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The Green Core of The Big Apple: The Significance of Urban Green Spaces in New York City & Beyond

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The Green Core of The Big Apple:
The Significance of Urban Green Spaces in New York City & Beyond

Grace M. Dailey

Abstract

This paper addresses the politics of urban green spaces which includes the issue of their inequitable distribution as well as related issues that can arise when communities do not have access to such spaces. There are a variety of types of urban green spaces, however, this paper will be focused on public parks. Together, such outdoor spaces can create cultural, recreational, and community building opportunities that are able to improve environmental and human health. Chapter 1 presents data about the existence and usage of urban green spaces around the world and in New York City in particular. Chapter 2 uses the discipline of history to look back at the emergence of urban green spaces, what they were used for, and how they continue to develop. Chapter 3 looks through the lens of environmental justice to address the ethical dimensions surrounding access to and availability of urban green spaces. Chapter 4 uses the discipline of political science and examines governance issues regarding the existence and availability of urban green spaces in New York City. Chapter 5 recommends policy changes for New York City with a focus on government policy. My internship at the Marine Park Alliance in Brooklyn is used as a case study throughout this paper.

Keywords: urban green space, New York City, environmental justice, NYC parks, Native American, land stewardship, environmental racism, urban green space policy

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Introduction: Early Life and Internship Experience

When I was a child, growing up in Massachusetts, my family would always call me “nature girl.” In the younger years of my childhood, I would go on multiple walks a day with my grandmother to closely inspect the trees in their mesmerizing cycle of color changes, growth, and death. I would marvel at the flowers growing around my neighborhood and ask my grandmother about their names and what made them special. Whether I happened upon a miraculous bloom of manicured daylilies and daffodils or just a crack in the sidewalk that hosted blades of grass (and maybe if I was lucky a dandelion) I joyfully navigated my interactions with the earth with wonder. I would spend time in the community garden three blocks away from my house counting down the days until the tomatoes were ripe enough to pick from the vine and eat with our summertime meals. I cherished all of the joy that the earth brought me and I also loved and spent considerable amounts of time outside enjoying the outdoors because of the activities they facilitated. When I was in preschool and kindergarten I was enrolled in an after-school nature program where we would learn about various flora and fauna and do hands-on activities related to nature. I remember going on exploratory walks through a giant lush forest with trees that nearly touched the sky. In hindsight, we were likely exploring a small backyard assortment of trees, but the magic was never lost for me.

The availability of such an outdoor space where I had the opportunity to learn about the basics of our natural environment was fundamental to my early and continued appreciation of the earth. The fact that I was able to have such an intimate relationship with nature as a child growing up in an urban area allowed me to develop a type of love for the earth that directly translated into a drive toward earthly preservation. If more people had the opportunity to form personal relationships with the earth they would likely want to be active in the fight against

climate change. Urban green spaces are vital in cities because they can be many people's only connection with nature. There are six distinct varieties of urban green spaces including "community woodlands, green roofs, landscape around buildings, street trees, urban parks and gardens, and wetlands."¹ This paper will be predominantly focusing on urban parks, however, all urban green spaces have the potential to improve people's connections with nature. Having access to green space reduces stress and can even improve physical health which improves the quality of life for city dwellers. Unfortunately, many communities have unequal access to green space. Many communities even lack a sufficient number of trees that build up to form urban canopy covers. Not only are canopy covers inadequate in many areas of the United States but they are most lacking in communities of color where people are already disenfranchised by systemic oppression. The disparity between canopy cover in majority-white neighborhoods versus the situation in communities of color is shocking with "communities of color hav[ing] 33% less tree canopy on average than majority white communities."² In addition to racial divides, there is also a huge correlation between poverty levels and canopy cover in various neighborhoods. Communities "with 90% or more of their residents living in poverty have 41% less tree canopy than communities with only 10% or less of the population in poverty."³ It is clear that the disparity is large, thus it is vital that the lack of canopy cover and urban green spaces is lessened in order to improve the health of low-income POC communities around the United States.

¹ Mohd Hisyam Rasidi, Nurzuliza Jamirsah, and Ismail Said, "Urban Green Space Design Affects Urban Residents' Social Interaction," *Procedia - Social and Behavioral Sciences* 68 (2012): pp. 464-480, <https://doi.org/10.1016/j.sbspro.2012.12.242>.

² Ariel Wittenberg, "Trees as a Civil Right: 'All We Have Is Cement and Pavement'," *PoliticoPro (Greenwire)*, September 16, 2020), <https://subscriber.politicopro.com/article/eenews/1063713865>.

³ Ariel Wittenberg, "Trees as a Civil Right: 'All We Have Is Cement and Pavement'," *PoliticoPro (Greenwire)*, September 16, 2020), <https://subscriber.politicopro.com/article/eenews/1063713865>.

My personal connection to this issue grew during my internship at the Marine Park Alliance. For more information about my role at the Marine Park Alliance see Appendix: *Internship at Marine Park Alliance* . The Marine Park Alliance is a citizen group that works to make Marine Park in Brooklyn a clean, beautiful, and culturally enriching place. The organization works with NYC Parks (the New York City Department of Parks and Recreation which oversees all New York parks and recreation centers) to take care of the health of New Yorkers in Brooklyn by providing them with a space that gives them access to natural beauty, a place to exercise, and a place to enjoy cultural activities with fellow community members. Since it is Brooklyn's largest park, it is able to serve people from the Marine Park neighborhood as well as people from further away who may not have similar park amenities in their own neighborhoods. Marine Park is located in a fairly wealthy neighborhood, so the abundance of amenities the park offers is not incredibly surprising. Cultural activities include indoor events such as celebrations of Chinese New Year, Cinco de Mayo, and Women's Month. The park also hosts outdoor volunteer activities that include cleaning and gardening. Besides cleaning and volunteering, the Marine Park Alliance gives community members access to exercise opportunities by providing outdoor sports facilities including baseball, basketball, bocce ball, cricket, football, tennis, handball, soccer, and softball fields. In addition to sports, Marine Park provides opportunities to exercise and be outdoors by providing a kayak or canoe launch area where community members can rent or bring their own boats to the creek. If families that attend the park also have children, Marine Park also provides them with a playground.

Chapter 1 will present New York based figures and data concerning the amount of urban green spaces and the functionality they offer. Chapter 2 will engage the discipline of history to study the significant events in the timeline of urban green spaces. Chapter 3 will use

environmental justice to analyze ethical issues pertaining to urban green space accessibility. Chapter 4 will engage the study of political science to examine governmental and political dimensions having to do with urban green space availability and accessibility. Chapter 5 will recommend governmental policy to be implemented in New York City. My internship experience at the Marine Park Alliance will be used as a case study and an example of a present day urban green space throughout this paper.

Chapter 1. This chapter will provide data related to urban green spaces and situate it in historical and political contexts.

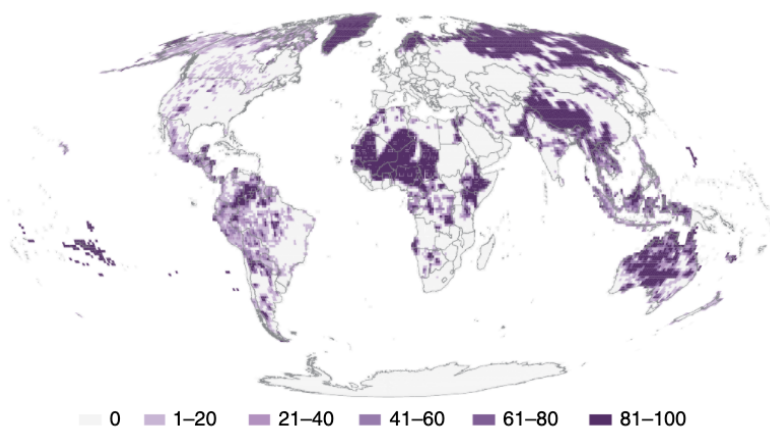
The following section of this paper will present data about urban green spaces from New York and beyond. It will explain its significance in the context of environmental justice. Issues concerning adequate access and proper conditions of urban green spaces will be discussed. Background information and data concerning indigenous contributions to green spaces will be acknowledged and used as a framework to better understand the significance of green spaces. Environmental justice will be further discussed in Chapter 3.

Recognizing Environmental Stewardship

When discussing environmental issues and solutions it is important to note that Europeans or Americans are not the first people to prioritize stewardship of the environment. This paper would be incomplete without mentioning the extensive environmental stewardship that is directed by indigenous people. Although indigenous people “make up less than five percent of the total human population, they manage or hold tenure over 25 percent of the world’s

land surface and support about 80 percent of the global biodiversity.”⁴ Although their work, unfortunately, does not get as much international attention as European and American legislation, they are clearly producing much more positive climate action than any major country or region.

Figure 1. Global map of lands managed and/or controlled by Indigenous Peoples. Blank areas do not necessarily mean that there is no indigenous presence; it just means that there is not enough data to confirm their presence.⁵



Despite genocide and forced removal of indigenous people by Europeans and Americans, indigenous people have still managed to preserve and sustain large portions of the environment. Before colonization, they had even more influence on environmental stewardship because, at least in the Americas, they lived and grew their communities for over 20,000 years.⁶ During those 20,000 years and to this day, indigenous people have gathered traditional knowledge that informs their interactions with nature and is a key way that they have been able to maintain a

⁴ Gleb Raygorodetsky, “Indigenous Peoples Defend Earth's Biodiversity-but They're in Danger,” Planet Possible (National Geographic, May 4, 2021),

<https://www.nationalgeographic.com/environment/article/can-indigenous-land-stewardship-protect-biodiversity->

⁵ Stephen T. Garnett et al., “A Spatial Overview of the Global Importance of Indigenous Lands for Conservation” 1, no. 7 (2018): pp. 369-374, <https://doi.org/10.1038/s41893-018-0100-6>.

⁶ Adam Rutherford, “A New History of the First Peoples in the Americas,” The Atlantic (Atlantic Media Company, May 18, 2021),

<https://www.theatlantic.com/science/archive/2017/10/a-brief-history-of-everyone-who-ever-lived/537942/>.

sustainable and mutualistic relationship with the earth. Since traditional indigenous lifestyles use little carbon they have not contributed significantly to climate change. Unfortunately, because of indigenous people's "historic dependence on local biological diversity, ecosystem services and cultural landscapes as a source of sustenance and well-being," they are the group of people that will be most highly affected by climate change.⁷

How Urban Green Spaces Affect Communities.

A study by the University of British Columbia found that there is a significant correlation between people's access to urban green spaces and their social backgrounds. Prevalent social background factors that affect urban dwellers' access to green spaces include racial backgrounds, education levels, and income levels. The study found that in the United States, "people with higher incomes and more education tend to have greater access to urban green spaces than their less privileged neighbors." The study also found that particularly in larger cities, racial factors also play a large role in determining the availability of urban green spaces.⁸ For quantitative data see the Elsevier journal article, "Who has access to urban vegetation? A spatial analysis of distributional green equity in 10 US cities."⁹

In particular, in New York City, the most significant factors that predicted accessibility to urban green spaces was the presence of post-secondary education. If New Yorkers went through post-secondary education they were more likely to have access to green space. However, surprisingly, income levels played less of a role in the ability to predict citizen's access to urban

⁷ Gleb Raygorodetsky, "Why Traditional Knowledge Holds the Key to Climate Change," United Nations University, December 13, 2011, <https://unu.edu/publications/articles/why-traditional-knowledge-holds-the-key-to-climate-change.html>.

⁸ Lorien Nesbitt et al., "Who Has Access to Urban Vegetation? A Spatial Analysis of Distributional Green Equity in 10 US Cities," *Landscape and Urban Planning* 181, no. 0169-2046 (January 2019): 51–79, <https://doi.org/10.1016/j.landurbplan.2018.08.007>.

⁹ Lorien Nesbitt et al., "Who Has Access to Urban Vegetation? A Spatial Analysis of Distributional Green Equity in 10 US Cities," *Landscape and Urban Planning* 181, no. 0169-2046 (January 2019): 51–79, <https://doi.org/10.1016/j.landurbplan.2018.08.007>.

green spaces. There are correlations between income levels and higher levels of education, but in New York City education was the leading factor to predict residents' access to urban green spaces.¹⁰

The University of British Columbia study found that Hispanic, Asian, and Black communities were perpetually the groups being excluded from having access to green spaces. Such discrepancies are significant because greenery is a huge factor that regulates the environmental health of an urban area and thus the community that inhabits it. The presence of adequate vegetation allows cities to have better-regulated temperatures, better air quality, and less runoff.¹¹ Aided by such factors and simply because of the presence of vegetation, city dweller's mental health is improved, stress is reduced, and overall wellbeing increases.¹² The World Health Organization defines wellbeing as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.”¹³ Issues surrounding mental and physical health and wellbeing can often go ignored if the situation is not yet a crisis. It is just as important to cater to the mental and physical needs of people and preserve their wellbeing before the situation becomes a crisis just as much as after.

The central issue of lack of access to green spaces needs to be addressed immediately as urbanization is rapidly expanding. As of 2007, more people live in urban areas rather than rural

¹⁰ Lorien Nesbitt et al., “Who Has Access to Urban Vegetation? A Spatial Analysis of Distributional Green Equity in 10 US Cities,” *Landscape and Urban Planning* 181, no. 0169-2046 (January 2019): 51–79, <https://doi.org/10.1016/j.landurbplan.2018.08.007>.

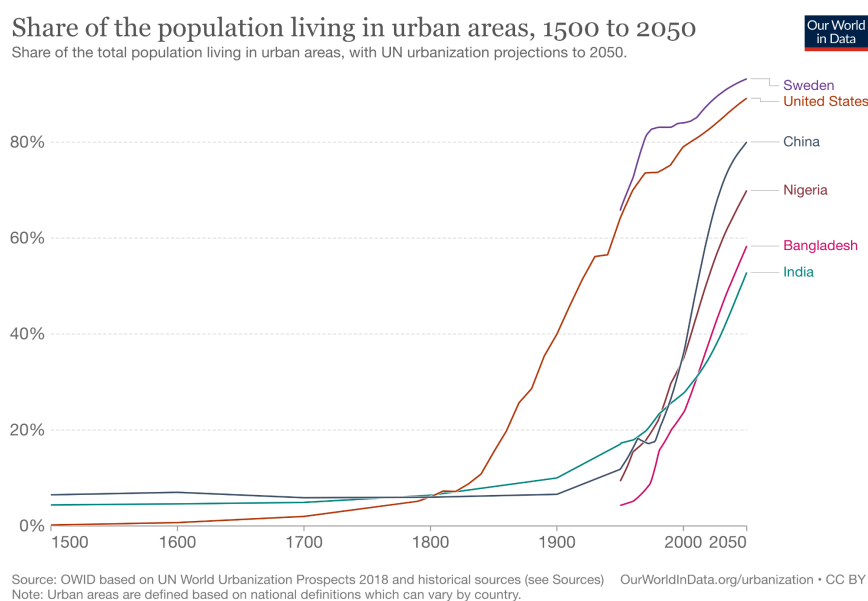
¹¹ Lorien Nesbitt et al., “Who Has Access to Urban Vegetation? A Spatial Analysis of Distributional Green Equity in 10 US Cities,” *Landscape and Urban Planning* 181, no. 0169-2046 (January 2019): 51–79, <https://doi.org/10.1016/j.landurbplan.2018.08.007>.

¹² Carlos Corvalan, Simon Hales, and Anthony McMichael, “Ecosystems and Human Well-Being: Health Synthesis” (World Health Organization), accessed June 15, 2022, <http://www.millenniumassessment.org/documents/document.357.aspx.pdf>.

¹³ World Health Organization, “Constitution of the World Health Organization,” www.who.int (World Health Organisation, 2021), <https://www.who.int/about/governance/constitution#:~:text=Health%20is%20a%20state%20of>.

areas.¹⁴ Our World in Data, a reputable scientific journal, predicts that urbanization is skyrocketing so much so that more than two-thirds of the world population will be living in urban areas by 2050.¹⁵

Figure 2. Urbanization is greatly expanding in a way that by 2050 more than two-thirds of the world population will be living in urban areas.¹⁶



Urban areas can be beneficial to the environment because when people are living in denser conditions they encroach less into natural habitats and emit less carbon.¹⁷ At the same time, increasing urbanization is a significant issue because the current structures of urban areas cannot support exponentially more people. In particular, the amount of urban green spaces currently available would be even less sufficient for increasing numbers of people. This would

¹⁴ Eric W Sanderson, Markley Boyer, and Chad Robertson, *Mannahatta a Natural History of New York City* (New York Abrams Ann Arbor, Michigan Proquest, 2013).

¹⁵ Hannah Ritchie and Max Roser, "Urbanization," Our World in Data, June 13, 2018, <https://ourworldindata.org/urbanization>.

¹⁶ Hannah Ritchie and Max Roser, "Urbanization," Our World in Data, June 13, 2018, <https://ourworldindata.org/urbanization>, fig. 1.

¹⁷ Edward L. Glaeser, "Green Cities, Brown Suburbs," *City Journal*, January 27, 2016, <https://www.city-journal.org/html/green-cities-brown-suburbs-13143.html>.

greatly impact the already overall poor mental health in cities partially caused by lack of contact with nature.¹⁸ Even if additional urban green spaces were to be created, it would be unlikely for there to be sufficient space to add spaces large enough to accommodate the exponentially growing urban population.

Environmental Justice and Ecosystem Services.

Urban green spaces have evolved greatly since their introduction in the 18th century. Green spaces are also much more intentionally designed in the present day western world than they once were. Elements of green spaces such as the age of the green space, shadiness, number and functionality of facilities, safety, cleanliness, and geographic location can make certain spaces more attractive for visitors and therefore make the intent of a green space more effective. If a green space attracts more visitors, urban dwellers can then reap the benefits of improved health, improved mental wellbeing, and higher degrees of connection with the local community.

Certain green spaces have more potential to provide a quality experience to visitors than others. It is important that the needs and demographics of the community are taken into account when creating functional urban green spaces that achieve environmental justice. Firstly, to be optimally functional, urban green spaces need to be inclusive of an array of identities present in the community. For instance, urban green spaces should be accessible to people with disabilities, people of varying cultural backgrounds, and people of different ages. Community input should also be taken into account when considering the design, upkeep, and function of community green spaces. If an urban green space is not serving the needs of its residents it is not optimally functional. Allowing and fostering a sense of civic duty towards the creation of community input

¹⁸ “Lack of Fair Access to Urban Green Spaces,” ScienceDaily (University of British Columbia, January 17, 2019), <https://www.sciencedaily.com/releases/2019/01/190117110827.htm>.

about an urban green space not only helps the community build ideal spaces for their personal health, but it also can create a sense of environmental stewardship among community members.

Despite the incredible benefits that additional high quality urban green spaces can bring to communities, they also can have surprising drawbacks from an environmental justice perspective. The addition and improvement of green spaces can only generally improve communities to a certain point. Of course, the health benefits of having access to green spaces does not have a ceiling of effectiveness, however, improvements in terms of high quality green space access can “also can increase housing costs and property values.” Most often when communities do not have enough access to urban green spaces from a health perspective, the community is also likely low income. Low income communities can not afford for housing costs to rise because it contributes to gentrification and forces people out of their communities.¹⁹ The challenge presented in this situation is to find a solution that strikes a balance between providing an adequate amount of green spaces for community beautification and health but not too much that would cause housing costs to rise.

Lack of access to urban green spaces involves significant degradation of the four main ecosystem services. Without urban parks and gardens even the most basic supporting ecosystem services cannot happen. Supporting ecosystem services include functions “such as soil formation, photosynthesis, and nutrient cycling,” which are some of the most basic functions that life on earth can perform.²⁰ If urban areas do not have significant amounts of trees and plants in their ecosystems even basic processes like photosynthesis are unable to function at appropriate

¹⁹ Jennifer R. Wolch, “Urban Green Space, Public Health, and Environmental Justice: The Challenge of Making Cities 'Just Green Enough',” *Landscape and Urban Planning* (Elsevier, March 2, 2014), https://www.sciencedirect.com/science/article/pii/S0169204614000310?casa_token=3CZ9XmWj_0MAAAA%3ALPHRUGpAn17ce4viUexq6y9asUqjT6EBwFGBOI_RVjKPATqPqpqhEC9Vw29aJu6uF0mcRAu-fg.

²⁰ Millennium Ecosystem Assessment, 2005. *Ecosystems and Human Well-being: Synthesis*. Island Press, Washington, DC.

levels. This creates more opportunities for climate change causing greenhouse gasses to linger in the atmosphere.

The introduction of trees and plants to urbanized neighborhoods has great health and residual economic benefits. In 1994 the trees planted in New York City “removed an estimated 1,821 metric tons of air pollution at an estimated value to society of \$9.5 million.”²¹ If not for the significant enough urban green space infrastructure of New York City, basic photosynthetic processes and nutrient cycles could not adequately function. This would cause major negative physical and mental health benefits to the city’s residents.²²

As well as the most basic supporting ecosystem services, regulating ecosystem services are also greatly degraded when urban areas lack adequate green space. Regulating ecosystem services can “affect climate, floods, disease, wastes, and water quality.”²³ Without adequate green space and urban canopy cover, climate regulation ecosystem services are unable to function properly. The addition of green infrastructure to urban areas can cool cities that are overly hot due to the heat island effect, which causes urban areas to “absorb and re-emit the sun's heat more than natural landscapes such as forests and water bodies.”²⁴ An analysis performed on the heat island effect in Rome found that green infrastructure “significantly mitigates the hot urban climate during summer.”²⁵ These findings are useful in a larger context to understand how

²¹ David J Nowak, “The Effects of Urban Trees on Air Quality” (US forest service), accessed June 23, 2022, https://www.nrs.fs.fed.us/units/urban/local-resources/downloads/Tree_Air_Qual.pdf.

²² Carlos Corvalan, Simon Hales, and Anthony McMichael, “Ecosystems and Human Well-Being: Health Synthesis” (World Health Organization), accessed June 15, 2022, <http://www.millenniumassessment.org/documents/document.357.aspx.pdf>.

²³ Millennium Ecosystem Assessment, 2005. *Ecosystems and Human Well-being: Synthesis*. Island Press, Washington, DC.

²⁴ “Heat Island Effect,” EPA (Environmental Protection Agency, June 6, 2022), <https://www.epa.gov/heatislands#:~:text=Heat%20islands%20are%20urbanized%20areas,as%20forests%20and%20water%20bodies>.

²⁵ Federica Marando et al., “Regulating Ecosystem Services and Green Infrastructure: Assessment of Urban Heat Island Effect Mitigation in the Municipality of Rome, Italy,” *Ecological Modelling* (Elsevier, November 27, 2018), <https://www.sciencedirect.com/science/article/abs/pii/S0304380018303995>.

effective green infrastructure can be in cities with overly hot temperatures, which are rapidly increasing in number because of climate change. Urban areas are some of the hottest areas and are going to be hit by the incoming heat of climate change sooner than surrounding areas, thus adequate vegetation, urban canopy cover, and green spaces are vital to mitigate this inevitable risk as much as possible.²⁶

In addition to lack of temperature regulation, lack of green spaces and in particular, lack of community gardens or functional resource producing green spaces can limit provisioning ecosystem services. Provisioning ecosystem services include any resources or benefits that can be used by humans such as “food, water, timber, and fiber.”²⁷ In 2007 out of the total land area in the United States, “less than 3% was devoted to urban use. About one-half of total land was considered agricultural, with 80% of this counted as 'land in farms'.”²⁸ Three percent of agricultural land being devoted to urban agriculture is an incredibly small figure that displays the reality of the lack of investment put into agriculture in urban areas. Despite its small scale, “urban farming can reduce transportation costs, help reduce runoff associated with heavy rainfall, and lead to better air quality.”²⁹ As urban areas are rapidly growing urban agriculture is essential to feed these communities. There are currently over 3 billion people living in urban areas which is over 55% of the world population. By 2050 it is predicted that 68% of the world's

²⁶ Smithsonian Magazine, “Why the City Is (Usually) Hotter than the Countryside,” Smithsonian.com (Smithsonian Institution, July 9, 2014), <https://www.smithsonianmag.com/science-nature/city-hotter-countryside-urban-heat-island-science-180951985/>.

²⁷ Millennium Ecosystem Assessment, 2005. *Ecosystems and Human Well-being: Synthesis*. Island Press, Washington, DC.

²⁸ Stephanie Rogus and Carolyn Dimitri, “Agriculture in Urban and Peri-Urban Areas in the United States: Highlights from the Census of Agriculture,” *Renewable Agriculture and Food Systems* 30, no. 1 (December 2014): pp. 64-78, <https://doi.org/10.1017/s1742170514000040>.

²⁹ “Urban Agriculture,” National Agricultural Library (U.S. Department of Agriculture), accessed June 25, 2022, <https://www.nal.usda.gov/legacy/aglaw/urban-agriculture#:~:text=Urban%20agriculture%20allows%20for%20the,lead%20to%20better%20air%20quality>.

population will be living in urban areas.³⁰ To meet this growing demand, urban agriculture needs to be rapidly expanded. Provisioning ecosystem services are unable to provide raw materials in cities when urban agriculture is not heavily invested in. If cities are not self-sufficient with producing raw materials for themselves, materials have to be shipped from rapidly shrinking and remote rural areas. This creates additional environmental impacts from shipping related pollution and it is also not robust enough to meet the rapidly growing demand for raw goods in cities. Pollution due to shipping is a significant source of climate change causing greenhouse gas emissions. In particular, “shipping is responsible for over three percent of global anthropogenic carbon dioxide emissions.”³¹ It is also predicted to expand greatly in the next few decades, growing by between 50% and 250% between 2014 and 2050 “depending on future economic growth and energy developments.”³² Without functional urban green green spaces and urban agriculture, the environmental costs that come with shipping goods long distances and not having enough green infrastructure to regulate climate are inevitable.

In addition to lacking numerous crucial provisioning ecosystem services, many urban areas even lack adequate cultural ecosystem services which allow city dwellers to enjoy recreation time outdoors. Lacking infrastructure that provides access to cultural and recreational activities that have the potential to improve populations’ mental and physical health are clearly divided along levels of income and racial lines. In Chicago a study was done to evaluate urban

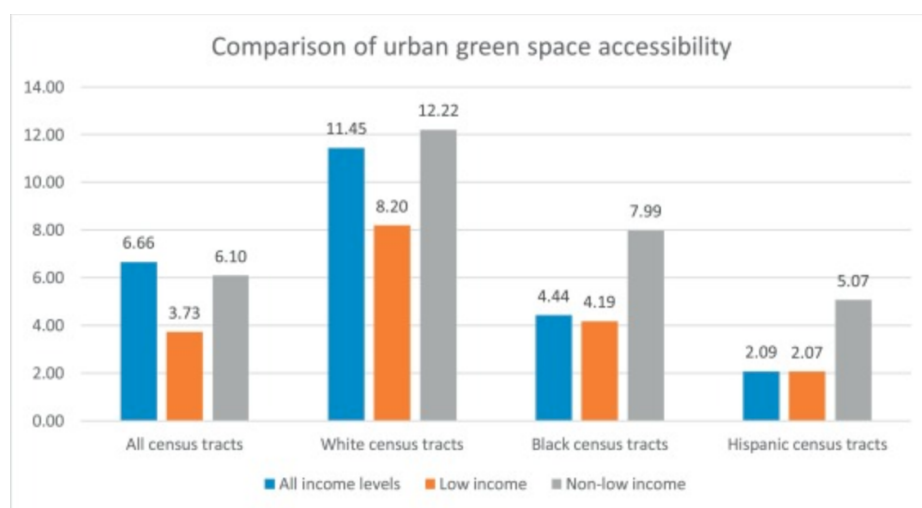
³⁰ “68% Of the World Population Projected to Live in Urban Areas by 2050, Says UN,” United Nations (UN Desa Department of Economic and Social Affairs, May 16, 2018), <https://www.un.org/development/desa/en/news/population/2018-revision-of-world-urbanization-prospects.html>.

³¹ “Shipping Pollution,” Oceana Europe, accessed June 25, 2022, <https://europe.oceana.org/en/shipping-pollution-1#:~:text=Shipping%20is%20responsible%20for%20over,of%20five%20percent%20per%20year>.

³² “Third IMO GHG Study 2014 Executive Summary and Final Report,” GHG3 Executive Summary and Report (International Maritime Organization), accessed June 25, 2022, <https://web.archive.org/web/20151019064411/http://www.imo.org/en/OurWork/Environment/PollutionPrevention/AirPollution/Documents/Third%20Greenhouse%20Gas%20Study/GHG3%20Executive%20Summary%20and%20Report.pdf>.

green space accessibility among differing income levels and racial groups. The study found that “regardless of income level, white-majority census tracts have much better [urban green space] accessibility than black-majority and Hispanic-majority census tracts, while black-majority census tracts have better accessibility than Hispanic-majority census tracts.” The study also found that lower income groups in general among all racial groups have the least access to urban green spaces.³³ Although many cities like Chicago do have certain levels of access to urban green spaces, many communities are left out and are unable to reap the benefits.

Figure 3. Depicts a comparison of urban green space accessibility among income levels and racial census tracts.³⁴



Because of systemic oppression, the communities most affected by lack of adequate urban green space are also the most societally disadvantaged populations who would most

³³ Dong Liu, Mei-Po Kwan, and Zihan Kan, “Analysis of Urban Green Space Accessibility and Distribution Inequity in the City of Chicago,” *Urban Forestry & Urban Greening* (Urban & Fischer, February 10, 2021), https://www.sciencedirect.com/science/article/pii/S1618866721000546?casa_token=Gyh49w8O06wAAAAA%3AmUmGe0bolkGpmCdtZ8Ltsxc2wNk1-13ZY5zr-MLjBif38choA4T_S0Z0LfxNYjDA-uLnEjixHnc.

³⁴ Dong Liu, Mei-Po Kwan, and Zihan Kan, “Analysis of Urban Green Space Accessibility and Distribution Inequity in the City of Chicago,” *Urban Forestry & Urban Greening* (Urban & Fischer, February 10, 2021), https://www.sciencedirect.com/science/article/pii/S1618866721000546?casa_token=Gyh49w8O06wAAAAA%3AmUmGe0bolkGpmCdtZ8Ltsxc2wNk1-13ZY5zr-MLjBif38choA4T_S0Z0LfxNYjDA-uLnEjixHnc.

benefit from access to such spaces.³⁵ The mental and physical health benefits that are associated with access to urban green spaces could greatly uplift disadvantaged communities, but because of unequal access, it is even more difficult for these communities to break through cycles of oppression.

A study performed in Auckland, New Zealand found that when study participants lived closer to usable urban green spaces, decreased counts of anxiety and mood disorder treatments were found. This proves that when green space is more accessible and there is a proportionally a large amount of green space, mental health is likely to improve.³⁶ Another study, also performed in New Zealand found that “the greenest neighbourhoods had the lowest risks of poor mental health.”³⁷ Not only does living in greener neighborhoods improve mental health, but it also decreases the risk of developing poor mental health to begin with. Although this study was performed in New Zealand, because it was performed in a large urban area, similar results would likely be found in other urban areas, such as New York City. Simply having access to green space in general can radically shift communities mental health at large.

In addition to having access to green spaces in general, having access to green spaces where cultural enrichment can be sought, provides even more potential to improve communities’ health. Cultural ecosystem services provide so much more than a place for people to engage in recreation activities but they also “have the potential to foster new conceptual links between alternative logics relating to a variety of social and ecological issues.”³⁸ For instance if a

³⁵ “Who Is Socially Disadvantaged?,” Legal Information Institute (Legal Information Institute: Cornell Law), accessed June 27, 2022, <https://www.law.cornell.edu/cfr/text/13/124.103>.

³⁶ D. Nutsford, A.L. Pearson, and S. Kingham, “An Ecological Study Investigating the Association between Access to Urban Green Space and Mental Health,” *Public Health* 127, no. 11 (November 2013): 1005–11, <https://doi.org/10.1016/j.puhe.2013.08.016>.

³⁷ E.A. Richardson et al., “Role of Physical Activity in the Relationship between Urban Green Space and Health,” *Public Health* 127, no. 4 (April 2013): 318–24, <https://doi.org/10.1016/j.puhe.2013.01.004>.

³⁸ Andra Ioana Milcu et al., “Cultural Ecosystem Services: A Literature Review and Prospects for Future Research,” *Ecology and Society* 18, no. 3 (2013), <https://doi.org/10.5751/es-05790-180344>.

community had greater access to sports fields, people may decide to spend more time outside playing sports, which has the potential to improve their mental health. Improved mental health can lead to numerous benefits such as improved quality of life at large and improved social and economic prospects.³⁹ A better balance and adequate supply of urban green spaces in all communities of all racial and socioeconomic backgrounds could lessen some of the systemic pressures that oppress millions of people.

Health and the Heat Island Effect

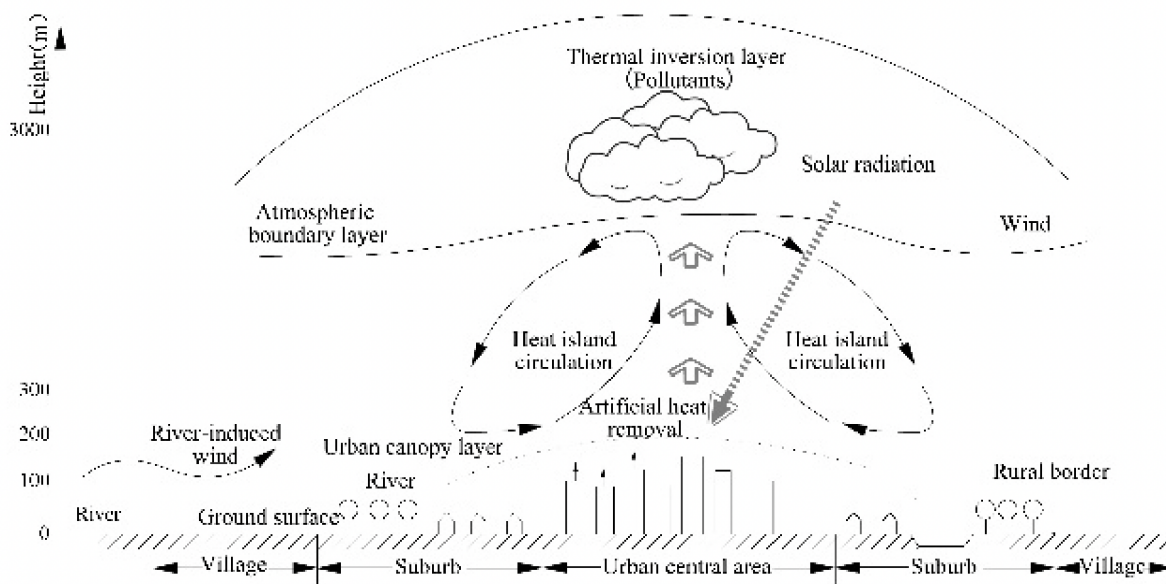
In addition to balancing the amount of urban green spaces that are available for community access, this paper will address how urban green spaces in general can provide environmental benefits. The heat island effect is an occurrence that is quite prevalent in urban areas. It is defined as “a kind of heat accumulation phenomenon within urban area due to urban construction and human activities.” This heat buildup can decrease the quality of life in urban areas so lucky there are ways to mitigate the issue. Notably, the issue can be mitigated “through the improvement of energy efficiency, urban landscape optimization, green roof construction, high reflectivity material utilization and green land cultivation.”⁴⁰

Figure 4. Depicts the urban heat island effect.⁴¹

³⁹ Carlos Corvalan, Simon Hales, and Anthony McMichael, “Ecosystems and Human Well-Being: Health Synthesis” (World Health Organization), accessed June 15, 2022, <http://www.millenniumassessment.org/documents/document.357.aspx.pdf>.

⁴⁰ Li Yang et al., “Research on Urban Heat-Island Effect,” *Procedia Engineering* 169 (2016): pp. 11-18, <https://doi.org/10.1016/j.proeng.2016.10.002>.

⁴¹ Li Yang et al., “Research on Urban Heat-Island Effect,” *Procedia Engineering* 169 (2016): pp. 11-18, <https://doi.org/10.1016/j.proeng.2016.10.002>.



The heat island effect occurs in many cities, but the severity of the issue can vary depending on the community because of variables such “as climate, topography and the degree and pattern of urbanization in a given geographical area.”⁴² Just as the heat island effect can naturally fluctuate in intensity depending on the structure of any certain community, it can also be intentionally planned in a way that reduces the issue. When harm reduction steps are not taken to address the issue city temperatures can fluctuate in a way that is uncomfortable and even unhealthy for the human body. The urban heat island effect can increase the severity of pollution which can be harmful to everyday people as well as vulnerable groups. It can cause digestive system disease, which leads to “less appetite and indigestion with high reoccurrence rate.” The heat island effect can also affect people’s nervous systems and lead to “insomnia, irritability, depression and memory decline.”⁴³ Extreme heat can not only harm the health of vulnerable

⁴² Virginia Gorsevski, Haider Taha, Dale Quattrochi, and J. Luvall. "Air pollution prevention through urban heat island mitigation: An update on the Urban Heat Island Pilot Project." Proceedings of the ACEEE Summer Study, Asilomar, CA 9 (1998): 3.

⁴³ Li Yang et al., “Research on Urban Heat-Island Effect,” *Procedia Engineering* 169 (2016): pp. 11-18, <https://doi.org/10.1016/j.proeng.2016.10.002>.

groups, but it also has the potential to take lives as it “on average... kills more people in the U.S. than any other weather hazard.” In New York City, the heat-induced illness, heatstroke alone takes the lives of, on average, “13 residents each year.” In addition to heatstroke, more than 100 lives are lost each year due to other health issues having to do with extreme heat.⁴⁴

Figure 5. This figure displays the thermal and humidity index category and what each level of heat or cold corresponds with as the human body responds to it.

THI category	THI (°C)
Hyper glacial	< -40
Glacial	-39.9 - -20
Extremely cold	-19.9 - -10
Very cold	-9.9 - -1.8
Cold	-1.7 - +12.9
Cool	+13.0 - +14.9
Comfortable	+15.0 - +19.9
Hot	+20.0 - +26.4
Very hot	+26.5 - +29.9
Torrid	>+30

People are generally the most comfortable around 15-20°C. When the THI is lower than 15°C people will noticeably feel cold and when and when the THI is higher than 20°C people will noticeably feel hot and may sweat. When the temperature extends into this uncomfortable range people are not only more at risk for health issues, but as a result of their discomfort they are less economically productive citizens.⁴⁵ When people’s health and mental states are poor they may be less willing to go to work, less willing to be productive at work, and less interested in

⁴⁴ “Mapping Urban Heat Islands Leads NYC Council Data Team to Landsat | U.S. Geological Survey,” USGS Science For a Changing World, March 1, 2021, [https://www.usgs.gov/news/mapping-urban-heat-islands-leads-nyc-council-data-team-landsat#:~:text=New%20York%20City%20\(NYC\)%20loses](https://www.usgs.gov/news/mapping-urban-heat-islands-leads-nyc-council-data-team-landsat#:~:text=New%20York%20City%20(NYC)%20loses).

⁴⁵ Li Yang et al., “Research on Urban Heat-Island Effect,” *Procedia Engineering* 169 (2016): pp. 11-18, <https://doi.org/10.1016/j.proeng.2016.10.002>.

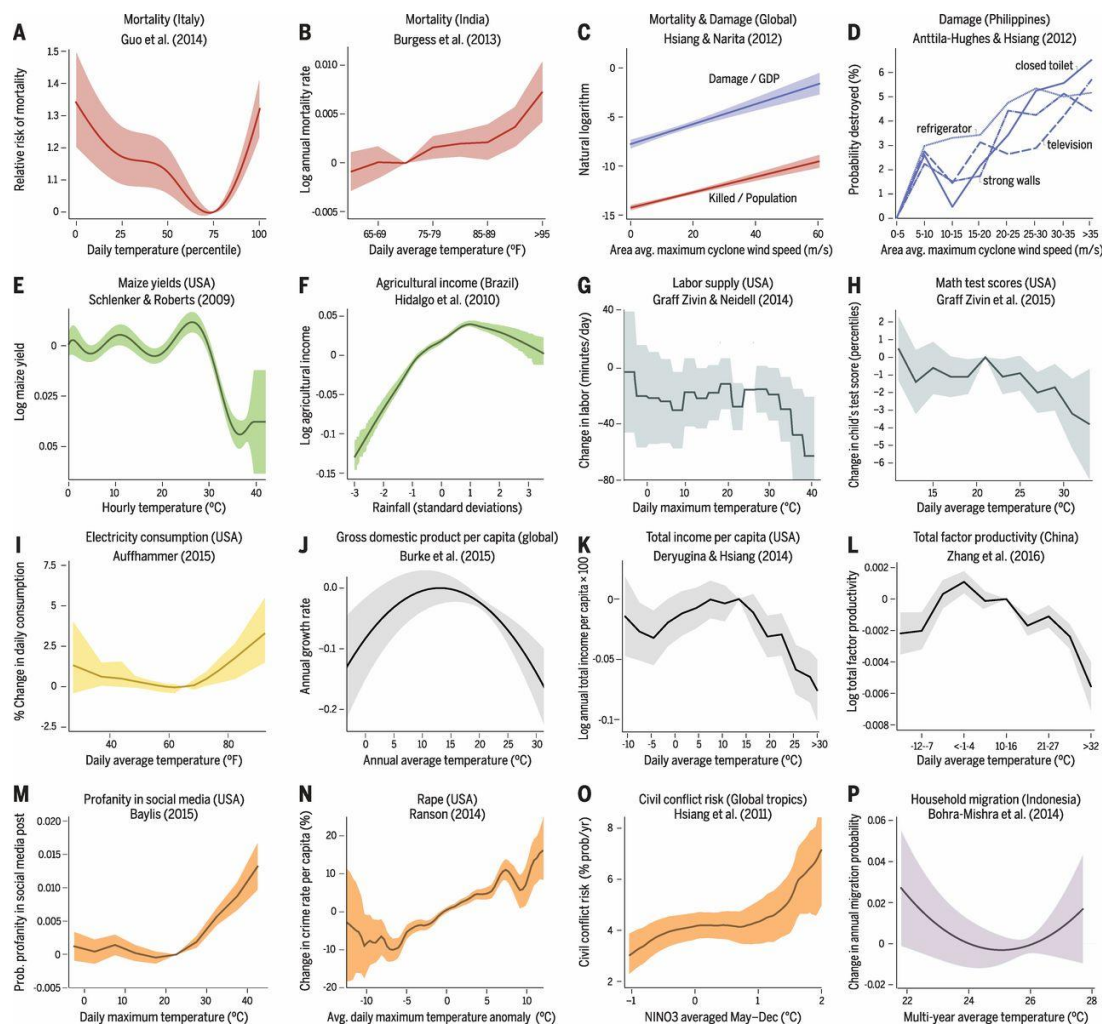
participating in leisure activities. This decline affects multiple sectors of the economy, and thus leads to an overall decline in the economic profitability of an urban area. The heat island effect is not simply a personal issue because it extends throughout the entire functionality of an urban area.

Rising temperatures, many of which are caused by the heat island effect, as well as other effects of climate change such as extreme weather events, pose the threat of causing incredible social and economic downturn in our societies. Rising temperature outside of the comfortable range is predicted to cause higher death rates, lower crop yields, fewer people able to labor, fewer people able to perform well in school, more electricity usage, lower gross domestic products per capita, lower personal income, higher levels of crime, higher rates of civil conflict, and even more usage of profanity on social media.⁴⁶

Figure 6. This figure depicts graphically how rise in temperature as well as rise in extreme weather events can affect society.⁴⁷

⁴⁶ Tamma A. Carleton, and Solomon M. Hsiang. "Social and economic impacts of climate." *Science* 353, no. 6304 (2016): aad9837.

⁴⁷ Tamma A. Carleton, and Solomon M. Hsiang. "Social and economic impacts of climate." *Science* 353, no. 6304 (2016): aad9837.



The installation and upkeep of green spaces is a significant method to mitigate these issues, particularly in urban areas. It is particularly strategic to target urban areas to be the sites of environmental changes because that is where most of the world's population resides. The installation of urban green spaces in urban areas is also effective because “in addition to cooling the actual space, urban green spaces are also able to influence the surrounding area” which is known as the “urban green space cooling effect.”⁴⁸ All urban green spaces have been shown to have effects that mitigate the urban heat island effect, but in particular, large parks with an area of “more than 10ha” were able to provide “a 1–2 °C temperature reduction that extends over a

⁴⁸ Farshid Aram, Ester Higuera García, Ebrahim Solgi, and Soran Mansournia. "Urban green space cooling effect in cities." *Heliyon* 5, no. 4 (2019): e01339.

350m distance from the park boundary.”⁴⁹ When discussing climate change, 1–2 °C makes a significant difference because it can throw ecosystems out of equilibrium and contribute to extreme climate events.⁵⁰ The urban heat island effect and its corresponding mitigation strategies cannot be ignored due to potentially catastrophic effects.

Chapter 2. In the following section of this paper, I will be addressing the historical emergence of urban green spaces.

Initial Emergence of Urban Green Spaces. Although the concept of urban green spaces as we know them today has been a fairly recent development, urban green spaces have existed as early as 4000 BCE. Urban green spaces first emerged in Persia in the form of gardens in their city centers. Ancient Persian gardens were created as an escape from the dry climate and sandstorms. The gardens were surrounded by walls so that a micro-climate could be created within. The gardens were also created as a place for those seeking relaxation and particularly relaxation as a practice connected to “spiritual solace.”⁵¹ The first concept of paradise was even created because of these gardens. The Persian word “Pardis,” which refers to “a beautiful garden enclosed behind walls,” was adopted and adapted by Europeans and used to describe what we now understand as paradise.⁵²

The gardens were meticulously planned to be sites of such relaxation-based spiritual experiences. Gardens were designed with “soil, water, light, and even windflaws” in order to

⁴⁹ Farshid Aram, Ester Higuera García, Ebrahim Solgi, and Soran Mansournia. “Urban green space cooling effect in cities.” *Heliyon* 5, no. 4 (2019): e01339.

⁵⁰ “A Degree of Concern: Why Global Temperatures Matter – Climate Change: Vital Signs of the Planet,” NASA (NASA, October 12, 2020), <https://climate.nasa.gov/news/2865/a-degree-of-concern-why-global-temperatures-matter/>.

⁵¹ Raheleh Rostami et al., “Sustainable Cities and the Contribution of Historical Urban Green Spaces: A Case Study of Historical Persian Gardens,” *Sustainability* 7, no. 10 (September 29, 2015): 13290–316, <https://doi.org/10.3390/su71013290>.

⁵² “The Persian Garden,” UNESCO World Heritage Centre, accessed March 2, 2023, <https://whc.unesco.org/en/list/1372/>.

create spaces ideal for spiritual practice. Not only were the physical features of the garden considered, but the layout of the gardens were mathematically organized. The geometrical principles of “Chahar Bagh” were considered by the Persians when constructing their gardens. “Chahar Bagh,” which means “Four Garden” is a mathematical design scheme that divides spaces into four quadrants. This design scheme comes from the “fundamental layout of all Persian Architecture “chahâr-tagh,”” which similarly divides any type of space into four quadrants. The “Chahar Bagh” design also influences how irrigation systems, cultivation strategies, and arrangement plans are set up. Such meticulous planning was used to create the gardens because they were constructed as spiritual spaces to honor Zoroastrian principles. These principles were first used in 550 BCE in the construction of “Pasargadae” (The Royal Garden of Cyrus the Great, the king of Achaemenid dynasty).” The four quadrant system was developed to symbolize “the four Zoroastrian elements of sky, earth, water, and plants.” Different plant species were swapped and changed throughout time to adapt to different climate conditions, but the design principles remained the same even through Islamic and Mughal eras.⁵³

Figure 7. This image depicts a classic Persian Garden.⁵⁴

⁵³ Raheleh Rostami et al., “Sustainable Cities and the Contribution of Historical Urban Green Spaces: A Case Study of Historical Persian Gardens,” *Sustainability* 7, no. 10 (September 29, 2015): 13290–316, <https://doi.org/10.3390/su71013290>.

⁵⁴ “UNESCO World Heritage Centre - Document - the Persian Garden,” UNESCO World Heritage Centre, July 20, 2005, <https://whc.unesco.org/en/documents/119149>.



During the 11th century many traditional “Chahar Bagh” style gardens were replaced with European inspired gardens. Many of the new gardens imitated French “Parterre,” which is a gardening style with planting beds arranged in symmetrical patterns that are separated by gravel walkways. Although unique in their own way, this style of garden was “not considered to be appropriate in the context of Iranian culture and climate.” Both styles of gardens still exist in the present day although French style gardens are much less popular.⁵⁵

Western Historical Dimensions. Early versions of what is now recognized as urban green spaces were created in ancient Rome. The Romans added green space elements to their urban areas in order to combat health issues that were observed to be more prevalent in such urban areas. They were also created in order to defend against invaders, improve the economy, and for

⁵⁵ Raheleh Rostami et al., “Sustainable Cities and the Contribution of Historical Urban Green Spaces: A Case Study of Historical Persian Gardens,” *Sustainability* 7, no. 10 (September 29, 2015): 13290–316, <https://doi.org/10.3390/su71013290>.

political purposes.⁵⁶ Urban green spaces were again introduced to the western world in a more formal way by the government in London in the 18th century. During the 17th century, paved public plazas were becoming part of the common architecture of London. They served as areas of open space where the public could gather. During the 18th century, many of these spaces were converted into the first urban green spaces. Elements of nature such as trees and shrubs that would generally be found in the countryside were transplanted into the city. Unfortunately, as meaningful as this movement could have been to the city's population, these formerly public spaces became privatized and segregated by the wealthy.⁵⁷ Privatization was not overturned until a century later in the 19th century. At the turn of the 19th century, an influx of people were migrating from the countryside to the city. Cities, and in particular the city of London, realized that they needed to make some structural changes in order to “achieve the greatest happiness for the greatest number” and to oust “barbaric behavior” caused by country folk who were unaccustomed to city living. London then recognized that providing slices of the country that people could access in the city could be a productive solution that could help it elevate the health and well-being of its citizens. Because of London's concerns, the first urban green spaces were created.⁵⁸

New York City was not far behind London's innovations as their first park, Bowling Green Park, was officially recognized in 1733. Bowling Green was the site of many significant historical happenings and events such as the place Manhattan was purchased, a meeting place for

⁵⁶ Ilaria Giovagnorio et al., “The Environmental Elements of Foundations in Roman Cities: A Theory of the Architect Gaetano Vinaccia,” *Sustainable Cities and Society* 32 (July 2017): 42–55, <https://doi.org/10.1016/j.scs.2017.03.002>.

⁵⁷ Henry W. Lawrence, “The Greening of the Squares of London: Transformation of Urban Landscapes and Ideals,” *Annals of the Association of American Geographers* 83, no. 1 (1993): pp. 90-118, <https://doi.org/10.1111/j.1467-8306.1993.tb01924.x>.

⁵⁸ Hilary A. Taylor, “Urban Public Parks, 1840-1900: Design and Meaning,” *Garden History* 23, no. 2 (1995): p. 201, <https://doi.org/10.2307/1587078>.

Native American leaders, a parade site, and a cattle market.⁵⁹ The purchase of Manhattan that happened on this land is significant because the Natives who had previously been stewards of the land accepted Peter Minuit's, "director-general of New Netherland in 1626," offer. He offered the Natives "Some Diffies [duffles; that is, cloth], Kittles [kettles], Axes, Hoes, Wampum, Drilling Awls, Jews Harps, and diverse other wares, which were all particularized."⁶⁰

Although from a modern perspective it seems like the Native American council people accepted an inequitable deal, they made this decision on a valid premise. Unlike the Europeans, Native Americans had no concept of ownership of land. The Natives did, however, understand the value of goods and supplies. Since surrendering their land rights was insignificant and meaningless, it seemed to them like a great deal to trade their land for useful goods. Of course before the colonizers arrived, Native Americans were self-sufficient, but within their communities, "cloth and metal items were scarce and novel and, especially in the case of kettles, hoes, and axes, [they] were generally superior to their own equipment."⁶¹ There is a prevailing myth that New York City was traded for a small amount and insignificant value of beads, however this is an incomplete rendering of what occurred.⁶² Because of Native American contributions and willingness to share their sacred land, the first urban green spaces of the present day were able to emerge.

Not only did the purchase of Manhattan happen on the future site of Bowling Green park, but the space also became the first modern park and urban green space in the area that we now know as New York city. The intentions created for the urban green space align with the

⁵⁹ "Bowling Green : NYC Parks," accessed February 3, 2023, <https://www.nycgovparks.org/parks/bowling-green/>.

⁶⁰ Peter Francis. "The Beads That Did 'Not' Buy Manhattan Island." *New York History* 78, no. 4 (1997): 41. <http://www.jstor.org/stable/43460452>.

⁶¹ Peter Francis. "The Beads That Did 'Not' Buy Manhattan Island." *New York History* 78, no. 4 (1997): 44. <http://www.jstor.org/stable/43460452>.

⁶² Peter Francis. "The Beads That Did 'Not' Buy Manhattan Island." *New York History* 78, no. 4 (1997): 41. <http://www.jstor.org/stable/43460452>.

intentions of modern green spaces. The space was maintained and opened for public use “for the Beauty & Ornament of the Said Street as well as for the Recreation & delight of the Inhabitants of this City.” When the park was initially created it was quite simple with just “grass, trees, and a wood fence.” A few decades later in the history of the park a statue of King George III was created and displayed in the park. However, the life of the statue was short lived, as the statue was toppled over and broken by angry New Yorkers after the Declaration of Independence was first publicly read in the state. The park remained a public space until 1819 when the city voted that “neighbors could plant and tend the area in return for the exclusive use of the park by their families.” The space was privatized for a few decades until the mid 1800s when the park became open to the public again.⁶³

Bowling Green Park remained the city’s only public urban green space until sixty four years later when Duane Park was purchased in 1797 by the New York City government. The park was named for James Duane who was a significant figure in the Revolutionary War. Duane was also “delegate to the constitutional convention, judge of the United States District Court, and first mayor of New York after independence.” Compared to Bowling Green Park and especially compared to any large modern day park, Duane Park was quite small and unassuming. Despite its small size it is significant because it is the second public urban green space in New York as well as the first area of small green space that’s primary purpose is to break up “ the relentlessness of an urban landscape.”⁶⁴

Throughout the years, the design of the park evolved with the needs of the community and the styles of the time. In 1886 the park underwent a more dramatic change as “a newly

⁶³ “Bowling Green : NYC Parks,” accessed February 3, 2023, <https://www.nycgovparks.org/parks/bowling-green/>.

⁶⁴ “Our Tiny and Mighty Treasure Historic Overview: Duane Park Timeline,” Friends of Duane Park, November 29, 2021, [https://www.duanepark.org/history/#:~:text=Duane%20Park%20is%20the%20second,Church%20\(Wall%20St.\)](https://www.duanepark.org/history/#:~:text=Duane%20Park%20is%20the%20second,Church%20(Wall%20St.)).

elected reformist mayor, Abram Hewitt, proclaimed that all New York City parks should be more like Central Park or Prospect Park in Brooklyn.” By this statement he meant that parks should be “places to wander amid greenery.” Because of the park’s small size it was difficult to design it in any way similar to either of these massive parks. The person tasked with this assignment was Calvert Vaux, who was known for his work on Central Park. Vaux scrapped the original design of the park and created pathways on each of the three sides of the triangular park. He also decided to plant “green grass...a few shrubs along the fence, and a small flower bed” within the park’s small frame.⁶⁵

Figure 8. Duane Park: “Postage stamp Central Park.” Designed in 1886.⁶⁶



⁶⁵ “Our Tiny and Mighty Treasure Historic Overview: Duane Park Timeline,” Friends of Duane Park, November 29, 2021,

[https://www.duanepark.org/history/#:~:text=Duane%20Park%20is%20the%20second,Church%20\(Wall%20St.\)](https://www.duanepark.org/history/#:~:text=Duane%20Park%20is%20the%20second,Church%20(Wall%20St.)).

⁶⁶ “Our Tiny and Mighty Treasure Historic Overview: Duane Park Timeline,” Friends of Duane Park, November 29, 2021,

[https://www.duanepark.org/history/#:~:text=Duane%20Park%20is%20the%20second,Church%20\(Wall%20St.\)](https://www.duanepark.org/history/#:~:text=Duane%20Park%20is%20the%20second,Church%20(Wall%20St.)).

In 1940, Duane park was yet again redesigned because the infrastructure of the park was not meeting the current needs of the community. The area had become a warehouse district instead of a more residential area. Since the majority of people using the park were not leisurely neighborhood visitors, but instead workers taking breaks, the usage of the park changed. Instead of requiring a place to walk and feel immersed in nature, workers instead required a place to sit to eat their lunch or smoke. The park design was changed—benches were added and parts of the flower beds and grassy areas were replaced with concrete. A few decades later, the park had fallen into a state of disrepair because of neglect. At this point in time, the warehouses had closed down so the needs of the community using the park had changed again. In the 1990s the park was again redesigned in a way that was more similar to the “postage stamp Central Park” design. The idea for the new park design was to recover “the secluded and green feeling of 1887, while maintaining a sense of security and providing space for those who like to stop by at lunch hour or sit amid the greenery in the afternoon and evening.”⁶⁷ The needs of communities when it comes to urban green spaces are ever changing. The usages of urban green spaces have a huge reflection on the state of communities at certain points in time. Tracking the usage and designs of urban green spaces over time is a unique yet telling lens to view social and cultural history.

Chapter 3. This chapter will address the ethics surrounding access to and availability of urban green spaces. It will apply the discipline of environmental justice to analyze ethical dimensions of urban green spaces.

⁶⁷ “Our Tiny and Mighty Treasure Historic Overview: Duane Park Timeline,” Friends of Duane Park, November 29, 2021, [https://www.duanepark.org/history/#:~:text=Duane%20Park%20is%20the%20second,Church%20\(Wall%20St.\)](https://www.duanepark.org/history/#:~:text=Duane%20Park%20is%20the%20second,Church%20(Wall%20St.)).

Environmental Justice Definitions and Contextualization. Environmental justice is a subset of the environmental movement that “analyze[s] patterns of disproportionate exposure to environmental hazards experienced by minority and low-income communities.” Environmental justice seeks to gain an understanding of “how such patterns have developed” and how “to develop programs by which disproportionate exposures can be remedied and prevented.”⁶⁸ Environmental justice is a recognition that environmental harm extends beyond the tragedy of the commons. Environmental harms have the potential to harm everyone on earth, but they also specifically and disproportionately harm marginalized groups. Environmental justice is also fundamentally intertwined to the accessibility and availability of usable ecosystem services, as discussed in chapter 1. For instance, if the functions of a community’s regulating ecosystem services are reduced and their water quality is poor, they will not be able to function as well as a community with access to clean water. The availability of these services is tied to environmental justice, because the divination of such ecosystem services is not random. Oftentimes, impoverished minority communities are forced to bear the greatest effects of environmental harms due to degradation of ecosystem services. A community’s lack of any fundamental ecosystem service is a significant environmental justice issue.

The Environmental Movement as a whole began in the 1960s, but it was not until the 1980s that the Environmental Justice Movement began to gain traction. The Environmental Justice Movement officially came to be in 1982 in Warren County, North Carolina when the county was chosen to be the site of a hazardous waste landfill. The neighborhood chosen to be the site of the landfill also happened to be a predominantly black community. Community members realized that they were being targeted to suffer the ills of environmental harms because

⁶⁸ David E. Newton, *Environmental Justice: A Reference Handbook* (Santa Barbara, CA: Instructional Horizons, 1996).

of their demographic so they retaliated by staging a protest. The protest gained a lot of traction and more than 500 people were arrested, which gained a lot of attention for the cause as well as the overarching Environmental Justice Movement as a whole. Unfortunately the state did not reverse their decision on choosing Warren County to be the site of the landfill, but it did inspire many other communities to protest against environmental justice violations occurring in their own communities.⁶⁹

Studies have shown that such incidents are not isolated and coincidental, but instead they are a clear indicator of environmental injustice. The General Accounting Office, which is now known as the Government Accountability Office reviewed governmental decisions regarding placement of hazardous waste landfills in the Environmental Protection Agency's Region 4, which includes, "Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee." These states, which also happen to have high minority populations, were the hosts of 4 hazardous waste facilities, collectively. The four locations where the landfills were located were found to also be predominantly black communities. In addition to these communities being predominantly composed of minorities, the communities were also all found to have at least 26% of the population earning incomes below the poverty line threshold.⁷⁰ It seems evident that these communities were targeted for their demographics as well as financial status. As seen in this example, as well as many other future examples, this community was likely chosen to be the host of environmental harms because they were deemed the "least likely to express opposition." Private companies are urged by conventional wisdom to prey on

⁶⁹ "Environmental Justice History," Energy.gov (Office of Legacy Management), accessed March 29, 2023, <https://www.energy.gov/lm/environmental-justice-history#:~:text=The%20initial%20environmental%20justice%20s park.>

⁷⁰ "Environmental Justice History," Energy.gov (Office of Legacy Management), accessed March 29, 2023, <https://www.energy.gov/lm/environmental-justice-history#:~:text=The%20initial%20environmental%20justice%20s park.>

communities that have low socioeconomic status as well as limited levels of education because they have less means to resist.⁷¹ Many communities of color who already face general systemic racism are held down even further when even their living environment is not conducive to basic human functioning as well as appropriate standards of living. Because of the recognition of this treatment, at least by victims of such human rights abuses, the Environmental Justice Movement gained momentum and continues to grow into the present day.

How Urban Green Spaces Can Serve People With Disabilities

In terms of increasing people with disabilities' access to urban green spaces, accessibility needs to be considered when selecting design elements for a green space.⁷² When considering physical accessibility design strategies like “accessible design” and “barrier free design” should be considered. These two design strategies are different methods of ensuring that physical barriers and obstacles are removed from the environment. In addition to removing physical obstacles, certain additions to existing designs like ramps should also be considered. If an urban green space includes stairs or curbs, ramps are necessary to ensure the accessibility of the space. The removal of curbs would make spaces even more accessible but if curbs are necessary as boundary markers or for other functions, designers must include strategies to combat these issues for people with physical disabilities and even people pushing strollers.⁷³ Urban green spaces should also include proper facilities such as bathrooms, seating areas, and cafes that are accessible to people with disabilities.⁷⁴

⁷¹ Luke W Cole and Sheila R Foster, *From the Ground up : Environmental Racism and the Rise of the Environmental Justice Movement* (New York, N.Y.: New York University Press, 2001, 70).

⁷² Magdalena Biernacka and Jakub Kronenberg, “Classification of Institutional Barriers Affecting the Availability, Accessibility and Attractiveness of Urban Green Spaces,” *Urban Forestry & Urban Greening* 36 (December 2018): 22–33, <https://doi.org/10.1016/j.ufug.2018.09.007>.

⁷³ “Designing Inclusive Green Spaces,” IBI Group, September 27, 2018, <https://www.ibigroup.com/ibi-insights/designing-inclusive-green-spaces/>.

⁷⁴ Elaine Hoffmann, Henrique Barros, and Ana Ribeiro, “Socioeconomic Inequalities in Green Space Quality and Accessibility—Evidence from a Southern European City,” *International Journal of Environmental Research and Public Health* 14, no. 8 (August 15, 2017): 916, <https://doi.org/10.3390/ijerph14080916>.

In a time where there is a statistical rise in disabled people, it is especially important to make sure that green infrastructure is accessible. Many urban green space designers fail to design accessible spaces because there is a trend in the modern and post modern society of standardizing designs that lower production costs. Although the low cost infrastructure may adequately perform for those without disabilities, people with disabilities are not able to adjust. People with disabilities “require assistance; individual attention; and to an extent, their own infrastructure.”⁷⁵

The lifestyles in modern and post-modern societies are highly standardized and adhere to uniform norms and viewpoints in order to keep costs low. People with special needs often cannot adjust to these norms. Such standards are not appropriate for them; they require assistance; individual attention; and to an extent, their own infrastructure

Differences in Urban Green Space Benefits Based on Sex & Gender

Although urban green spaces have clear health benefits for all sexes, they do affect males and females differently. A study conducted in 2010 in the UK found that among people who had access to green space, men's physical health had a greater chance at improving. The study found that as people's access to green space increased, men's “risk of cardiovascular and respiratory disease mortality decreased.” This correlation did not exist for the women involved in the study. When men living in the “greenest spaces” were analyzed, the study found that in terms of cardiovascular disease risks, the health effects were not major. The study reported that there was a modest 5% reduction in risk for cardiovascular disease versus a substantial 11% reduction in risk for respiratory diseases for men living in the “greenest spaces.” Although urban green spaces do have proven benefits on women's health, the study found that in communities with significant

⁷⁵ Klaus Seeland and Simone Nicolè, “Public Green Space and Disabled Users,” *Urban Forestry & Urban Greening* 5, no. 1 (June 2006): 29–34, <https://doi.org/10.1016/j.ufug.2006.03.001>.

green space rate of female lung cancer mortality also increased. The study hypothesized this is because of increased smoking rates in these communities rather than the effects of the green spaces themselves.

The benefits that have been derived from urban green spaces however, are to come from three main categories including: “1) provision of opportunities for physical activity, 2) recovery from stress and attention fatigue, and 3) facilitation of social contact.” These benefits are not always equally accessible based on gender norms as well as realities having to do with gender differences. The study theorizes that the differing ways in which men and women use green spaces could have to do with the varying health benefits that the space could possibly provide.⁷⁶ For instance, women are less likely to engage in vigorous physical activity when in public parks.⁷⁷ Women also have to be more aware of their personal safety when in public spaces. The study found that when women felt as if their environment did not have sufficient personal safety, they were significantly less likely to walk around in the space. If women were taking care of children, they would likely feel even more uncomfortable entering situations that they perceive as unsafe. When green spaces were located in “obviously managed areas” or there was a law enforcement presence the study found that women felt safer and were thus more likely to attend the green space. Women also felt less comfortable in remote green spaces in comparison to men and because of that do not attend such outdoor spaces as frequently.⁷⁸

⁷⁶ Elizabeth A. Richardson and Richard Mitchell, “Gender Differences in Relationships between Urban Green Space and Health in the United Kingdom,” *Social Science & Medicine* 71, no. 3 (August 2010): 568–75, <https://doi.org/10.1016/j.socscimed.2010.04.015>.

⁷⁷ Deborah A. Cohen et al., “Contribution of Public Parks to Physical Activity,” *American Journal of Public Health* 97, no. 3 (March 2007): 509–14, <https://doi.org/10.2105/ajph.2005.072447>.

⁷⁸ Elizabeth A. Richardson and Richard Mitchell, “Gender Differences in Relationships between Urban Green Space and Health in the United Kingdom,” *Social Science & Medicine* 71, no. 3 (August 2010): 568–75, <https://doi.org/10.1016/j.socscimed.2010.04.015>.

What does attract women to urban green spaces, which can consequently provide social benefits, is perceived social quality of the green space. Unlike opportunities for physical exertion in green spaces, men examined in the study did not derive any significant benefits from perceived social qualities of a space. Women who “perceive more community problems” have been shown to have worse health such as “poorer functioning in usual activities, including work, recreation, and self-care.”⁷⁹ If more positive community elements were able to be incorporated into urban green spaces, the health gap between men and women’s benefits from urban green spaces could be lessened.

Urban Green Spaces & Covid-19

During the peak of the Covid-19 pandemic, when strict social distancing measures were implemented, many city dwellers found relief in visiting local green spaces to get out of the house. In New York City “over 90% of residents” live “within a 10-minute walk of a park.”⁸⁰ In comparison to other American cities, New Yorkers have significantly more access to parks close to home. Despite their “higher than average access to parks per capita,” during Covid-19 New Yorkers found themselves more aware than ever of the downfalls of their neighborhood parks. One major deterrent that kept New Yorkers away from utilizing neighborhood green spaces was the concern of lack of safety.

Another issue that New Yorkers ran into was the question of how to access their preferred public parks. A common way to navigate around the city is riding the subway, but when the Covid-19 pandemic hit, such a cornerstone of New York life was no longer able to be used as it was in the past because of its high risk nature. In general large public parks that are more

⁷⁹ Carol Molinari, Melissa Ahern, and Michael Hendryx, “The Relationship of Community Quality to the Health of Women and Men,” *Social Science & Medicine* 47, no. 8 (October 1998): 1113–20, [https://doi.org/10.1016/s0277-9536\(98\)00114-2](https://doi.org/10.1016/s0277-9536(98)00114-2).

⁸⁰ “Everyone Deserves a Park within a 10-Minute Walk of Home.,” The Trust for Public Land, accessed March 11, 2023, <https://www.tpl.org/city/new-york-new-york>.

accessible by subway have the most number of visitors. When subways became a less desirable option, many New Yorkers searched for replacement outdoor spaces that were within walking distance of their homes. Although smaller neighborhood green spaces are more beneficial than none at all, many people found that the affordances that their neighborhood parks offered did not match up to the larger and perhaps further away parks.⁸¹ For instance, if a family relied on a larger urban green space with a dog park to ensure their dog got enough exercise, not having this access to this facility might mean that the family would have to walk their dog in potentially crowded, smaller, and less safe conditions.

In addition to having to use different parks due to avoidance of the subway, many New Yorkers also had to change their routines to work around closures of park facilities. Many parks closed down bathrooms and cooking facilities due to public health concerns. For New Yorkers who relied on these facilities for basic human needs and as major parts of their daily routines, it was difficult to adjust. In particular, unhoused people who relied on public restrooms and cooking facilities, oftentimes no longer had these options. For future pandemics, such environmental justice issues should be considered, so that people can have access to facilities that support their basic human functions. Although facilities were closed due to valid public health concerns, perhaps facilities could be put on a more regular cleaning schedule or alternate facilities could be provided in order to support the community and their human needs.

Especially in a time when social distancing was at the forefront of many people's minds, having to do a simple everyday task in conditions that could potentially put people at risk for contracting the virus, made the task much more stressful, dangerous, and even deadly. A survey

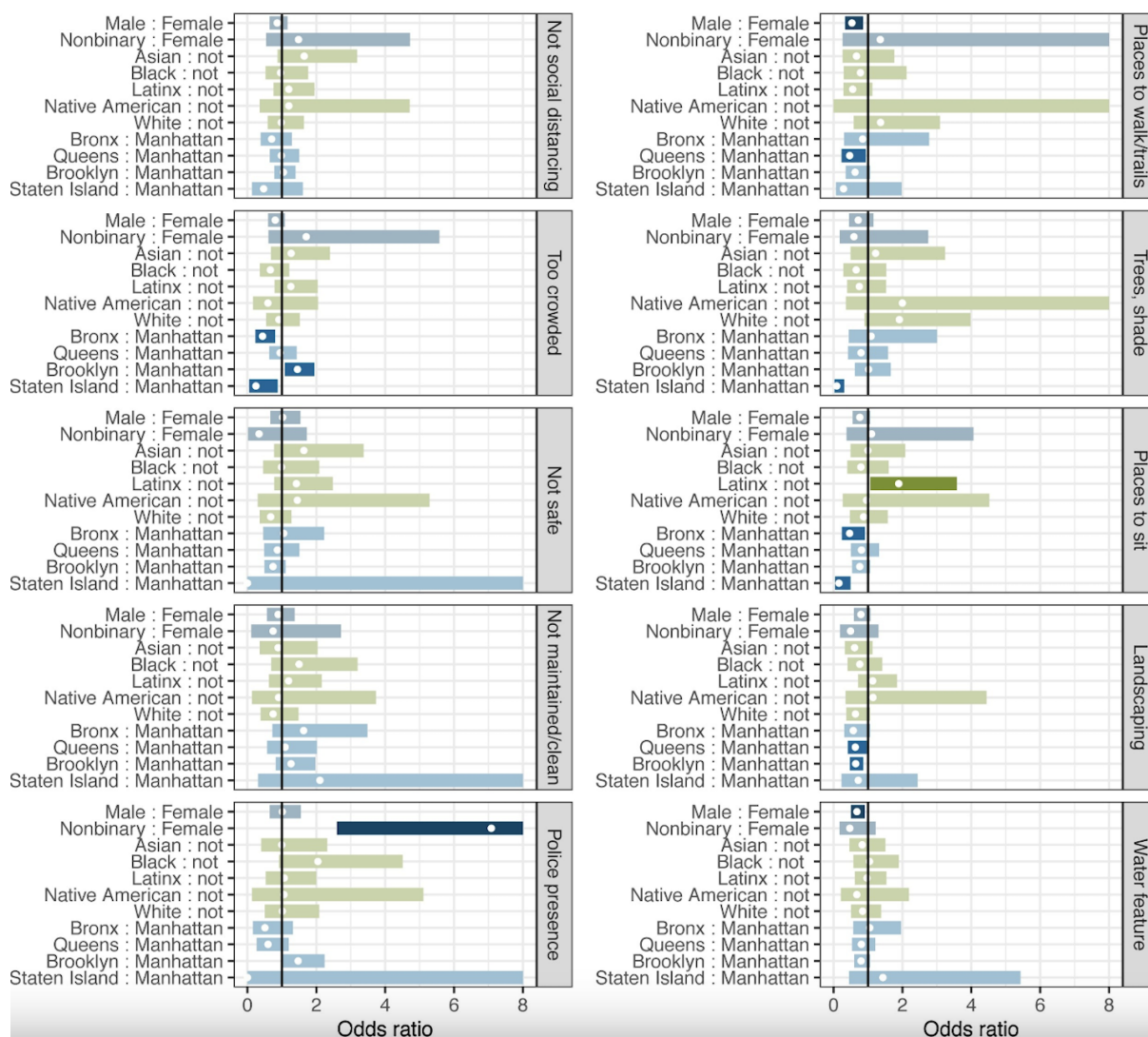
⁸¹ Bianca Lopez et al., "Who Benefits from Urban Green Spaces during Times of Crisis? Perception and Use of Urban Green Spaces in New York City during the COVID-19 Pandemic," *Urban Forestry & Urban Greening*, September 2021, 127354, <https://doi.org/10.1016/j.ufug.2021.127354>.

conducted in New York City during the height of the Covid-19 pandemic found that the majority of New Yorkers surveyed were most concerned about people not properly practicing social distancing and the fact that parks were overcrowded. Although these were the top concerns reported, great differences in priorities were reported across demographic lines. For example, Latinx people were found to be the most likely demographic to cite “a lack of park staff” and “not child-friendly” as their top priority issues. Another example of differing priorities in terms of urban green space preferences is the survey results that show that “nonbinary respondents were more concerned than women about police presence and lack of adequate lighting.” What survey respondents selected as their top concerns across various demographic lines is telling of the different experiences that people have based on their unique identities. The survey also demonstrates the multitude of environmental justice issues present when it comes to urban green space accessibility during pandemic. All types of demographics such as gender identity, parental status, neighborhood, and racial identity can create unique environmental justice issues. The survey proves that pandemic does not bring up uniform environmental justice issues, but instead it brings up a plethora of varying issues.⁸²

Figure 9. Demographics of survey respondents who selected certain concerns when visiting urban green spaces.⁸³

⁸² Bianca Lopez et al., “Who Benefits from Urban Green Spaces during Times of Crisis? Perception and Use of Urban Green Spaces in New York City during the COVID-19 Pandemic,” *Urban Forestry & Urban Greening*, September 2021, 127354, <https://doi.org/10.1016/j.ufug.2021.127354>.

⁸³ Bianca Lopez et al., “Who Benefits from Urban Green Spaces during Times of Crisis? Perception and Use of Urban Green Spaces in New York City during the COVID-19 Pandemic,” *Urban Forestry & Urban Greening*, September 2021, 127354, <https://doi.org/10.1016/j.ufug.2021.127354>.



The Involvement of the Marine Park Alliance.

Although the Marine Park Alliance is not able to solve the problem of creating enough urban green space for all cities' populations, they are able to contribute to the aiding of this issue on a more micro level. Marine Park has fifteen miles of nature trails as well as a diverse array of other outdoor facilities that visitors can make use of. These facilities include “two baseball fields, 11 softball fields, 10 soccer fields, two football fields, four cricket fields, 15 tennis courts, 10 handball courts, 10 basketball courts, and three bocce courts. It also features a playground with spray showers, fitness equipment, three rose gardens, two parking lots, a bike rental concession,

a seniors' community center, and a .8 mile oval track for bicycles, walkers and runners.”⁸⁴ The park also borders preserved marshlands and looks out on a creek for much of its perimeter. These facilities allow visitors to have a reason to go outside, a place to move around, a place to enjoy the simple pleasure of natural beauty, and an opportunity to improve their mental health.⁸⁵ Marine Park is also very intentionally designed to provide an opportunity for visitors to build community through special events hosted at the park. The park hosts an abundance of events including anything from art and cultural activities to fitness and nutrition classes to after-school and children's summer programs. The Carmine Carro Community Center, where the park's indoor events are hosted, was also carefully designed in an environmentally minded manner. The Center is heated and cooled with geothermal energy instead of standard gas-powered temperature regulation.^{86 87} The roof of The Center is covered with vegetation “to achieve environmental benefits including reducing stormwater runoff, energy use, and the heat island effect.”^{88 89} In addition to the vegetation on the roof, the roof also houses solar panels that use electromagnetic radiation to create electric energy for The Center.^{90 91} As well as taking into account ways to combat climate change in the environmental design, The Center is also designed with

⁸⁴ “Facilities & Map,” Marine Park Alliance, May 19, 2021, <https://www.marineparkalliance.org/visitor-info/>.

⁸⁵ “Lack of Fair Access to Urban Green Spaces,” ScienceDaily (University of British Columbia, January 17, 2019), <https://www.sciencedaily.com/releases/2019/01/190117110827.htm>.

⁸⁶ “Natural Gas Heating Systems,” American Gas Association, accessed April 3, 2022, <https://www.aga.org/natural-gas/in-your-home/heating/#:~:text=The%20most%20common%20furnace%20is,through%20the%20home%20s%20ductwork>.

⁸⁷ “Carmine Carro Community Center,” Marine Park Alliance, July 13, 2020, <https://www.marineparkalliance.org/visitor-info/carmine-carro-recreation-center/>.

⁸⁸ “Carmine Carro Community Center,” Marine Park Alliance.

⁸⁹ “The Benefits and Challenges of Green Roofs on Public and ...,” The Benefits and Challenges of Green Roofs on Public and Commercial Buildings (United States General Services Administration), accessed April 3, 2022, https://www.gsa.gov/cdnstatic/The_Benefits_and_Challenges_of_Green_Roofs_on_Public_and_Commercial_Buildings.pdf.

⁹⁰ “How Does Solar Work?,” Energy.gov, accessed April 3, 2022, <https://www.energy.gov/eere/solar/how-does-solar-work>.

⁹¹ “Carmine Carro Community Center,” Marine Park Alliance.

multi-purpose recreation rooms, ADA accessible bathrooms, and a kitchen that are all open to the public. These facilities can be utilized to build community and improve visitors' health.⁹²

The design of Marine Park is highly related to the fight against climate change because of its environmental strategic planning and ingenuity. In Frances Moore Lappé's book, *Diet for a Small Planet*, she discusses the effects of climate change on individuals and the earth at large. She explains that "the health of the whole is literally essential to the individuals' well-being. If we are ultimately interdependent, it becomes silly to think in terms of trade-offs between social integrity and the individual's unfettered pursuit of happiness."⁹³ This statement explains how the health of individuals and the planet are intimately intertwined. Individuals cannot pursue self-interest that harms the planet without harming themselves because it is contradictory. The planet can also not be harmed without harming individuals in the process. The environmental design of Marine Park is also connected to this phenomenon because, although it is on a more micro-scale, individual visitors of the park cannot thrive if the park is not designed in a way that centers the environmental health of the property and the planet's health at large. The park will also fail to thrive if visitors and staff members do not direct their behavior in a way that centers environmental preservation.

The park adequately provides for the surrounding community and is a positive example of an ideal green space. At the same time, it is important to note that Marine Park, the neighborhood where The Marine Park Alliance is located, is a well-off and predominantly white neighborhood.⁹⁴ On the online platform Niche, a database that ranks neighborhoods based on a variety of different categories, awarded the Marine Park neighborhood an "A" for its performance

⁹² "Carmine Carro Community Center," Marine Park Alliance.

⁹³ Lappé Frances Moore and Mazara Aimée, *Diet for a Small Planet* (New York, NY: Ballantine Books, 2021), lxiv.

⁹⁴ "Living in Marine Park," Niche, accessed April 8, 2023, <https://www.niche.com/places-to-live/n/marine-park-new-york-city-ny/>.

in the availability of outdoor activities category. Many of the comments on the page by neighborhood residents also highlighted the availability of parks and how they greatly enriched their neighborhood. One reviewer commented that “The multiple parks around keep ample opportunities to spend time with my family in nature.” Another neighborhood resident highlighted in their review that “there is a local park where kids and adults can meet new people and enjoy activities like Zumba and Yoga.” Neighborhood residents seemed to be very happy with the state of their neighborhood and an overwhelming number of residents attributed at least some of the neighborhood’s quality to Marine Park.⁹⁵ It is incredible that the Marine Park community has been fortunate enough to have such a functional green space in their neighborhood, however the vast difference between this neighborhood and nearby lower income minority neighborhoods with less functional green spaces provides a glaring juxtaposition and points to environmental justice issues. It is important that policy makers and urban planners work together in order to give other communities the same level of access to quality green spaces.

Chapter 4. This chapter will discuss the politics surrounding urban green spaces and how that relates to community access.

The Rise of Environmental Justice Legislation. In 1992, Bill Clinton signed Executive Order 12898, which created the federal Office of Environmental Justice. This order directed federal agencies to implement environmental justice strategies when creating and implementing federal programs in the United States. Agencies are oftentimes required to consider issues such as “public health”, “cumulative impacts”, “social costs”, and “welfare impacts” when proposing laws and practices. Environmental justice was also further integrated into the EPA. All regional

⁹⁵ “Living in Marine Park,” Niche, accessed April 8, 2023, <https://www.niche.com/places-to-live/n/marine-park-new-york-city-ny/>.

and headquarter EPA offices have a designated person who is responsible for coordinating environmental justice efforts within the office and with external contacts.

In the New York City Mayor's Office of Climate and Environmental Justice, plans have been enacted to continue the environmental justice mission. For instance, one of the city's priorities is to improve New Yorker's access to public parks. In 2014, the city launched an initiative with a goal of having 85% of New Yorkers live within walking distance to a park. The goal of the program is to rebuild, renovate, and open parks particularly in neighborhoods that have access to fewer resources. This is a solution to an environmental justice based issue because it is expanding proper green space access among underserved neighborhoods instead of merely focusing on more wealthy neighborhoods of privileged demographics. The city also has similarly based environmental justice goals to better manage flooding, tackle extreme heat, restore natural areas, and replant and protect trees. All of these goals directly combat the effects of climate change as well as make New York communities more habitable. As the Office of Climate and Environmental Justice tackles these climate change caused issues in a way that prioritizes underfunded communities, environmental justice progress is thus simultaneously prioritized.⁹⁶

Recent Policy in New York City: OneNYC. One of the most notable and recent environmental policies in New York City is known as OneNYC. One NYC not only tackles strictly environmental issues, but it also tackles other surrounding environmental justice related issues. Firstly, the plan strives to improve democracy in New York City by increasing voter outreach efforts specifically in communities that suffer from voter suppression such as immigrant communities and communities of color. One NYC decides where to focus the bulk of their efforts based on New York City environmental justice law which designates certain areas as

⁹⁶ "Green Space," NYC Mayor's Office of Climate and Environmental Justice, 2022, <https://climate.cityofnewyork.us/subtopics/green-space/>.

“environmental justice areas.” Such areas are defined as areas that are “low-income or minority communities located in the City of New York.”⁹⁷ When minority voices have the chance to be heard more equally, the city will have more potential to change in ways that can potentially benefit minority communities. Secondly the plan sets a goal to create a more “inclusive economy.” This refers to creating opportunities for people who have not been able to benefit from the growing economy. This part of the plan will combat poverty. Having better access to more economic resources can potentially help New Yorker’s combat environmental injustice because with more economic equality comes the potential for more equality across other demographic lines. The next part of the plan strives to create “thriving neighborhoods,” including creating more affordable housing, public parks, community spaces, and cultural resources. The creation of more public parks is directly linked to environmental benefits. Although the other parts of this goal are not directly about the natural environment, all of these goals have to do with the enhancement of environmental justice because they combat issues having to do with people’s experiences in their environments. Not having access to adequate housing and adequate community spaces is an environmental justice issue even though it is less related to nature and more related to people's environments. If marginalized people are suffering due to their environment, the issue is likely an environmental justice issue. OneNYC also is trying to promote “healthy lives” through expanding access to healthcare. Many people living in minority communities in New York City do not have adequate access to proper care or cannot afford healthcare so New York is promoting NYC Care as a way to bring healthcare to those who cannot afford it. OneNYC is also adopting an intersectional approach to improving New Yorkers' health by addressing various factors that can affect health such as “gun violence and traffic

⁹⁷ “Environmental Justice,” NYC Mayor’s Office of Climate and Environmental Justice, accessed May 5, 2023, <https://climate.cityofnewyork.us/topic/environmental-justice/#:~:text=NYC>.

fatalities, intensive heat waves due to climate change, and air pollution that exacerbates heart and lung problems, particularly for children with asthma.” Having access to proper healthcare can help mitigate as well as help solve environmental justice related issues that affect people's health. Next, OneNYC sets a goal to improve “equity and excellence in education.” They are expanding access to education by expanding Pre-K for all as well as improving educational services in low income neighborhoods. As communities have access to more education, they are less likely to be preyed upon by companies or governing bodies enacting environmentally racist policies.

OneNYC then directly addresses environmental issues and sets a goal to create “a livable climate”. They plan to do so through striving for carbon neutrality as well as investing in heat and flood mitigation projects. The plan then addresses the issue of increasing “efficient mobility.” This part of the plan strives to make public transportation more reliable, improve infrastructure such as roads and bridges, modernize airports, “invest in sustainable transportation modes such as walking, biking, and mass transit, and encourage a citywide transition to sustainable fuels.” This goal directly addresses environmental issues because it strives to make public transport more sustainable. The goal can also help people directly because it allows them to commute more freely. The last goal the plan sets expands on physical infrastructure and seeks to improve “modern infrastructure.” Modern infrastructure mainly refers to digital infrastructure as well as modernizing old forms of physical infrastructure. OneNYC sees internet access as a human right of the modern world and is trying to expand broadband access. The plan also plans to modernize physical infrastructure by making it climate change resilient and adapted to our technologically advancing society. Having better access to quality internet is part of the solution to many intersectional issues having to do with poverty, racism, and classism. Making climate

change resilient infrastructure is also a necessary mitigation strategy to deal with the climate crisis at hand.⁹⁸

The Marine Park Alliance in Present Day NYC Environmental Policy.

The Marine Park Alliance is involved in local politics and advocacy, as it relates to their work. In Particular, they are involved in parks and recreation advocacy in New York. Since the inauguration of the new mayor, Eric Adams, there has been a significant push from the parks and recreation community to have 1% of the city budget go towards parks and recreation. Many other large cities around the country have about 2% of their budget allocated towards parks and recreation so this ask was a relatively low ball offer. Eric Adams committed to the one percent plan, but when it came to actual budgeting, he only allotted the parks and recreation department 0.5 percent of the city's total budget. Mayor Eric Adams claimed that increasing the parks budget is one of his long-term goals despite the outcome of his preliminary funding allocation. Unfortunately, he has yet to release any plan detailing his approach to doubling his current budget expenditure.⁹⁹

The Marine Park Alliance is also currently looking into formalizing land recognitions of the park. There is currently some history of the park and the surrounding community that is unclear. It has been my job to do research on the history of the park and do some investigation via the archives contained in the Brooklyn Surrogate's Office and the Center for Brooklyn History. During pre-civil war times, there was a family that was enslaved on the land that is

⁹⁸ "OneNYC 2050," OneNYC, 2019, <https://onenyc.cityofnewyork.us/>.

⁹⁹ Joe Anuta, "Adams' Pledge to Boost Parks Funding Is Absent from Budget Proposal," POLITICO, February 21, 2022, <https://www.politico.com/news/2022/02/21/adams-pledge-to-boost-park-funding-nowhere-to-be-found-in-budget-proposal-00010284#:~:text=During%20the%20mayoral%20race%2C%20a,Department%20of%20Parks%20and%20Recreation.>

currently Marine Park. The Alliance wants to do research on the history of the family in order to properly recognize them and share the history with visitors of the park.

Current Environmental Policy in New York City

In October of 2014, New York City piloted a program called “NYC Parks: Framework for an Equitable Future,” where they created a plan to allocate funding, incorporate maintenance resources, and create community events in areas where needs are greatest. The program specifically focuses on targeting communities “that are densely populated, growing, and contain higher-than-average concentrations of poverty.”¹⁰⁰ This program was a way to further New York's significant investment in public green spaces and make sure that parks were thoroughly serving their communities by employing an environmental justice framework. One strategy that the Parks department is implementing is a program designed to make parks seem more inviting, which is known as Parks Without Borders. The goal of this program is to encourage more people to use greenspaces by making them appear more inviting by installing art, improving fences and gates, and lowering walls, fences, and barrier vegetation that might be hiding the natural beauty of green spaces. Parks without Borders also aims to make use of underused public space by cycling through various types of public programming and displays.¹⁰¹ This not only has the potential to attract more people to parks, but it also provides a better and more enriching experience for all visitors.

The program also extends beyond the borders of parks and also attends to the areas around them. The program also invests in street trees, benches, sidewalk greenery, directional

¹⁰⁰ “NYC Parks: Framework for an Equitable Future,” Official Website of the New York City Department of Parks & Recreation, accessed May 6, 2023, <https://www.nycgovparks.org/about/framework-for-an-equitable-future>.

¹⁰¹ “Parks & Public Spaces - Mayor’s Office of Sustainability,” NYC Mayor’s Office of Climate & Environmental Justice, accessed March 12, 2023, <https://www.nyc.gov/site/sustainability/initiatives/parks.page>.

signs, as well as other park and park adjacent amenities.¹⁰² Such features add visual appeal as well as increased functionality to neighborhoods. Such additions are particularly important in low income neighborhoods because it helps people's surrounding environments provide benefits for them, such as improved mental health, rather than taking away from it.

Parks Beyond Borders as well as the Framework for an Equitable Future program in general not only improve environmental justice in individual neighborhoods by improving the conditions and facilities of lower income communities, but they also contribute macro scale changes to the New York City environment as a whole. Adding additional green space to NYC neighborhoods can promote and sustain ecological diversity, decrease flooding, as well as combat the heat island effect. This affects the health of NYC residents at large, because the quality of the environment allows citizens to operate at a more optimal level due to their improved mental and physical states.¹⁰³

Although this program is making necessary and important changes in New York's green infrastructure, the city still has a ways to go in terms of achieving environmental justice. One major way that New York fails at promoting environmental justice is through zoning and city planning. For instance, Interstate 81, was a massive highway that was constructed "though a redlined segregated Black community" in Syracuse, New York. Because of the highway's construction, over 1,300 working-class black families were displaced. Not only were many families displaced, but others who were able to stay suffered from pollution and lowering land values. The highway furthered system racism through the route of environmental racism and pushed black working class communities into deeper levels of inescapable poverty and

¹⁰² "Parks & Public Spaces - Mayor's Office of Sustainability," NYC Mayor's Office of Climate & Environmental Justice, accessed March 12, 2023, <https://www.nyc.gov/site/sustainability/initiatives/parks.page>.

¹⁰³ "Parks & Public Spaces - Mayor's Office of Sustainability," NYC Mayor's Office of Climate & Environmental Justice, accessed March 12, 2023, <https://www.nyc.gov/site/sustainability/initiatives/parks.page>.

segregation. Unfortunately, the community not only had to suffer the ill effects of the highway, but the city also installed “a sewage treatment facility, a steam-manufactured plant, an electric grid, and several brownfields.” Due to the environmental atrocities affecting the community, “one in six black children” suffer from lead poisoning, which are “some of the highest rates in the nation.” In addition, more generally, residents of the community who live closer to the viaduct have increased “rates of asthma and other respiratory illnesses compared to their whiter, residential counterparts.”¹⁰⁴

Such environmental ills are not confined to New York state, but they even prevalently exist in the relatively more progressive New York City. Many of New York City’s predominantly black and P.O.C. neighborhoods are the sites of “power plants, wastewater treatment facilities, and major highways.” For instance, the community of Mott Haven in the South Bronx is known as “Asthma Alley” because of its high air pollution that leads to asthma. The South Bronx and Mott Haven specifically is a community housing majority people of color. In Mott Haven “97% [of] Latinx and Black residents are collectively exposed to about 60% more pollution than is caused by their own consumption,” which is a clear indicator of failed environmental management.¹⁰⁵ The addition and maintenance of urban green spaces in such communities could help at least somewhat mitigate these issues, but unfortunately the current state of the problem is that many such communities like Mott Haven do not have adequate green space.¹⁰⁶ Many other

¹⁰⁴ “New York’s Green Amendment: Curbing Environmental Racism,” New York Civil Liberties Union, July 22, 2022, <https://www.nyclu.org/en/publications/new-yorks-green-amendment-curbing-environmental-racism#:~:text=Environmental%20Racism%20in%20New%20York&text=These%20communities%20are%20targeted%20for>.

¹⁰⁵ “New York’s Green Amendment: Curbing Environmental Racism,” New York Civil Liberties Union, July 22, 2022, <https://www.nyclu.org/en/publications/new-yorks-green-amendment-curbing-environmental-racism#:~:text=Environmental%20Racism%20in%20New%20York&text=These%20communities%20are%20targeted%20for>.

¹⁰⁶ “Mott Haven Open Space Index” (New Yorkers for Parks, 2014), https://www.ny4p.org/client-uploads/pdf/OSI/NY4P_Mott_Haven_Open_Space_Index.pdf.

systemic issues are at work that need to be addressed, but for the time being at least allowing the community adequate facilities to improve their mental health is a step in the right direction.

Some disenfranchised communities like Mott Haven, do have small amounts of green space, but the space they have is not being used in effective ways that could potentially better the community. Mott Haven does have green spaces, and among those some of them have recreational facilities. The issue is that there are over 46,000 residents in the neighborhood and the green infrastructure available is not enough to support that many people.

Figure 10. The map displays the community of Mott Haven and highlights parks and community gardens in green.



¹⁰⁷ “Mott Haven Open Space Index” (New Yorkers for Parks, 2014), https://www.ny4p.org/client-uploads/pdf/OSI/NY4P_Mott_Haven_Open_Space_Index.pdf.

One significant and ongoing issue in Mott Haven is the case study of St. Mary's Park. St. Mary's park is the largest green space in Mott Haven, but it is not optimally functional due to the mental health and opioid crises unfolding in the Bronx. Many people suffering with addiction use St. Mary's Park as the site of their addiction. This consequently causes St. Mary's Park to become littered with loose needles.

Bill De Blasio's administration attempted to aid this crisis with an initiative known as Healing NYC. The goal of the project was to control litter and implement harm reduction practices. The program addressed this goal by installing "60 syringe disposal boxes... across 16 Bronx parks." This initiative cost "New York taxpayers \$60 million." Many New York City residents were upset with the progress of the initiative, as they did not see signs of change in their communities. The syringe disposal boxes were being broken into and drug use continued in the park. Community members felt as if St. Mary's park was unusable.¹⁰⁸ Especially as the largest green space in Mott Haven, it is important that community members feel as if they can use the green space to their benefit, but many community members do not see the park as safe and hospitable enough to make use of the space.

Some community members have called for an increased police presence to address the presence of people using hard drugs in the park. Many people feel as if the New York Police Department is not doing enough to address crime and drug use in the area and believe that the NYPD is turning a blind eye to much of the illegal activity taking place at the park. Other community members believe that both installing syringe disposal boxes and increasing police presence are only temporary solutions. They believe that larger systemic changes have to be made in order to reclaim the park and have it be a safe space and functional public park.¹⁰⁹

¹⁰⁸ Alexander LaForest, "A Narcotics Playground," Student Journalism, March 23, 2023.

¹⁰⁹ Alexander LaForest, "A Narcotics Playground," Student Journalism, March 23, 2023.

Drug users have also weighed in on the issue and explained their side of the situation. Rivera, resident of Mott Haven who uses drugs in the park, also worries about safety issues regarding the situation. She is particularly worried about the needles haphazardly thrown around the park because she is worried about children finding them and playing with them. She is also actively involved in cleaning up the park and disposes of her own as well as other people's used needles in the collection boxes. Although she recognizes the safety issues regarding drug use in the park, she has also suffered from displacement due to a nearby encampment being shut down by the police. The encampment was a site for drug use, but it was also a somewhat safer place to sleep for many unhoused community members. When their encampment got shut down, Rivera as well as many other community members, chose St. Mary's park to be the site of their drug use.¹¹⁰

Due to addiction, drug use is not going to immediately stop, so in the meantime harm reduction steps must be taken to create a place where people can use without taking over the main green space of the neighborhood. The NYPD's response to shut down sites of drug use and encampments is not solving any problems except dispersing unhoused drug users so that they are less visible to the rest of the community. These people are going to continue using and are going to be in potentially more unsafe situations without the protection of others in their community. A potential solution could be having more social workers and addiction specialists reach out to provide recovery options to those dealing with addictions. Rivera, who still currently uses, is also involved with recovery services. She visits a local clinic daily to receive a 60mg dose of methadone, which is "used for the treatment of opiate dependence."¹¹¹ Although Rivera still

¹¹⁰ Joe Hirsch, "The Lady of St. Mary's," Mott Haven Herald, February 2, 2018, <https://motthavenherald.com/2018/02/02/the-lady-of-st-marys/>.

¹¹¹ I. B Anderson, "Use of Methadone," Western Journal of Medicine 172, no. 1 (January 1, 2000): 43–46, <https://doi.org/10.1136/ewjm.172.1.43>.

struggles with addiction, going to the clinic has reduced her drug use.¹¹² Providing these options to users and potentially improving outreach efforts is a solid harm reduction tactic in terms of decreasing drug use. In addition, providing safe spaces where people can use and dispose of needles such as repurposed motel rooms can limit drug use in community spaces designed for other purposes.¹¹³

Chapter 5. The following chapter recommends policy changes based on the current political environment of New York City.

In order to recommend appropriate policy changes for New York City, each discipline discussed in this paper including history, environmental justice, political science, and government must be incorporated to fully address the intersectional nature of the social issues at hand. Access in general to urban green spaces needs to be expanded as well as prioritizing historically marginalized groups's access. It is also important to build and expand existing green spaces in ways that prioritize community needs. Without an appropriate understanding of the history and environmental justice issues surrounding individual communities, it is difficult to create green infrastructure that properly serves their needs. The unique needs of certain demographics, due to the intersectionality of the social ills that affect them, need to be addressed when creating or reforming policy. The following suggestions will be informed using such strategies.

As explained previously in the *Modern Design and Usage of Urban Green Spaces* section of this paper, one of the primary amenities that park access provides is access to places to

¹¹² Joe Hirsch, "The Lady of St. Mary's," Mott Haven Herald, February 2, 2018, <https://motthavenherald.com/2018/02/02/the-lady-of-st-marys/>.

¹¹³ G.Alan Marlatt, "Harm Reduction: Come as You Are," *Addictive Behaviors* 21, no. 6 (November 1996): 779–88, [https://doi.org/10.1016/0306-4603\(96\)00042-1](https://doi.org/10.1016/0306-4603(96)00042-1).

exercise. Individuals who live in low-income neighborhoods will statistically have less access to reasonable facilities to engage in physical activities. With American obesity rates on the rise, and the absence of fresh nutritious food in many low-income areas, a place to exercise is crucial to the health of millions of American communities.

Besides being an issue with socioeconomic status, appropriate access to physical activity facilities is also an intersectional race-related issue as Black and Hispanic people “are less likely to meet physical activity recommendations than whites.”¹¹⁴ Because of the higher levels of poverty that Black and Hispanic communities face, they have less time and adequate space to exercise which only feeds into continuous loops of oppression. Of course, park access and the amenities that parks include are huge factors that feed into the health of communities, but the idea that communities have disamenities also needs to be examined. For instance, “high neighborhood crime rates and hazardous traffic patterns may reduce park usage and decrease the potential benefits of a park.”¹¹⁵ In order to properly address issues with park access, the amount of quality parks in each neighborhood needs to be increased, but other issues that can reduce the attractiveness of parks need to be resolved in tandem. This can only happen if municipal and state governments prioritize parks and recreation in their infrastructure improvements as well as community safety. Additionally, we need to create specific policy solutions to address racial disparities in this country. As long as we still have such significant divisions between people in America, no other significant policies that improve the health of our community can be accomplished due to the intersectional nature of social justice issues.

¹¹⁴ Ming Wen et al., “Spatial Disparities in the Distribution of Parks and Green Spaces in the USA,” *Pub Med Central* 45, no. S1 (2013): pp. 18-27, <https://doi.org/10.1007/s12160-012-9426-x>.

¹¹⁵ Christopher C. Weiss et al., “Reconsidering Access: Park Facilities and Neighborhood Disamenities in New York City,” *Journal of Urban Health* 88, no. 2 (January 2011): pp. 297-310, <https://doi.org/10.1007/s11524-011-9551-z>.

Parks & Recreation Budget. One major way that we can begin to address the issue of unequal access to park facilities, is to achieve what the Marine Park Alliance and the Parks Department have been pushing for in terms of expanding the Parks budget. Since 14% of the total area of New York City is public parks, it does not make much sense to have only 0.5% of the city's budget allocated to support the extensive upkeep that NYC Parks desperately need. With 1% of the New York City budget going to parks, the city could hire more Parks Enforcement Patrol officers to protect the safety of parks. These budget shifts “would ensure every playground is adequately staffed and that we have more than one gardener per 133 acres of parkland (which is the city's current, untenable ratio). It would enable the Parks Department to better care for our urban forests and natural areas, and to maintain these areas for future use.” Increased funding would also allow the city “to expand access to safe, quality park space, especially in underserved areas such as Flushing, Brownsville or the South Bronx that tend to bear the brunt of austerity budgeting at the Parks Department.”¹¹⁶

Parks for All. Another policy that could greatly serve communities all over the country, would be a law that specifies that an inclusive park must be available and accessible to all communities around the country. The term inclusive park, refers to green spaces that cater to people of varying abilities, genders, and ethnic backgrounds. Many communities technically have local green spaces except they are not functional to an optimal level because their setting, size, or amenities are not appropriate for what the community needs.

People would be much more likely to make use of green spaces, as well as reap the physical and mental benefits, if green spaces were designed in a way to better serve community

¹¹⁶ Adam Ganser, “Opinion: This Budget Cycle, NYC Must Prioritize Funding for Parks,” City Limits, March 28, 2022, [https://citylimits.org/2022/03/25/opinion-this-budget-cycle-nyc-must-prioritize-funding-for-parks/#:~:text=One%20percent%20for%20parks%20would,city's%20current%2C%20untenable%20ratio\).](https://citylimits.org/2022/03/25/opinion-this-budget-cycle-nyc-must-prioritize-funding-for-parks/#:~:text=One%20percent%20for%20parks%20would,city's%20current%2C%20untenable%20ratio).)

members. For instance, if outdoor gym equipment was added to lower income communities that may not have access to gym facilities elsewhere, the community would greatly benefit in terms of mental and physical health. Another example of a way to make green space more useful for community needs would be to design parks with sporting facilities such as soccer fields and basketball courts. Such amenities allow communities an opportunity to get outside and exercise as well as a space for communities to gather and form connections. Even simply setting up a green space in a way that has places to walk around and sit, whether that be benches or even rocks for people to sit on, will improve the quality of a green space. Improvements to green space infrastructure do not necessarily need to be expensive in order to better the community. Of course it is up to individual people if they decide to make use of local green spaces or not, however, making green spaces as attractive as possible with the budget available is the best way to get the most potential benefits from the spaces as possible.

The examples discussed have referred to design policy enforced design changes that could make parks more useful to a general population. Making green spaces accessible for those of diverse identities must also be discussed and put into policy. As discussed in Chapter 3, design strategies such as “accessible design” and “barrier free design” need to be considered when designing green spaces. Not only should such strategies be considered by urban planners, but cities and towns should have regulations that ensure that accessibility is prioritized in the designing of green spaces. In addition to relying on urban planners, environmental justice organizations could be invited to have a larger role in the designing of parks so that environmental justice is prioritized in the planning process. Of course some green spaces are more difficult to make accessible than others. For example, trying to build concrete pathways on wetlands could potentially destroy the ecosystem, so this is not advised. However making green

spaces as accessible as possible, such as installing a small bridge overlooking the wetland could make the green space more accessible even if the whole space is not accessible for all. Perhaps regulations could be made to ensure that there are accessible green spaces available within a fifteen minute walk of each community.

Diversity in Parks. In addition to making parks more accessible to all groups of people in a general sense, racial and ethnic diversity should be specifically prioritized. Due to the historical emergence of parks which were oftentimes segregated, and urban structures that were unfairly zoned, many people of color suffer from unequal access to green spaces. A study performed in Los Angeles, California surveyed Latinx people about their perception of exclusiveness in nearby parks. People identified multiple main factors that made them feel most unwelcome including “the predominantly White clientele of parks; the ethno-racial profile of park-adjacent neighborhoods; a lack of Spanish-language signs; fears of persecution; and direct experiences of discrimination as exclusionary factors.”¹¹⁷

Besides creating park signs in multiple languages, many of the issues the study participants noted are not immediate fixes as they are due to structural issues. Although many of the issues with park access are complicated to fix at the source, there are steps that park managers can take to limit the severity of such issues. To begin the process of creating more inclusive parks, park planners should consider their park image in terms of who they feel is represented in person and online. If images online portray the park as ‘white nature’ that only attracts white people, only has white staff, and only has information available in English, it is difficult for those of varying ethnic backgrounds to feel welcomed at the park. If small changes

¹¹⁷ Jason Byrne, “When Green Is White: The Cultural Politics of Race, Nature and Social Exclusion in a Los Angeles Urban National Park,” *Geoforum* 43, no. 3 (May 2012): 595–611, <https://doi.org/10.1016/j.geoforum.2011.10.002>.

to counteract these difficulties could be made, parks can begin the process of welcoming people of color into green spaces. In addition to hiring more ethnically diverse staff, parks can attract park visitors from different backgrounds by providing affordable nature education programs in multiple languages for children and families.¹¹⁸ Regardless of park managers intentions, “cultural practices through which nature is inscribed with meaning are ... always political, for they are bound up in questions of ‘whose nature’ may legitimately be practiced.”¹¹⁹ It is vital that parks make adequate policy changes to ensure people of all ethnic backgrounds feel welcomed in public green spaces in order to not prioritize certain uses and definitions of nature over others.

Harm Reduction for Drug Use in Parks. As discussed in Chapter 4, implementing harm reduction measures in parks can make parks safer and cleaner. One major harm reduction tactic that has been used in many communities around the world are syringe access programs. These programs provide access to clean syringes in order to decrease the spread of bloodborne diseases such as HIV. Not only can this program prevent the spread of disease, but it also encourages people to seek other recovery based services. Syringe access programs are also connected to programs that provide social services such as “drug treatment, overdose prevention, health education, chronic disease management, wound care, and assistance obtaining health insurance, housing, food, and social entitlements.”¹²⁰ Making options available and accessible to those struggling with addiction can drastically improve community recovery efforts because people who participate in syringe access programs are more likely to seek detoxification treatment as

¹¹⁸ Jason Byrne, “When Green Is White: The Cultural Politics of Race, Nature and Social Exclusion in a Los Angeles Urban National Park,” *Geoforum* 43, no. 3 (May 2012): 595–611, <https://doi.org/10.1016/j.geoforum.2011.10.002>.

¹¹⁹ Kevin Grove, “Rethinking the Nature of Urban Environmental Politics: Security, Subjectivity, and the Non-Human,” *Geoforum* 40, no. 2 (March 2009): 207–16, <https://doi.org/10.1016/j.geoforum.2008.09.005>.

¹²⁰ David H. Cloud et al., “Syringe Decriminalization Advocacy in Red States: Lessons from the North Carolina Harm Reduction Coalition,” *Current HIV/AIDS Reports* 15, no. 3 (May 8, 2018): 276–82, <https://doi.org/10.1007/s11904-018-0397-9>.

well as additional social services.¹²¹ In New York City there are some syringe service programs, however, most of the clinics are in Manhattan, and access in general could be expanded. The programs are non-profit grassroots organizations and are not directly funded through the New York City government.¹²²

Some skeptics of syringe access programs have brought up the issue of access to clean needles having possible linkages to crime as well as increased drug use. However, empirical evidence has proved that these programs do not increase drug use nor crime.¹²³

Legalization of drugs has also been considered abroad as well as within the United States as a valid harm reduction strategy. Firstly, legalization of drugs keeps people out of the criminal justice system. Under a system that is flooded with drug related arrests, exploring alternative options to deal with drug dependency issues can help people get out of a racist system.¹²⁴ A study assessed in New Haven, CT found that black people “were incarcerated at a dramatically higher rate than Whites (5–7 times) and accounted for almost half of all prisoners incarcerated with a sentence of more than one year for a drug-related offense.” This is due to racially skewed “policing practices and sentencing policies” that disfavor people of color.¹²⁵ Besides the policing and imprisonment practices that feed into systemic racism, providing an alternative to policing drug addiction issues could help focus attention on social services that have the potential to

¹²¹ Steffanie A. Strathdee et al., “Needle-Exchange Attendance and Health Care Utilization Promote Entry into Detoxification,” *Journal of Urban Health* 76, no. 4 (December 1999): 448–60, <https://doi.org/10.1007/bf02351502>.

¹²² “Your Guide to Syringe Service Programs in New York City” (NYC Health), accessed May 6, 2023, <https://www.nyc.gov/assets/doh/downloads/pdf/basas/syringe-service.pdf>.

¹²³ Melissa A. Marx, “Trends in Crime and the Introduction of a Needle Exchange Program,” *American Journal of Public Health* 90, no. 12 (December 2000): 1933–36, <https://doi.org/10.2105/ajph.90.12.1933>.

¹²⁴ Ethan A. Nadelmann, “The Case for Legalization - ProQuest,” www.proquest.com, 1988, <https://www.proquest.com/docview/222070268?parentSessionId=mze9JE88DEmb0nurgbpU2Gjozdbl5WsEbPZ05dQpWJU%3D&pq-origsite=360link&accountid=10932>.

¹²⁵ Alana Rosenberg, Allison K. Groves, and Kim M. Blankenship, “Comparing Black and White Drug Offenders,” *Journal of Drug Issues* 47, no. 1 (December 21, 2016): 132–42, <https://doi.org/10.1177/0022042616678614>.

resolve or mediate such issues.¹²⁶ This method also would function in tandem with harm reduction practices and social services aforementioned such as providing people with safe places to use as well as providing them with safe methods of injection. All of these practices also directly contribute to the safety, usage, accessibility, and potential benefits of urban green spaces. When communities can mediate drug abuse issues by using harm reduction tactics, non-using members of communities are able to use urban green spaces to their full benefit without fear for their personal safety.

Indigenous Contributions to Urban Green Spaces. When discussing inclusivity for all in terms of urban green spaces, indigenous people must be considered. The benefits that people in America derive from urban green spaces must be attributed back to the land of indigenous people. The benefits that urban green spaces can provide can be incredibly beneficial, however, people on American land must remember that they are living on stolen land. In a general sense, it is important that indigenous land reparations are followed through with. Land reparations do not only benefit indigenous people, but the people living in America in general. Colonization of land is arguable “the root of racism” because “white Europeans justified land theft and genocide by asserting that they were a scientifically superior class of human beings.”¹²⁷ This trend of Europeans claiming inherent superiority did not stop there and continues into the present day. In order to achieve a more equitable and just society, the roots of racism must be addressed in order to effectively begin the process.

The major structural issue of stolen land, can be addressed on more micro levels through awareness and action within urban greenspaces. To begin this process, indigenous people should

¹²⁶ Ethan A. Nadelmann, “The Case for Legalization - ProQuest,” www.proquest.com, 1988, <https://www.proquest.com/docview/222070268?parentSessionId=mze9JE88DEmb0nurgbpU2Gjozdb15WsEbPZ05dQpWJU%3D&pq-origsite=360link&accountid=10932>.

¹²⁷ “Land Reparations & Indigenous Solidarity Toolkit,” Resource Generation, accessed May 6, 2023, <https://resourcegeneration.org/land-reparations-indigenous-solidarity-action-guide/>.

be provided with priority opportunities to have a say in the organization of urban green spaces. Priority opportunities could look like anything from hiring park staff of indigenous backgrounds to contribute their knowledge to the park to facilitating a board of native people to discuss park organization. As many urban green spaces are not facilitated by indigenous leaders, at least providing opportunities for involvement or having affinity groups of indigenous leadership could positively affect the health, longevity, accessibility, and inclusivity of the space. Secondly, in terms of larger green spaces who host cultural and community events, these events could be used as opportunities to spread indigenous knowledge and recognize indigenous contributions.

Another strategy to begin the process of recognizing indigenous contributions and to begin the land reparation process is to connect with local indigenous people and see if there is any interest in land repatriation. Official recognition of indigenous land rights of even small plots of land begins the reparations process. If land can not be repatriated, another strategy of tackling these goals would be to sell parts of land and donate the proceeds to organizations that support land return causes or organizations that are led by indigenous people.¹²⁸

¹²⁸ “Land Reparations & Indigenous Solidarity Toolkit,” Resource Generation, accessed May 6, 2023, <https://resourcegeneration.org/land-reparations-indigenous-solidarity-action-guide/>.

Appendix: This section will provide an overview of my internship experience at the Marine Park Alliance.

My internship at the Marine Park Alliance has been a beneficial opportunity to discover and assist in the well-being of another one of New York's vital urban green spaces. It has given me an opportunity to use both my growing environmental knowledge and my communications skills. It has also given me great admiration for the people of the Marine Park Alliance who have devoted so much time and effort to providing a usable and enriching green space for people in Brooklyn. At the same time, my internship has revealed how much more needs to be done for people and the environment. Too many of us ignore the destruction of green space and the need for so much more green space. On an even broader scale, many people also do not recognize even the simple fact that humans are part of and not separate from our environment. Nature is what we are created from and what keeps us alive so it is vital that we prioritize its well-being.

My Role at The Marine Park Alliance.

I joined the Marine Park Alliance team as a Communications Intern and worked around eight hours a week, depending on the week. My duties included social media management, content creation, and research. I helped manage the Marine Park Alliances' Instagram, Facebook, and Twitter media. My role included drafting social media posts and organizing and updating a database of past and current social media posts. I also helped brainstorm ideas for social media posts. I would meet with two staffers from The Alliance via Zoom, and we would discuss ideas about what information is important to post, how to turn posts into donation asks, how to phrase captions, and what kind of images we would possibly want to include. We would then pass our ideas off to the Marine Park Alliance Board who would approve them or deny them, in which case we would have to create new ideas or edit previous ideas. I also created some flyers to

advertise volunteer days using Canva. I had to go through a similar approval process when making the flyers of submitting them to my higher-up who would then check with the board to make sure they represented The Alliance and our message. While this process was a bit bureaucratic, I enjoyed the opportunity to help create social posts for The Alliance.

In addition to my content creation duties, I also assisted the organization's research team by looking into historical records of the park as well as the histories of prominent people in the park's history. The research included online web research, corresponding with historians via email and phone, and visiting historical archives in order to track down specific information about the park's history. I traveled to the Kings County Surrogate's Office in Brooklyn to search for specific historical archives. The Marine Park Alliance's research team had found some information about the history of the people who lived on the site that later became Marine Park, so my job was to contact the Brooklyn Surrogate's Office and confirm that information. We initially corresponded over email and phone calls, but eventually, I had to pay a visit to their office to confirm some information in person. Working with the Brooklyn Surrogate's Office was a tedious and drawn-out experience because the Surrogate's Office and the other offices in the same building of the Kings County Surrogate's Court were swamped with other people needing their assistance. Because of their business, communicating with them was a slow process that required making many calls a week to them to get through to them via phone or having to wait over four hours to get some information when I visited in person.

Aside from historical research, I also did some social media research for The Alliance. Although the Marine Park Alliance has other goals besides expanding their social media following, they wanted to start using more hashtags in order to have more targeted interactions with their posts as well as becoming a larger part of the network of NYC Parks with similar

missions. My job was to find and investigate other similar-scale NYC parks and go through their Instagrams, Twitters, and Facebooks. My investigation included going through recent posts of the parks' social media accounts and noting down what kinds of hashtags they used as well as what kind of information gained the most attention. I then wrote up a report explaining my findings and making suggestions relating to how the Marine Park Alliance's social presence could be improved. I learned numerous valuable lessons about the ins and outs of professional communication, the significance of social media, the importance of urban green spaces, and the issues that can arise with bureaucracy.

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