZE** / 5,295 SF
- YEAR OPENED** / 1975
- CHARACTERISTICS** / Large in size, Shelter adjacent, GreenThumb Going the Extra Mile Award



PHOTO SOURCES: GREEN THUMB (BEFORE); INSTAGRAM GAMBOT COMMUNITY GARDEN (AFTER)

Jackson Heights –North Corona, QN



Jackson Heights is one of the most diverse neighborhoods in New York City and the nation.

Jackson Heights-North Corona pride themselves on their diverse population, unique cultural offerings, and community engagement. The demographic composition of the neighborhood is a reflection of its diverse immigrant communities, with 50% Hispanic or Latino, 32% Asian, 15% White, and 1% African American (NYC SBS 2022). The community’s immigrant cultures are showcased in the vibrant restaurants and shops that make up the bustling commercial district. The area’s income diversity is also noteworthy, as it includes a mix of working-class and middle-class residents. Despite the cultural and linguistic differences among the community’s residents, Jackson Heights-North Corona are neighborhoods where community interaction and solidarity thrive, and the public spaces, such as Diversity Plaza and Corona Plaza, serve as hubs for community gatherings and cultural events

Demographic Characteristics

- M** High Racial Diversity
69% Non-White Population
/ Citywide: 62%
- \$** Low Median Household Income
\$62,483
/ Citywide: \$70,633
- Medium Residential Density
37 Units/Acre
/ Citywide: 36 Units/Acre

Neighborhood Highlights

- 1 High Racial Diversity
- 2 Income Class Mix
- 3 High Level of Social Cohesion



Neighborhood Land Use Map with Case Study Sites Highlighted

- Single Family Residential
- Multi-Family Residential
- Mixed-Use
- Commercial and Office
- Industrial and Manufacturing
- Transportation and Utility
- Public Facilities and Institutions
- Open Space and Outdoor Recreation
- Parking Facilities

34th Ave Open Street Plaza

The 34th Ave Open Street Plaza, a one-block section between 93rd and 94th streets of the 1.3 miles-long open street, is a gold standard for open street plazas prioritizing people over cars. Located in front of Title 1 Public School 149, this plaza block provides a space for spontaneous activities such as soccer games, hula competitions, and yoga classes, and the median serves as an exhibition platform for children’s artwork.

- PARTNER ORGANIZATION** / 34th Ave Open Streets Coalition
- TYPE** / Pedestrian Plaza
- SIZE** / 14,000 SF
- YEAR OPENED** / 2020
- CHARACTERISTICS** / Title 1 school adjacent, Open street plaza block



PHOTO SOURCES: GOOGLE STREET VIEW (BEFORE); STREET LAB (AFTER)

97th Street Block Association Garden

The 97th Street Block Association Garden, located in North Corona, is a community-run garden that serves local Hispanic residents of all ages. The garden provides a peaceful space for residents to gather and engage in gardening activities, with seniors often sitting and others working on the garden. During the COVID-19 pandemic, the garden played an important role as a healing sanctuary for the community, offering a much-needed escape and respite during a difficult time.

- TYPE** / Community Garden
- SIZE** / 2,526 SF
- YEAR OPENED** / 1979
- CHARACTERISTICS** / Long history, Small in size, Intergenerational interaction



PHOTO SOURCES: GOOGLE STREET VIEW (BEFORE); FACEBOOK BLOCK ASSOCIATION GARDEN (AFTER)

Lower East Side -Chinatown, MN



Cultural activity and unique small businesses draws locals and tourists alike in Lower East Side-Chinatown neighborhood.

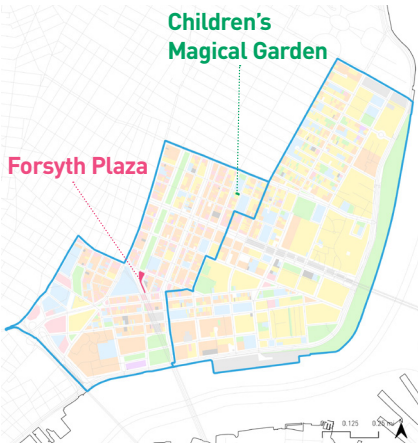
Lower East Side-Chinatown is a quintessential part of New York’s cultural fabric. Its history, culture, and intergenerational connections contribute to a strong, deep, and layered sense of community, making it the cultural home and place of belonging for Chinese Americans and the greater Asian diaspora. The neighborhood’s unique streetscape, historic tenement buildings, and merchants’ creative use of limited space create a densely packed commercial environment, perpetuating the tradition of entrepreneurship and the development of new small businesses. Businesses in the neighborhood offer a full range of affordable food, goods, and services attracting local and visitors alike. Despite the challenges of gentrification, local residents and advocates are invested in the neighborhood’s future, ensuring that continues to thrive and grow.

Demographic Characteristics

- M** High Racial Diversity
63% Non-White Population
/ Citywide: 62%
- \$** Low Median Household Income
\$49,049
/ Citywide: \$70,633
- High Residential Density
69 Units/Acre
/ Citywide: 36 Units/Acre

Neighborhood Highlights

- 1 Ethnic Enclave
- 2 Immigrant
- 3 Rapid Gentrification



Neighborhood Land Use Map with Case Study Sites Highlighted

- Single Family Residential
- Multi-Family Residential
- Mixed-Use
- Commercial and Office
- Industrial and Manufacturing
- Transportation and Utility
- Public Facilities and Institutions
- Open Space and Outdoor Recreation
- Parking Facilities

Forsyth Plaza

Forsyth Plaza is a two-level public space located next to the entrance to the Manhattan Bridge, connecting two main commercial corridors of Chinatown in the City. The plaza underwent a \$3.6 million renovation in 2018 and features an upper-level public space with trees, seating, and lighting, while the lower level hosts a bustling daytime produce market, serving the locals. Partner organizations occasionally bring a seasonal night market to the plaza, enlivening the space and supporting Asian American small businesses.

- PARTNER ORGANIZATION** / Renaissance EDC, Asian Americans for Equality
- TYPE** / Pedestrian Plaza
- SIZE** / 30,000 SF
- YEAR OPENED** / Reopened 2018
- CHARACTERISTICS** / Local culture-oriented, Small businesses



PHOTO SOURCES: NYC DDC (BEFORE), TWITTER NYC DDC (AFTER)

Children's Magical Garden

The Children’s Magical Garden is a community garden on Manhattan’s Lower East Side. For over 30 years, the garden has been providing food, education, and a sanctuary. Despite a long legal battle with land developers since 2014, the garden is a safe space for children and regularly hosts events such as jazz festivals, gardening workshops, book readings, and Halloween events during garden season. It provides space for peace and creativity to the locals and is a cherished space for the community.

- TYPE** / Community Garden
- SIZE** / 3,000 SF
- YEAR OPENED** / Reopened 2013
- CHARACTERISTICS** / Children-focused programming



PHOTO SOURCES: NEW YORK POST (BEFORE), FACEBOOK CHILDREN'S MAGICAL GARDEN (AFTER)

Manhattanville –Hamilton Heights, MN



Manhattanville-Hamilton Heights offers a unique blend of history, culture, and diversity.

Nestled in the northern part of Manhattan, Manhattanville-Hamilton Heights is a neighborhood that offers a unique blend of history, diversity, and modernity. Its diverse population, consisting of Hispanic and Black residents, adds to its rich cultural heritage that is internationally known. However, the area has faced challenges in recent years with gentrification causing a clash between old and new. Despite this, the neighborhood maintains a strong sense of community, with many long-term residents, university students, and a diverse mix of age groups. The neighborhood benefits from excellent access to train services, which connect residents to other parts of the city, while its hilly topography and large green spaces, including Riverside Park and St. Nicholas Park, provide high-quality amenities and a wide array of things to see.

Demographic Characteristics

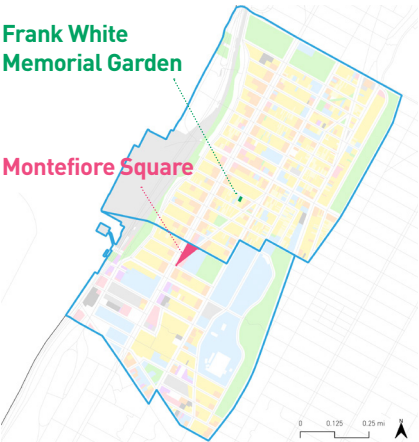
M High Racial Diversity
78% Non-White Population
/ Citywide: 62%

\$ Low Median Household Income
\$48,004
/ Citywide: \$70,633

■ High Residential Density
50 Units/Acre
/ Citywide: 36 Units/Acre

Neighborhood Highlights

- 1 Rich Cultural Heritage
- 2 Convenient Access to Transit
- 3 Rapid Gentrification



Neighborhood Land Use Map
with Case Study Sites Highlighted

- Single Family Residential
- Multi-Family Residential
- Mixed-Use
- Commercial and Office
- Industrial and Manufacturing
- Transportation and Utility
- Public Facilities and Institutions
- Open Space and Outdoor Recreation
- Parking Facilities

Montefiore Square

Montefiore Square, a plaza with an open lawn, garden, and paved plaza, underwent a \$15.5 million capital project and was renovated by NYC Parks in 2021. The Montefiore Park Neighborhood Association helps maintain the park and played a crucial role in advocating for the redesign, coordinating gardening, community involvement, and event organization. The park's updated pathways ease pedestrian flow between nearby bus and train stations, Broadway's commercial corridor, and City College students.

PARTNER ORGANIZATION / New York City Department of Parks and Recreation
TYPE / Pedestrian Plaza
SIZE / 62,120 SF
YEAR OPENED / Reopened 2021
CHARACTERISTICS / Capital project, Sloped



PHOTO SOURCES: NYC PARKS (BEFORE), HARLEN+BESPOKE (AFTER)

Frank White Memorial Garden

The Frank White Memorial Garden, next to the Brotherhood-Sister Sol headquarters, is an Environmental Learning Center with a functional urban farm, a greenhouse, a group challenge course, and recreational areas. The garden promotes sustainable agriculture and raises awareness around food empowerment and community organizing. Co-designed by youth members and community residents, the garden offers various environmental programs and initiatives to engage and educate the community in sustainable practices.

TYPE / Community Garden
SIZE / 3,741 SF
YEAR OPENED / 1970s
CHARACTERISTICS / Youth-focused environmental educational programming



PHOTO SOURCES: GOOGLE STREET VIEW (BEFORE), BROTHERHOOD-SISTER SOL (AFTER)

2. Data Collection – Observation of Public Life and Documenting Features of Public Space

Observing Public Life

To explicate the relationship between loneliness, social connection, and the quality and configuration of public spaces, it is necessary to conduct an empirical examination of public life. To this end, this study utilizes Public Life App, a digital field-survey tool developed by Gehl Studio, to anonymously collect observational data on individuals within the case study site boundary, documenting the perceived age, gender, posture, and activity of people spending time in the designated survey areas. This tool measures various dimensions of public life, including people moving, people staying, body posture and engagement with the public space, staying activities, and demographic characteristics including age and gender.

The survey is conducted from morning until evening, at 9am, 12pm, 3pm, and 6pm, over one weekday and one weekend per public place to get a sense of the daily rhythms.

Documenting Public Space Features

An inventory of street furnishings at each case study site is created through field observation. The inventory includes public seating, secondary seating, cafe seating, tables, lighting, trees, plantings, public art, water features, shelters, stage structures, bathrooms, and fences or walls. The inventory captures the location, capacity, and quality of these physical features.

Due to limited information on small-scale site features, the physical features of public spaces are documented through meticulous field observation and photo documentation. This tool provides a basis for qualitative analysis of public space quality and its association with visitors’ loneliness and social connection levels.

Limitation

Observation and place inventory for all eight sites are constraint by the study timeline. These methods were conducted solely during the winter season of January to March 2023. The average temperature during field days was 38 degrees Fahrenheit, which limits the scope of the observational analysis to those particular times of year. It is important to note that the observational data used in this report does not provide a complete picture of public life activity and features of public space at each site, but an initial understanding of how people use the site.

Observation and Place Inventory Results

Public life data and inventory of public space features are documented through field observations on eight sites and at 16 designated observation count locations. The observations were carried out over four weekdays and four weekend days during the period spanning January to March 2023.

The resulting observational data provides the foundation for creating a miniature database of the selected sites, which serves as the foundation for the study’s spatial analysis aimed at exploring the relationship between social interaction and the configuration of public spaces.

3. Data Collection – Field Survey

To understand the correlation between existing features of public spaces and visitors’ loneliness levels, frequency of social interaction, and the meaningfulness of those interactions, a field survey is designed for public space visitors. The survey consists of three parts: participants’ background information, loneliness level, and social connection. A total of 185 valid responses were collected (the survey questions can be found on pages 30-31).

Participants Background

Collecting background information about participants helps to contextualize the results of the study. Therefore, short introduction questions are used to gather information about their demographic characteristics (e.g., age and gender), personality, occupation, relationship to the space, and frequency of visits to the space. This information helps understand participants’ backgrounds and how these factors may influence their experiences and opinions and are used later to examine any potential patterns in response to these characteristics.

Participants Loneliness Level

After reviewing different loneliness measurement instruments, this study adopts the three-item UCLA loneliness scale. Compared to the original twenty-item scale, this version is a short yet rigorous tool with a simple scoring system that is appropriate for the scope of this survey. This scale comprises three questions that measure three dimensions of loneliness: relational connectedness, social connectedness and self-perceived isolation. This scale helps measure public space visitors’ general loneliness level and serves as an indicator for their mental well-being. The scale uses three response categories and are coded in scores from one to three. The scores for each individual question are then added

UCLA Three-Item Loneliness Scale

Measure Items	Scoring			
	Hardly ever / never	Some of the time	Often	Total
1. How often do you feel that you lack companionship?	1	2	3	9 - Highest: Most frequent to feel lonely
2. How often do you feel left out?				3 - Lowest: Least frequent to feel lonely
3. How often do you feel isolated from others?				

together to give a possible range of scores from three to nine. This study follows previous research and group people who score three to five as “not lonely” and people with the score six to nine as “lonely” (Steptoe et al. 2013). The questions and scoring mechanism are specified in the table above.

Participants Social Connection

As previously mentioned, the impact of meaningful social interaction on loneliness is significant. Therefore, measuring the level of social interaction taking place in the public spaces is important to this study. To do so, this study focuses on the meaningfulness of visitors’ most frequent social interactions in those spaces. This study adapts and inquires about the factors highlighted in the meaningfulness of social connection section of the literature review.

To capture a wide variety of social interactions with varying levels of meaningfulness, two-thirds of the participants are asked to describe their most frequent social interaction in the public space, while the remaining one-third are asked to describe their most frequent meaningful social interaction in the space. The questions are

identical except for the use of the word “meaningful” in the second group’s question. The question reads, “tell me about your most frequent [meaningful] social interaction in this public space. Describe your most frequent social interaction. Please share as many details as you feel comfortable.” Based on the extant conceptual frameworks around measuring meaningfulness, the survey does not define the term “meaningfulness,” allowing participants to interpret it themselves.

Once they have described their social interaction open-endedly, participants are prompted to rate its meaningfulness and value on a scale from one to five, with one being “meaningless” and five being “meaningful”. They are then asked to explain, in their own words, why they thought the interaction was or was not meaningful. Finally, they are asked a series of close-ended questions about the attributes of the interaction, including where in the public space it takes place, what elements of the space they notice that enhance the interaction, whom is involved,

what activities take place during the interaction, whether it is planned, and whether it is memorialized.

Limitation

The field survey method is not without limitations, including a restricted sample size as a result of time and resource constraints. While this study aimed to capture a more diverse sample by visiting all eight sites twice and collected a total of 185 responses, the results obtained from one weekday and one weekend day cannot be considered representative of the entire population of public space visitors across all sites.

In addition, the absence of longitudinal data is another limitation of field surveys, as illustrated in this study, whereby participants’ loneliness levels were measured only once without any subsequent follow-up measures to track changes over time. Consequently, the scope to draw conclusions about the long-term effects of social interaction at specific public spaces on loneliness levels is limited.

Moreover, the accuracy of data collected through field surveys is contingent on respondents’ willingness and ability to provide truthful and accurate answers. Respondents may experience difficulty recalling certain details about loneliness level or their most frequent [meaningful] social interaction, or alternatively, may deliberately underreport specific types of interactions, thereby potentially introducing bias to the results. Therefore, it is crucial to exercise caution when interpreting the findings of field surveys.

Field Survey

Date:

Time:

Location:

Weather:

Zip code of home address

How often do you feel that you lack companionship?

Tell me about your most frequent [meaningful] social interaction in this public space. Describe your most frequent social interaction. Please share as many details as you feel comfortable.

Gender

Age

Self-identified personality

What is your relationship to this space? Select all that apply.

How often do you come to this space?

How often do you feel left out?

How often do you feel isolated from others?

Do your visits to this space typically make you feel more socially connected and less lonely?

If no, skip the next question. If yes, was it positive or negative?

How often do you have interactions with others when you're in this public space?

Notes:

On average, how often does this social interaction take place?

Did you feel lonely during this social interaction?

Rate the social interaction you just shared

Please provide reasoning for your rating:

Notes:

What design elements of the public space enhanced these [meaningful] interactions?

Who do you think owns this place?

Who do you think manages this place?

Where in the public space did these interactions happen in this public space? Please pinpoint on the map provided below.

How does this public space compare to the other primary ones in the vicinity in terms of promoting meaningful interaction?

What was part of the social interaction? Select all that apply.

What did you do during the social interaction? Select all that apply.

Was this social interaction planned?

Did you capture your social interaction by taking photos or videos or other means of capture?



Findings and Analysis

Background Literature Review 34

Overview of Findings

Learning from diverse public spaces in New York City helped answer how the governance and design of plazas and community gardens shape visitors' social connection and loneliness levels. Seven key findings are outlined below.

1

Governance

Distinct governance structures help explain the discrepancy in loneliness levels observed between plazas and gardens.

More starting on page 36

4

Openness

The intended function and the extent of public accessibility affect the quality of interactions within a public space.

More starting on page 42

2

Programming

Regular programming contributes to the formation of place identity and positively impacts both regular visitors and passersby.

More starting on page 38

5

Physical Features

Quality seating, art, and greenery invite people to stay and support visitors' meaningful interactions in public spaces.

More starting on page 44

3

Stewardship

The act of stewardship and caring for public space plays a critical role in fostering connections among local visitors.

More starting on page 40

6

Locality

Attention to local demographics and character helps cultivate a strong sense of community.

More starting on page 47

7

Seasonality

Activation in the cold remains an opportunity for social connection.

More starting on page 48

Findings and Discussion

Pedestrian plazas and community gardens that promoted regular programming, stewardship, publicness, staying opportunities, and local characteristics invited meaningful social connections and were positively associated with lower levels of loneliness among visitors.

Governance

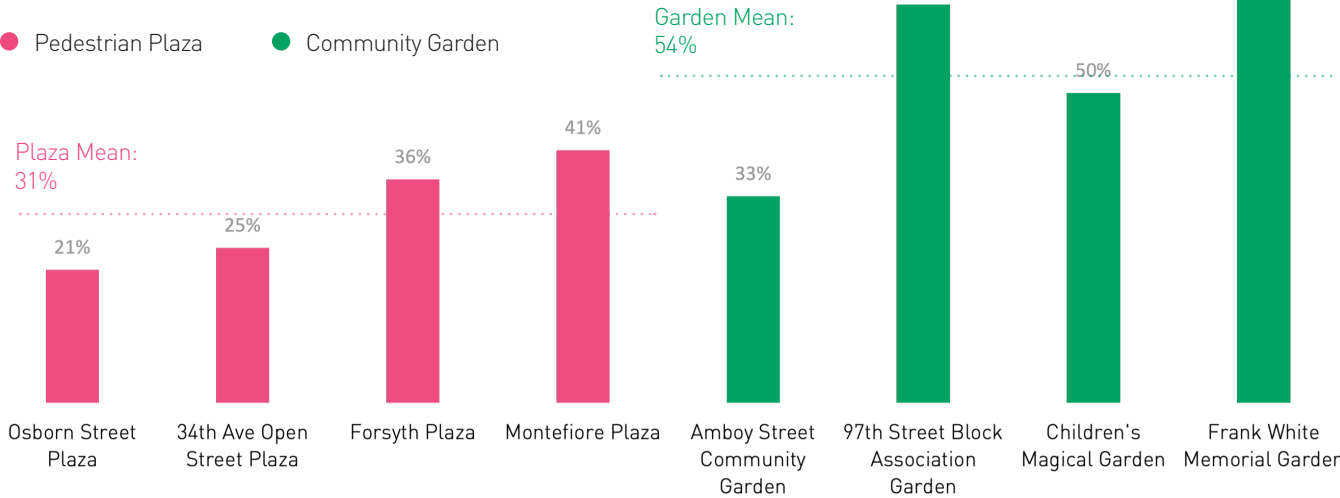
Distinct governance structures help explain the discrepancy in loneliness levels observed between plazas and gardens.

While plazas capture a wider audience and have a lower average share of visitors experiencing loneliness, gardens’ community-led governance structure serves as a platform for individuals experiencing loneliness to interact and form connections with others.

The findings from the field survey reveal that, on average, a higher proportion of community garden visitors experience loneliness compared to those visiting pedestrian plazas. As shown in the graph below, of those surveyed, 54 percent of garden visitors reported feelings of loneliness, while only 31 percent of plaza visitors reported similar sentiments. The disparity in loneliness levels between garden and plaza visitors can at least in part be attributed to the different governance structures associated with these two types of public spaces.

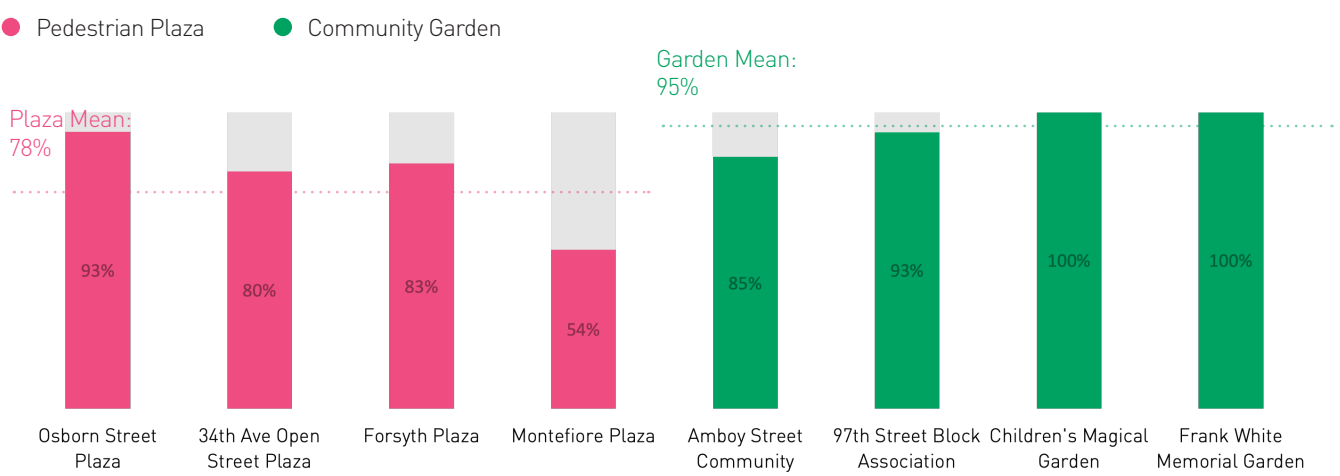
Plazas in New York City are facilitated by the Plaza Program, administered by the Department of Transportation (DOT). The DOT collaborates with selected organizations to establish neighborhood plazas throughout the urban area, converting underutilized streets into communal public spaces. The primary goal of the Plaza Program is to guarantee that all residents have access to quality open spaces within a 10-minute walking distance. Following the allocation of funds by the NYC DOT for plaza design and construction, the partnering organization assumes responsibility for maintenance and programming. As a result, individual visitors are

Percentage of Lonely Visitors by Site and Public Space Type



#%: Percent of visitors scored 3-5 on the three-item UCLA loneliness scale

Frequency of Social Interactions per Visit by Site and Public Space Type



#%: Percent of visitors answered "once per visit" or "more than once per visit" to field survey question: "How often do you have interactions with others when you're in this public space?"

not expected to manage or exhibit stewardship toward the space, nor are they encouraged to develop a sense of commitment or ownership. The chart at right demonstrates that plazas exhibit lower levels of social interaction compared to community gardens. On average, 95 percent of garden visitors report engaging in social interactions at least once per visit, whereas a mere 78 percent of plaza visitors report similar experiences. The management framework of plazas does not intentionally foster a sense of community belonging on a daily basis. Consequently, plaza visitors may not deliberately frequent the space for the purpose of establishing social connections as gardeners do in community gardens.

Contrastingly, the organizational framework of community gardens inherently fosters stewardship and acts as a platform for meaningful interactions. Urban community gardens are supported by the Greenthumb gardening initiative, which falls under the purview of the Department of Parks and Recreation. Although GreenThumb provides gardening tools and financial resources for these green spaces, the foundation of their vitality lies in volunteer gardeners who manage

and establish guidelines for day-to-day operations and governance. GreenThumb mandates the creation of mutually agreed-upon by-laws for each community garden, addressing garden responsibilities, membership protocols, leadership changes, financial management, dispute resolution, and event planning.

This group structure renders the utilization of community gardens more intentional and purposeful. Gardener groups comprise local residents who voluntarily collaborate during

their leisure time. Such governance frameworks promote a mutual sense of belonging, essential for combating social isolation and disconnection, as identified in previous literature [Murphy 2020]. The physical communal space provided by community gardens encourages a sense of unity among gardeners. Moreover, therapeutic community gardening has been shown to improve mental well-being for individuals with mental illness, prompting countries like Singapore to recognize the benefits of gardening and implement allotment garden schemes



Each community garden group collectively develops their own by-laws to govern the space.

to foster closer social bonds (Wood et al., 2022; Beh, 2019). The grassroots-level organizational structure of community gardens attracts individuals experiencing loneliness but seeking gardens for social needs.

It is worth noting that, within the Brownsville neighborhood, both Osborn Street Plaza and Amboy Street Community Garden exhibit the lowest levels of loneliness compared to other sites and case study neighborhoods. This observation may be attributed to the strategic location of these public spaces, which are situated adjacent to established community hubs in Brownsville.

Osborn Street Plaza, situated adjacent to the NYCHA Langston Hughes Apartments and the Belmont Avenue commercial corridor, constitutes a mixed-use area offering diverse opportunities for residents to interact while attending to daily activities such as grocery shopping, school, religious gatherings, or commuting. Consequently, the plaza serves as a convenient and amenable common space that facilitates long-term relationships, which may correlate with the lower levels of loneliness observed among visitors. Similarly, Amboy Street Community Garden sits in a medium-density residential zone characterized by a close-knit community. Most garden members have resided in the vicinity for an extended period, as noted by Tammy Hall, the garden manager. The recent collaborative endeavor to transform a derelict site into a thriving green space has instilled a sense of purpose and pride within the neighborhood, fostering increased care and attention towards the garden. The ongoing interactions, shared responsibilities, and mutual benefits among neighbors have likely contributed to the reduced levels of loneliness in comparison to other gardens.

Programming

Regular programming contributes to the formation of place identity and positively impacts both regular visitors and passersby.

Across the eight sites, public spaces offering consistent programming are found to have facilitated meaningful interaction opportunities, foster a sense of place, and mitigate feelings of loneliness for both regular and incidental visitors, according to interviews with public space managers and field surveys of visitors. Irrespective of the public space category, lower levels of loneliness among visitors are observed at public spaces fostering programming on a regular basis, including 34th Avenue Open Street Plaza, Children’s Magical Garden, Forsyth Plaza, Amboy Street Community Garden, and Osborn Street Plaza. Programmed events at these locations were frequently cited as integral to participants’ most meaningful interactions.

Conversely, public spaces with infrequent programming due to budgetary or human resource limitations, such as Montefiore Plaza and 97th Street Block Association Garden, exhibited a higher percentage of lonely visitors (41% and 64%, respectively) and less frequent social interactions per visit (54% and 93%, respectively). There is one exception of the Frank White Memorial Garden, which also reported elevated levels of loneliness based on field survey data. This discrepancy may stem from the fact that Frank White Memorial Garden primarily targets youth in its programming, while this study focused exclusively on adults aged 18 and above.

Plazas were found to attract visitors through regular temporary programming. For instance, the 34th

“You see all kinds of **interactions** happening here. Like, a 75-year-old Muslim woman knows that eight-years-old, half-Chinese-and-half-Greek boy, you know, it’s **because of all these activities.**”

– Jim Burke, Co-Founder, 34th Ave Coalition

PHOTO: NEW YORK TIMES



Avenue Open Street Plaza organizes impromptu running races and hula competitions for children and youth following school dismissal. The plaza also hosts various cultural celebrations throughout the year, such as Día de los Muertos and Lunar New Year, enabling residents to honor their diverse backgrounds and foster cross-cultural understanding. Additionally, the plaza hosts arts and crafts workshops, dance classes, and tennis games on weekends, catering to residents of all ages and further encouraging community involvement.

Forsyth Plaza likewise features a daily temporary green market on the lower-level sidewalk during daytime hours, catering to local Chinatown residents in search of affordable fresh produce. A Spring 2022 study by Think!Chinatown on Forsyth Plaza revealed that a substantial portion of surveyed participants utilized the space for shopping, with 94 percent of survey respondents affirming this activity (NYC SBS 2022). Furthermore, the study disclosed that 62% of respondents frequented the plaza as a destination for socializing and engaging with friends. Periodically, the plaza hosts night markets, attracting over 8,000 attendees per event based on crowd tally counts, as reported by the Forsyth



The programming and safe space at 34th Avenue Open Street Plaza enables adults to exercise while children play with their friends at the same time.

Spontaneous running race is an afterschool tradition at 34th Avenue Open Street Plaza.



The green market located on the lower level of Forsyth Plaza serves as a daily grocery shopping destination for locals.

Each Chinatown Night Market at Forsyth Plaza draws over 8000 visitors.



Regular barbecue and potluck programs at Amboy Street Community Garden attract both gardeners and the public, often leading to new memberships.

Green Reads is hosted weekly at Children’s Magical Garden.

Plaza partner organization. These night markets deliver cultural programming and nocturnal activities, revitalizing the area while supporting Asian American small and micro businesses.

Garden visitors are observed to reap benefits from intermittent public events that foster new memberships and facilitate enduring, meaningful relationships. For example, the Amboy Street Community Garden organizes music festivals, yoga sessions, and potlucks, and partners with the Department of Probation to involve their youth in constructing garden beds. Likewise, the Children’s Magical Garden conducts a nature-centric

literacy initiative called Green Reads every Saturday throughout the summer, extending an open invitation to the public. These sporadic public events effectively engage individuals beyond existing members and stimulate discussions regarding potential membership.

“There is this **pipeline** of like just coming in from the street to now it’s five years later, and you’re a **member and a part of the garden.** This is what we strive for.”

– Lissette Perez, Children’s Magical Garden Director

PHOTO: INSTAGRAM CHILDREN’S MAGICAL GARDEN



Stewardship

The act of stewardship and caring for public space plays a critical role in connecting local visitors.

This study underscores the significance of stewardship in public spaces and its correlation with visitor loneliness levels. The examination of plazas and gardens indicates that public spaces promoting stewardship witnessed a lower percentage of lonely visitors. The Osborn Street Plaza and 34th Avenue Open Street Plaza exemplify this, wherein substantial voluntary stewardship has facilitated community connections. Both plazas have a high percentage of visitors reporting that active participation was a part of their most frequent meaningful interaction (see chart below).

At Osborn Street Plaza, many local residents are involved with the

Brownsville Community Justice Center, which intentionally facilitates justice-oriented programs such as collective mural painting, graffiti removal, and maintaining the plaza and local parks. Some survey respondents mentioned that even after moving away from the neighborhood, they still visit the organization and assist in any way they can.

Jim Burke, the co-founder of the 34th Avenue Open Streets Coalition, also stresses the value of volunteers, remarking that numerous people contribute to the plaza’s daily functioning. Over 140 local residents have joined the volunteer roster, assisting with various tasks such as barricade management, event programming, median gardening, and clean-up.

The extensive volunteer stewardship at the 34th Avenue Open Street Plaza

can be ascribed to residents’ deep-rooted pride in their neighborhood, engendering collective responsibility and dedication to maintaining the open street and plaza blocks. Volunteer initiatives helped counteract pandemic-induced isolation and loneliness, as Burke recounts. As a result, this space has transcended its recreational role, becoming a central hub for

“We all came together (after the COVID-19 pandemic) and were able to **not feel isolated** because we **had each other** and I think that made a big difference, and that was **worth working seven days a week for.**”

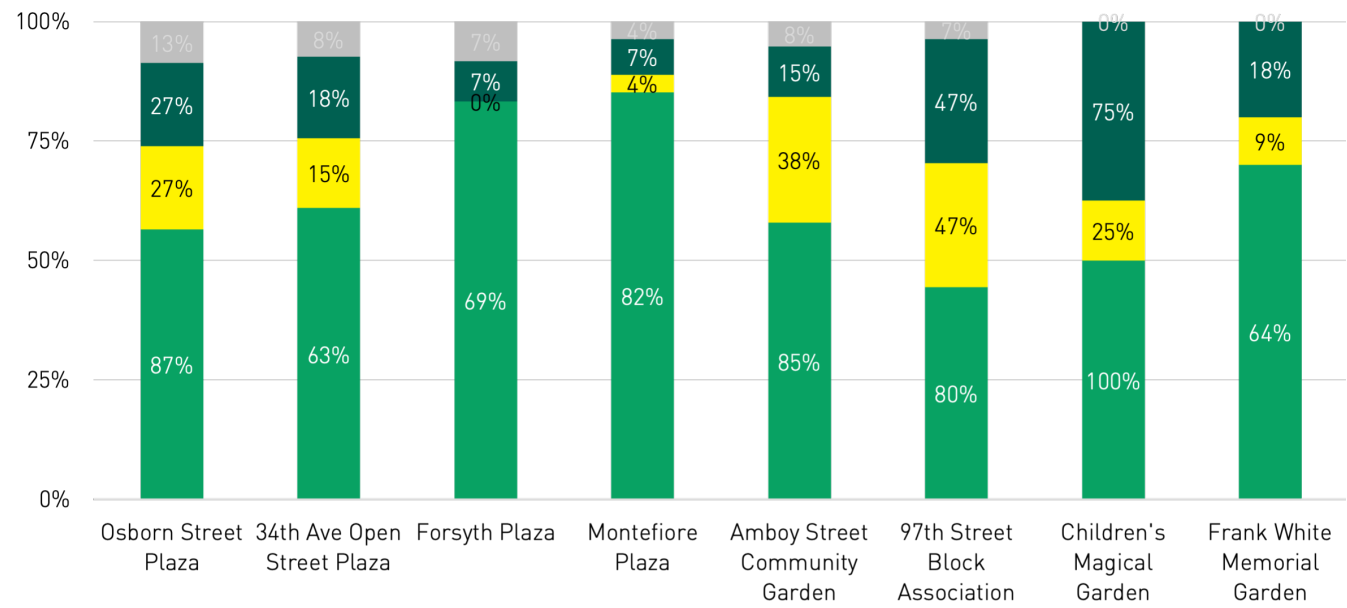
– Jim Burke, Co-Founder, 34th Ave Coalition (34th Avenue Oral History Excerpt 2021)

PHOTO: ELENA MADISON



Activity of Most [Frequent] Meaningful Social Interaction

- Conversing (“Talked/chatted/conversed”)
- Active Participation (“Volunteered/helped others together”)
- Passive Activity (“People watched/watched performance together”)
- Others



Answers to field survey question: “What did you do during the social interaction? Select all that apply.”



PHOTO: FRANK WHITE MEMORIAL GARDEN

At Frank White Memorial Garden, stewardship was intentionally fostered through educational environmental programming and the physical construction of garden furniture.

fostering social connections within the community.

Similarly, Amboy Street Community Garden and Frank White Memorial Garden both exemplify the impact of stewardship on community connections. Amboy garden group members maintain the garden space and its surroundings even during the off-growing season. Tammy Hall, the manager of Amboy Street Community Garden, notes that gardeners coordinate their efforts via group chats to ensure the garden remains clean and free of debris.

At Frank White Memorial Garden, stewardship is more than just about taking care of the land; it’s about fostering a sense of pride and community. Youth groups are involved in building all garden furniture. According to Nando Rodriguez, the

Environmental Program Coordinator, building and maintaining the garden by hand has created a sense of investment and pride among the young people involved. “If you build something by hand and it falls apart, you are inclined to make it work because it’s something that you put your pride into building,” he says. This investment and pride have translated into a desire to share the garden with others, whether it’s bringing friends and family to see what they’ve built or taking ownership of its upkeep. As Nando notes, “that pride means that it goes a long way, eventually, you know, it’s not something that’s just gonna be there for now. It’s just something that somebody’s gonna want to fix every time and put that pride into it.” Stewardship’s ability to cultivate a sense of care and investment in the garden has proven to be a powerful tool for building social connections and community at Frank White Memorial Garden—so much so that the garden has now hosted

various personal events, including two weddings, several baby showers, and cookout gathering events almost every weekend in the summer.

This study also found that plazas primarily managed by city agencies often lack community-based governance, leading to a higher percentage of visitors experiencing loneliness. Both Montefiore Plaza, managed by NYC DPR, and Forsyth Plaza, maintained by NYC DOT, have higher rates of lonely visitors possibly due to their lack of consistent stewardship opportunities. At Forsyth Plaza, the upper-level space is underutilized for most of the year, while at Montefiore Plaza, the manager recognizes the need for more public programming. This suggests that an opportunity to leverage consistent stewardship opportunities at plazas to build more social connections.

Openness

The intended function and the extent of public accessibility affect the quality of interactions within a public space.

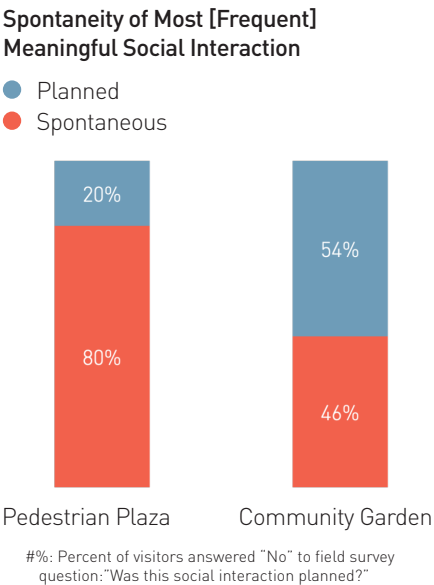
The nature and form of public spaces influences the types of interactions they foster. Plaza spaces, situated in the public right of way, open 24/7, and accessible to all, promote spontaneous, brief, and diverse interactions. On the other hand, gardens, often characterized by their “hidden gem” quality and intimate enclosed settings, typically function as gathering spots for specific groups, encouraging planned, longer-duration, and focused interactions. This is evident in the field survey as 80 percent of plaza visitors reported that their most frequent meaningful interaction occurred spontaneously, while for most garden visitors, their meaningful experience was planned ahead of time.

Both types of interactions, whether spontaneous and frequent or focused and intimate, can be meaningful and positively impact visitors’ social experiences, with an overall 93 percent of field survey respondents reporting increased social connectedness and reduced loneliness after visiting the space.

The intended function of public spaces also plays a crucial role in shaping interactions. On the one hand, mobility corridor plazas, such as Montefiore Square and 34th Avenue Open Street Plaza, prioritize facilitating safe and comfortable movement through the space, leading to short and unplanned interactions. On the other hand, gardens, such as Amboy Street Community Garden and 97th Block Association Garden function as community centers, providing areas for visitors to congregate and spend time, fostering longer-duration and expected meaningful interactions.

The field survey conducted at plazas found that many visitors reported that their most frequent interactions were spontaneous interactions with acquaintances or strangers (weak ties), such as brief chats with dog owners, nodding exchanges with acquaintances, and conversations with neighbors on walks. Around 85 percent of the plaza survey respondents found these impromptu interactions to be meaningful, regardless of whether they were planned ahead of time.

This finding is consistent with previous research on commuter interactions on Chicago’s Metra rail system. In



this study, researchers found that commuters who were encouraged to initiate conversations with fellow travellers enjoyed their commute more than those who were asked to keep to themselves (Epley and Schroeder 2011). The data indicates that initiating social connections can lead to a sense of happiness and fulfillment.

The prevalence of spontaneous interactions in plazas observed in this study aligns with Epley and Schroeder’s research (2011), suggesting that public spaces that are accessible to everyone create opportunities for casual social connections with individuals who have weak ties, such as strangers and acquaintances. Despite the brief and unstructured nature of these interactions, regular friendly exchange, as simple as a quick greeting or yielding to a family passing by, can hold significance to individuals and cultivate a sense of connection.

Conversely, in spaces that often requires a planned visit, such as community gardens, long-term and

organized interactions are more frequent. Over half of the garden survey respondents reported that their most frequent meaningful interactions were pre-planned with community members (community ties), either due to a regular schedule or planned events. These interactions are characterized by a shared willingness to help and do things together, which aligns with the deliberate goal of community gardens: creating a communal space for growing and connection.

All garden managers interviewed demonstrated a deep commitment to the community, particularly in supporting marginalized individuals. At Frank White Memorial Garden, meaningful connections are created through educational programming for and with BIPOC youth. Children’s Magical Garden welcomes individuals who experience financial difficulties and were formerly homeless, sometimes hiring them as maintenance staff. At Amboy Street Community Garden, gardeners collaborate with the YouthWRAP

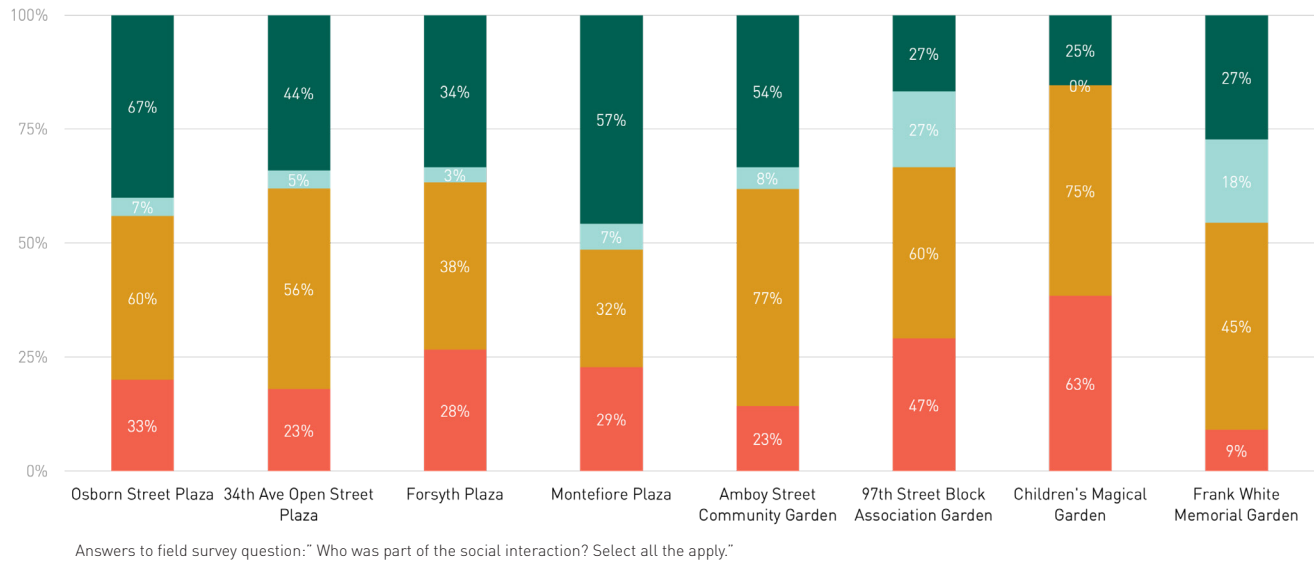
program at the Department of Probation to provide gardening work for young adults. 97th Street Block Association Garden, located in North Corona, a neighborhood characterized as the “epicenter” of the COVID-19 pandemic, provided space for healing and for immigrants with limited English proficiency (Barry and Correal 2020). One survey respondent recounts how the garden was a critical connection space for her and other gardeners during the pandemic when they all felt alone, and the whole city was shut down.

Through collectively organized events often targeted at helping marginalized community members, the interactions at gardens are intimate, heartfelt, and rooted in a sense of purpose. Through these experiences, garden members form a strong alliance and deep meaningful connections over time. These interactions are grounded in the mission of building a center for connection and providing concrete benefits to individuals who experience chronic loneliness and are in need of social support.

Interaction Partner

Most [Frequent] Meaningful Social Interaction

- Strong Ties (“Spouse/girlfriend/boyfriend/partner,” “Family,” “Close friend,” or “Friend ”)
- Community Ties (“Community member/group member,” or “Neighbor ”)
- Work Ties (“Someone from work or school”)
- Weak Ties (“Someone I don’t know,” “Acquaintance,” “Celebrity/public figure/creator,” “Professional [server, driver, etc.]”)



“One gardener came to me and told me that ‘Carmen, you don’t know what this garden means for me. It saved me.’ Most of us are immigrants ... during that time (the COVID-19 pandemic), we are losing loved ones. We didn’t know if there was tomorrow, but this space is a sanctuary. It saved us.”

– Carmen Villas, 97th Street Block Association Garden Manager

PHOTO: FACEBOOK 97TH STREET BLOCK ASSOCIATION GARDEN



It is worth noting that community gardens, while welcoming to the public, have limited hours due to volunteer capacity, which can deter inclusivity. Every garden visited in this study has chain-link fencing and locked gates, and the gates are only open when a garden member is present, making it unclear when the gardens are accessible to the general public, particularly during off-season.

This observation presents an opportunity to enhance the edge condition of these gardens and provide prominent entrance signage that creates a more hospitable environment for everyone. By improving the visibility of how and when individuals can access or join the garden, as well as the visual appeal of the garden edges, community gardens can better achieve their objective of connecting people and promoting health benefits for the community as a whole.



PHOTO: FACEBOOK 97TH STREET BLOCK ASSOCIATION GARDEN

While a community garden has numerous advantages to foster more meaningful social connection, the fenced-off and often enclosed design may deter inclusivity.

Physical Features

Quality seating, art, and greenery invite people to stay and support visitors’ meaningful interactions in public spaces.

This study investigates how physical features impact visitors’ most frequent and meaningful interactions in plazas and gardens. The 185 field survey responses reveal that public seating is the top enhancer of visitors’ interactions, with 53 percent of the visitors surveyed referencing this element. Public art, trees and plantings also play a role, with over one third of visitors acknowledging their contribution to their meaningful interactions. The use of bright-colored art appears to be a theme that is popular in both gardens and plazas, as it adds vibrancy and aesthetic value to the space.

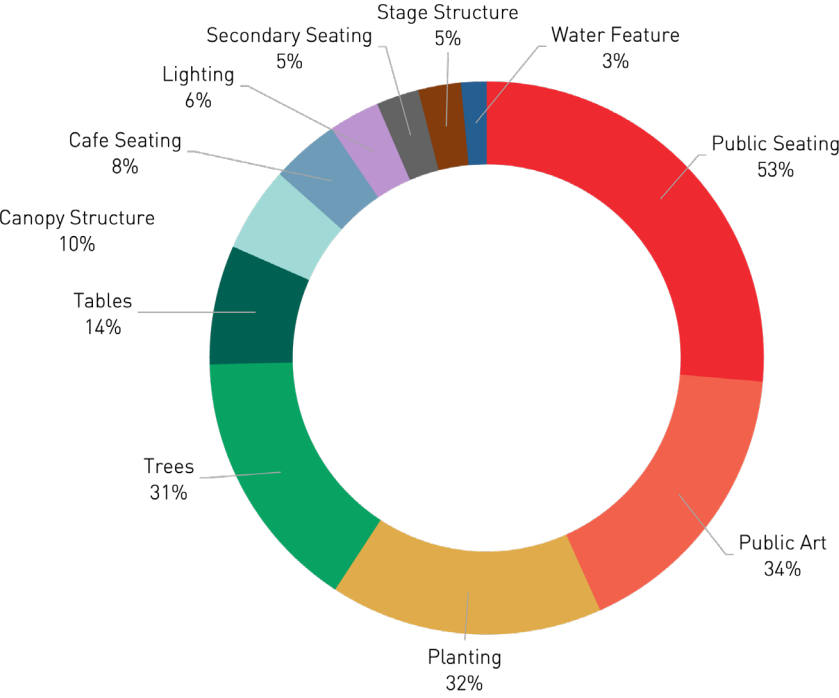
In addition, participatory public art design is found to be a “plus,” but not a “must” to enhance visitors’ interaction experience. For instance, programming activities in the past have invited community volunteers to touch up the asphalt murals in Osborn Street Plaza, while the 50-foot-long mural at Montefiore Square was collectively painted by 29 local residents. Similarly, artworks produced by students at adjacent schools are regularly displayed at the median of 34th Avenue Open Street Plaza. While participatory design adds another layer of meaning to the place identity and elevates interaction experience, visitors surveyed may not necessarily be aware of this fact. Nonetheless, they appreciate the long-lasting result regardless, as murals painted solely by local artists at Amboy Street Community Garden and Children’s Magical Garden are also highly regarded.

For plazas, the study identifies areas designed to provide seating options and tables as hotspots for interaction.

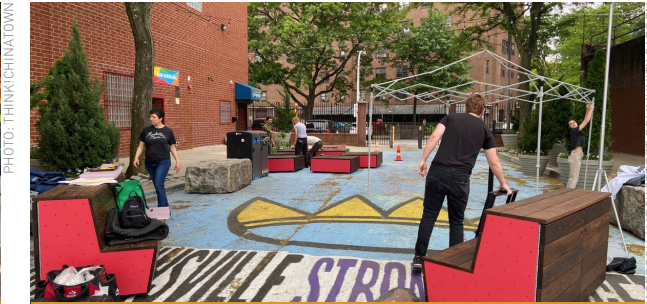
The survey highlights that quality seating areas, including fixed benches and movable chairs and tables, not only facilitate the occurrence of social interactions but also enhance visitors’ sense of social connectedness. For instance, the stone benches and movable chairs and tables at Forsyth Plazas are popular lunch spots for locals, while benches along the walkway at Montefiore Square are frequently occupied by locals for people watching, conversations, or reading. At Osborn Street Plaza, stylish solar plug-in benches and Wi-Fi offer sitting opportunities and allow people to charge their electronic devices as needed.

In gardens, entrances and covered nooks-and-crannies structures, such as pergolas and gazebos, are identified as hotspots for interactions. The study also found that seating options such as picnic tables and movable chairs intentionally placed near the entrance attract locals who are not members of the garden, as described in interviews with managers of Amboy Street Community Garden, Children’s Magical Garden, and Frank White Memorial Garden.

Physical Features that Enhanced Visitors’ Frequent Meaningful Interactions



Answers to field survey question: “What design elements of the public space enhanced your most frequent [meaningful] interactions?” (n=152)



Youth Apprentices at Creative Art Works painted a 250-ft mural reflecting Hamilton Heights’ character at Montefiore Square.

Volunteers touch up the asphalt mural at Osborn Street Plaza every year to keep it well maintained.



Local artist-painted mural at Amboy Street Community Garden is a backdrop enhancer for all activities.

34th Avenue Open Street Plaza routinely displays artwork by local students, encouraging staying opportunities.



PHOTO: FIELD OBSERVATION PHOTO

Forsyth Plaza's stone bench, created from salvaged wall blocks by a Chinese artist, now provides constant seating for visitors.



PHOTO: NYC DOT

Montefiore Square's walkway benches are frequently occupied by locals for people-watching, conversation, or reading.



PHOTO: FIELD OBSERVATION PHOTO

Movable chairs and tables at Forsyth Plaza are popular for lunch and socializing among locals.



PHOTO: BROWNSVILLE COMMUNITY JUSTICE CENTER

Solar plug-in benches and Wi-Fi at Osborn Street Plaza provide seating and charging opportunities for those dropping by.



PHOTO: FIELD OBSERVATION PHOTO

34th Avenue Open Street's school blocks received "plaza" treatment, creating a social area for drop-off and pick-ups on the median.

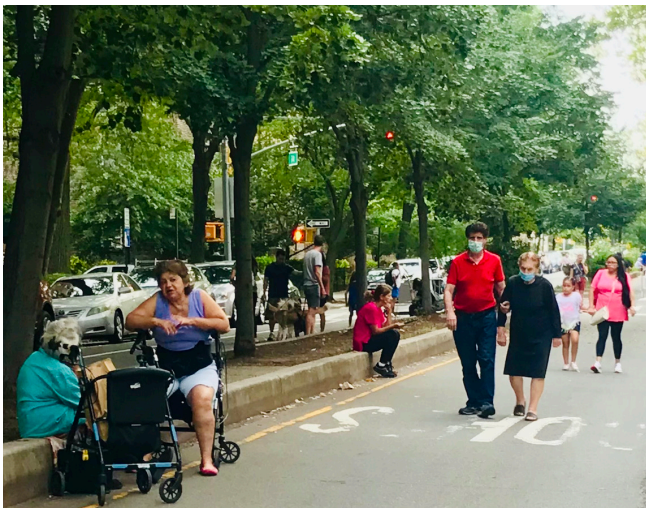


PHOTO: ELENA MADISON

The sitable-height median at 34th Avenue Open Street is a well-used spot for informal seating.

Locality

Attention to local demographics and character helps cultivate a strong sense of community.

Public spaces analyzed in this study mainly draw in local residents, as about 60 percent of the visitors reside in the same zip code as the location (see chart below). The study found that many visitors appreciate gestures to local culture and character.

Forsyth Plaza exemplifies this with programming targeting locals rather than tourists. The Executive Director of Asian Americans For Equality (AAFE) believes that cultural neighborhoods relying too heavily on tourism suffer during economic downturns, whereas programming for locals and New Yorkers is more authentic and vibrant. The plaza's night markets are programmed to attract primarily local Chinatown residents, followed by New Yorkers and tourists. The more than 8,000 participant count per event is a testament to this approach as the

"Many of these activities we do are about resource communities with arts and culture amenities because we don't have a big beautiful theater or library. We don't have the same access to certain types of art as many other communities do. And so it was about highlighting specific areas with those types of amenities."

– Mallory Thatch, Program Manager, Brownsville Community Justice Center

PHOTO: BROWNSVILLE COMMUNITY JUSTICE CENTER



plaza's programming successfully attracts all age groups and various demographics.

Osborn Street Plaza's design and programming also prioritize the local community. The asphalt mural at the plaza reads "Brownsville Stronger Together," and the activities intentionally engage and complement the community. Mallory Osborn, a Program Manager at Brownsville Community Justice Center, emphasizes the need to provide art and cultural amenities to areas with limited access. The plaza serves as a resource for the community, promoting a sense of ownership and belonging.

The 97th Block Association Garden pays special attention to neighborhood seniors who frequently visit the site. The garden manager, Carmen Villas, encourages intergenerational interaction between children and seniors through activities like playing card games and listening to Latin music. The garden serves as a space for everyone, regardless of age, fostering a sense of community and collectiveness.

"The garden functions as a school for everyone. You can **come in and learn something**, whether it's gardening or English language. It **doesn't matter what age you are.**"

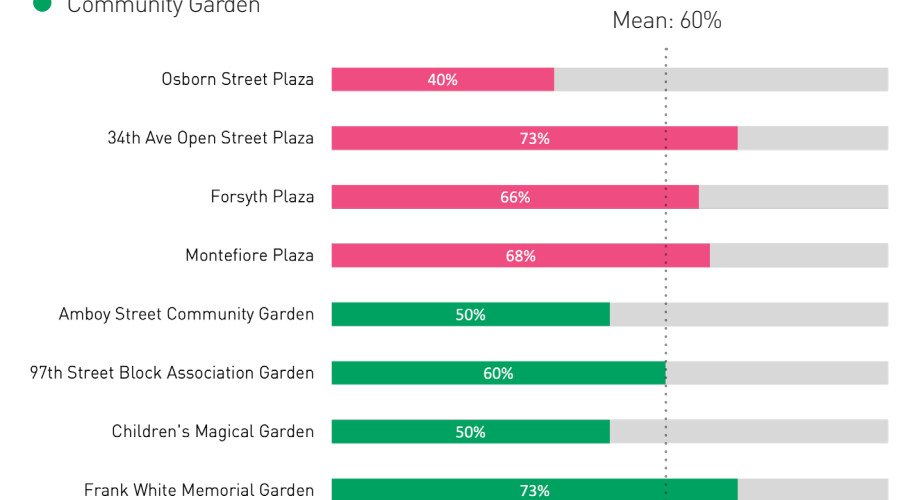
– Carmen Villas, 97th Street Block Association Garden Manager

PHOTO: FACEBOOK 97TH STREET BLOCK ASSOCIATION GARDEN



Locality of Visitors

- Pedestrian Plaza
- Community Garden



#%: Percent of visitors whose home address zip code is the same as the public space they visited

Seasonality

Activation in the cold remains an opportunity for social connection.

Observation in this study suggests that there is an opportunity to activate public spaces during the winter season to enhance social interaction and community engagement. During the off-growing seasons, gardens are only open when a gardener is present doing maintenance work on an *ad hoc* basis. For the majority of the time, the garden gates are closed, limiting access for visitors. While contact between members continues via group chats, interviews with garden managers reveal that the frequency of interaction has lowered during the winter season. This presents a clear opportunity to activate the space for social interaction opportunities during off-season beyond focusing solely on gardening.

Similarly, in plazas, observations reveal that the space is primarily used for its intended purpose—as a mobility corridor for moving people through places, such as Montefiore Square and Osborn Street Plaza. There are not many programmed uses for the space, with a few exceptions such as 34th Avenue Open Street Plaza where children will still play on the plaza blocks for a short period of time after school dismissal and Frank White Memorial Garden where the gate is open during business hours of the adjacent partner organization. Regardless of the opening gates, there is still limited programming and interactions during the colder months.

In addition, interviews with public space managers reveal that winter activations often center around the holiday season, with Christmas tree lighting programming being the most common activity across all sites.

However, the pandemic has led to the cancellation of this activity in several years. There is a clear opportunity for more diverse and innovative winter programming beyond the traditional focus on holiday festivals.

During seasons when loneliness and suicide attempts often rise, activating public spaces to encourage social interaction and community building is particularly crucial. The study suggests public spaces can exceed their intended functions by offering activities such as educational programs for people of all ages (e.g., 34th Ave Open Street Plaza), temporary markets (e.g., Forsyth Plaza), seasonal public art installations, or festive events. By activating public spaces during colder months, there is a possibility of enhancing social connectedness and cultivating a sense of community throughout the year.

Garden gates are usually closed to the public during the off-season, except when garden members are present for maintenance or community meetings.

Although activities may occur during peak use times, such as commuting hours, during colder months, plazas are mainly used as mobility corridors to move people through places, rather than as meeting places.



Amboy Street Community Garden on a winter weekend



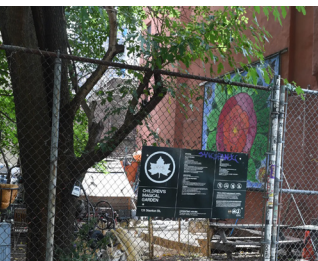
97th Street Block Association Garden on a weekday morning



Osborn Street Plaza at dawn on a weekend



34th Ave Open Street Plaza one hour after school dismissal



Children's Magical Garden on a winter weekday



Frank White Memorial Garden on a weekend night



Forsyth Plaza on a weekday afternoon



Montefiore Plaza on a weekday morning

PHOTOS: FIELD OBSERVATION



PHOTO: MONTEFIORE SQUARE
TWITTER NYC DDC



PHOTO: MONTEFIORE SQUARE
CREATIVE ART WORKS

Recommendations and Conclusion

Paths Forward

The opportunities to interact in public spaces are critical for those experiencing loneliness and in need of social connection. Insights gained from this study provides considerations for public space planners and designers, researchers, and city governments.

Loneliness is a social challenge hidden in plain sight, with significant implications for mental and physical health. The increasing prevalence of loneliness since the COVID-19 pandemic demands that planners, designers, researchers, and city governments collaborate to create public spaces that foster social connections. This study examines the ways in which the governance and design of public spaces, specifically pedestrian plazas and community gardens, can be employed to facilitate meaningful social interactions and mitigate loneliness in urban environments.

Analyzing eight pedestrian plazas and community gardens in New York City, this research provides evidence linking governance (management structure, programming, stewardship) and public space design and configuration (openness, quality of physical features, locality) to the quality and quantity of social interactions and the levels of loneliness experienced by visitors.

This study highlights the profound impact of public space governance and design on social connections and loneliness while acknowledging its foundation in existing knowledge and serving as an impetus for continued investigation. The acquisition of further empirical evidence is indispensable for formulating actionable guidelines to

improve public spaces. A collaborative approach involving planners, designers, researchers, and city governments is crucial to addressing loneliness effectively. This study outlines several avenues for progress, building upon successes and overcoming challenges to transform public spaces into hubs for social connection.

Recommendations for Planners and Designers

Planners and designers are often the initiators and guardians of public space projects and play a critical role in creating engaging spaces that promote social connections. The study underscores the significance of both the physical and non-physical elements of public spaces that facilitate interactions. Without governance, programming, and stewardship, public spaces cannot come to life, and without quality spaces, programs, and services may not work as effectively to promote meaningful interactions. These factors are essential considerations for planners and designers as they strive to improve the quality of life for everyone by fostering social connections. Below are a few considerations for shaping sociable public spaces.

Support Community-based Stewardship

Empower local communities with necessary resources and incorporate collaboration into the design process. Involve diverse partners, including community organizations and individual residents, and provide clear stewardship guidelines to foster local pride and encourage care for public spaces. As demonstrated by the successful activation of the community gardens and plazas, such as 34th Avenue Open Street Plaza, the collaborative efforts between the city agencies and the dedicated network of volunteers on the ground facilitated community engagement and provided ample opportunities for local interaction.

Design to Invite Staying

Implement thoughtful programming and physical features to create public spaces that can function as mobility corridors and community hubs simultaneously for all visitors, irrespective of their speed or ability. Osborn Street Plaza serves as an example where residents utilize the public space for both passing through and socializing.

Design for Flexibility

Develop public spaces that can accommodate diverse activities and uses by incorporating multi-purpose furnishings such as canopy structures, which can serve as pergolas for plants and provide aesthetic values and climatic comfort, as seen in Amboy Street Community Garden. Typographies differences can be leveraged to provide an alternative way to pass through the space while offering informal seating and open space, as demonstrated in Montefiore Square.

Design for Use All-Year-Round

Ensure that public spaces can be utilized throughout the year, providing features such as adequate tree

coverage or shelter structures for adaptable programming.

Design for Active Use Around the Clock

Create spaces with visibility from all perspectives and well-lit amenities at a human scale to establish a vibrant public realm and enable use from day to night, as seen in Forsyth Plaza.

Incorporate Connectivity to Surroundings

Invite site access by creating welcoming entrances, opening the edges, and providing clear and legible signage and wayfinding. Fenced structures at many community gardens limit social interaction and recreational opportunities. Increasing the connectivity of sites may help gardens attract a more regular population beyond members.

Quality Seating and Thoughtful Placement

Enhance user experiences by providing abundant, high-quality seating in areas with comfortable climates and interesting sights and sounds, as demonstrated in Montefiore Square.

Leverage Public Art
Utilize public art to promote social interaction and engagement. Adapt art forms, scale, and complexity to the space, ranging from asphalt murals to temporary installations, as seen in Osborn Street Plaza, to create vibrant and memorable public spaces.

Recommendations for Researchers

As highlighted in the literature review and methodology section, there are several opportunities to explore specific features of the built environment that can inform evidence-based interventions for loneliness and social connection at the local level, such as the focus of this project. To advance this area of research, future studies should build upon the existing knowledge base and take the following factors into account.

Further Exploration
More empirical evidence is needed to better comprehend the relationship between loneliness, social connection, and the objective quality and composition of the built environment.



Weekly food pantry held on 34th Avenue Open Street promoted community care.



With the increasing prevalence of loneliness in urban areas, public spaces play a fundamental role in fostering social connections.

Use Consistent Methods
Employ consistent methods and conduct research throughout the lifespan of public space projects to track changes in the built environment and measure their impact on loneliness and social connection over time.

Study Other Types of Public Spaces
Investigate various types of public spaces, including markets, privately owned public spaces, playgrounds, skateparks, waterfronts, and streets, to gain a better understanding of how different governance structures and design quality impact social connection and loneliness.

Recommendations for City Governments

City governments have a significant role in addressing loneliness on a large scale. They can generate initiatives and support by raising awareness, conducting large-scale measures, facilitating cross-disciplinary collaboration, and implementing effective strategies. A few specific

factors that public sectors should consider include the following.

Systematic Tracking
Monitor individual loneliness levels nationwide over time to establish an evidence base for action, as demonstrated in the United Kingdom.

Allocate Funding for Research and Assess Intervention Effectiveness
Direct funds toward research into the causes of loneliness and potential interventions. Evaluate current interventions aimed at mitigating loneliness and enhancing social connections.

Create Collective Strategies and Endorse Successful Methods
Encourage interdisciplinary collaboration to address loneliness through developing shared visions for social connection. Implement effective practices and support community engagement in the design and governance of public spaces.

Policy Analysis
Examine policies for their influence on social connections and residents'

loneliness. Prior to implementing public strategies, conduct a comprehensive assessment of their impact on well-being.

Foster Conversations
Encourage dialogue around loneliness to challenge stigmatization and raise awareness.

Conclusion

Public spaces are fundamental to fostering social connections. In an increasingly complex world where community establishment and prioritization are challenging, high-quality physical spaces serve as unifying forces, enabling individuals to congregate, interact, and cultivate a sense of belonging. By understanding and optimizing the influence of public spaces, conducting further research into effective strategies, and forming a coalition of efforts to address loneliness, it is possible to pave the way toward more connected cities.

This study underscores the critical impact of public space governance and design on social connections and loneliness. By fostering collaboration among planners, designers, researchers, and city governments and leveraging existing knowledge for further research, cities can develop effective strategies and tools to transform public spaces into vibrant social hubs that help alleviate loneliness. This study provides a framework for future research and recommendations for how key stakeholders can engage, learn from, and design for connection. Together, we can design cities to be less lonely and profoundly shape the lives of future generations with better physical, psychological, and social outcomes for all.



PHOTO: 34TH AVENUE OPEN STREET PLAZA
TRANSPORTATION ALTERNATIVES

Completing this capstone has been both a remarkable gift and a tremendous challenge. I am grateful for all the participants who shared their knowledge, experience, and story with me in hopes that their contribution could be of help to others.

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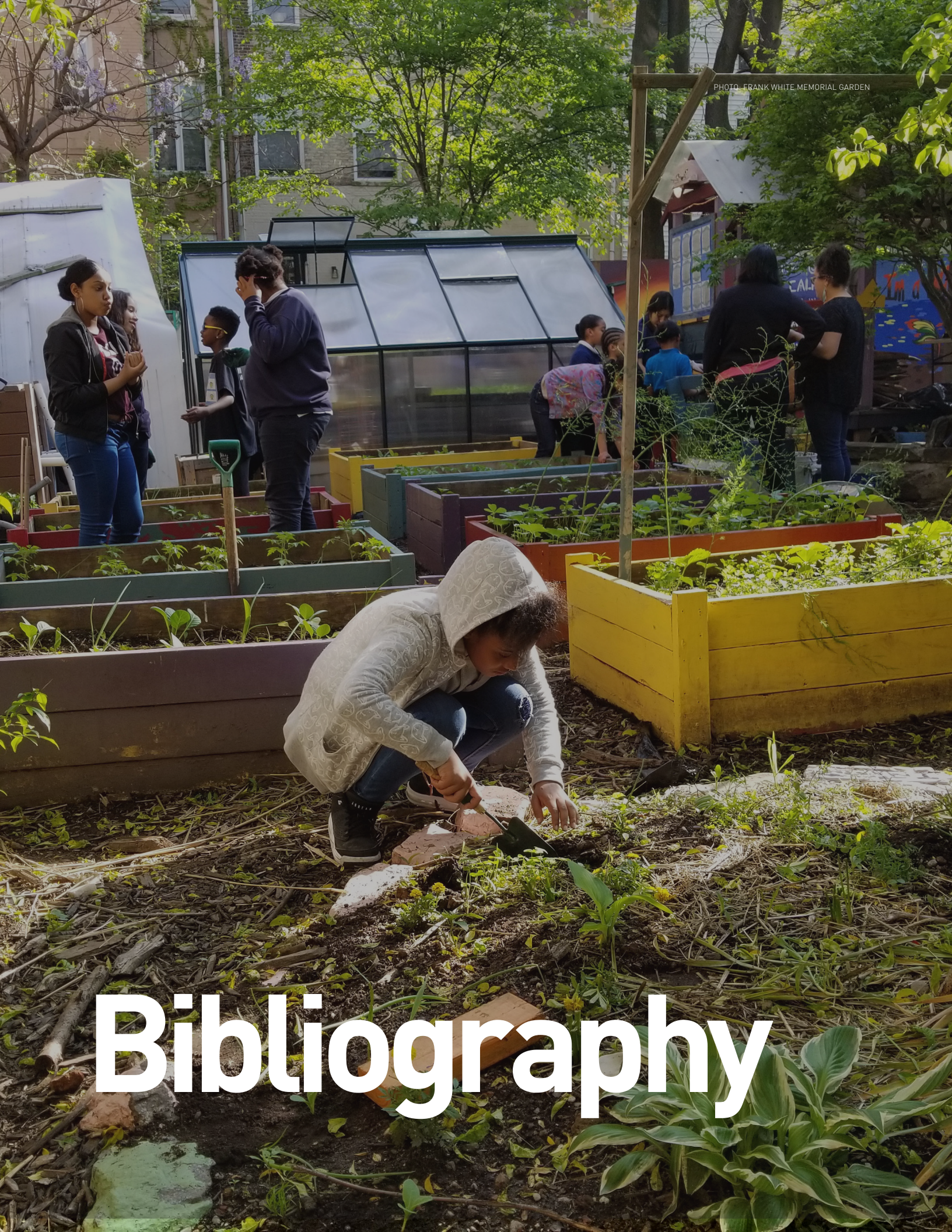
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