ABSTRACT

Title of Thesis: FOOD INSECURITY IN THE DISTRICT OF COLUMBIA: DO COMMUNITY GARDENS HELP?

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More than 10% of the District of Columbia's residents have difficulty accessing affordable and healthy food, a number that is now projected to be over 16% because of COVID-19 (Sustainable DC, 2019; Food Security Report, 2020). Wards 7 and 8 experience the highest levels of food insecurity, with one grocery store per 60,000 residents versus other wards with one grocery store per 10,000 residents (Sustainable DC, 2019). Community gardens are sometimes referred to as part of the solution to food insecurity. This study explored if there was an intersection between community gardens and food security in Washington, DC. Through qualitative interviews and an inductive thematic analysis this study concludes that community gardens have a role in food security for those who experience food insecurity. The three core themes that emerged from studying community gardens were food security, relationships, and quality of life.

FOOD INSECURITY IN THE DISTRICT OF COLUMBIA: DO COMMUNITY GARDENS HELP?

By

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# Chapter 1: Introduction

More than 10% of the District of Columbia's residents have difficulty accessing affordable and healthy food, a number that is now projected to be over 16% because of COVID-19 (Sustainable DC, 2019; Food Security Report, 2020). Wards 7 and 8 experience the highest levels of food insecurity, with one grocery store per 60,000 residents versus other wards with one grocery store per 10,000 residents (Sustainable DC, 2019). Because of this, the DC Food Policy Council and Food Policy Director have made fresh food access for wards 7 and 8 a top priority (Sustainable DC, 2019). Within the city's sustainability plan, Sustainable DC 2.0., there is a section on food with a focus on food security and a goal to expand community gardens as one way to improve accessibility of healthy foods. While the District has already expanded both urban farms and community gardens, it is not sufficient as the plan notes that food access and chronic disease disparities persist (Sustainable DC, 2019).

The first goal in the plan is to "Expand agricultural uses and production within the District", which emphasizes urban farming but also includes expanding the number of community gardens in the District through the Department of Parks and Recreation (DPR) (Sustainable DC, 2019). Upon looking at a DPR community garden map, it is clear that there are a number community gardens in Wards 7 and 8, much like the rest of the city, though they tend to have significantly fewer plots. Even if there were a similar number of plots, wards 7 and 8 have a more significant need. That said, food insecurity is a Wicked Problem, a problem that is difficult to solve because of incomplete or contradictory knowledge, the number of opinions involved, the economic burden, and the interconnectedness of food insecurity with other social and cultural problems. To be

clear, the report does not present community gardens as the main answer to addressing food insecurity, it simply notes how community gardens create spaces where neighbors can gather and leave with healthy food. Nevertheless, the question of whether community gardens can serve as an appropriate response to food insecurity remains one worth exploring. How can community gardens, associated with DPR and in general, contribute to food security efforts? How are community gardens addressing food insecurity right now? Will an increase in community gardens directly impact an increase in food security or are there other factors that disrupt this causal chain? If community gardens have the ability to feed individuals in their community, how can we ensure these are accessible and equitable spaces?

## Chapter 2: Literature Review

### *2.1 Food Security*

The most widely accepted definition for Food Security is "A condition in which all community residents obtain a safe, culturally acceptable, nutritionally adequate diet through a sustainable food system that maximizes community self-reliance, social justice, and democratic decision- making" (Chen, Clayton, & Palmer, 2015). This is an extremely broad definition that leaves room for much interpretation and arguably creates space to deem the current United States (U.S.) food system as insecure. For the purposes of this project, the U.S. Department of Agriculture's (USDA) definition of 'food insecurity' will be used: "the limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways" (USDA, 2020). The words "nutritionally adequate" are important to note in this definition because while *food* may be accessible, it is often *nutrition* that we are talking about. Oftentimes, a more fitting phrase than *food security* is the phrase *nutrition security*.

### *2.2 Disparities in Food Security*

In 2018, food insecurity impacted 11.1 percent of Americans (USDA, 2019). The people most impacted by food insecurity are those with incomes below the federal poverty line; and Black, Hispanic, and single parent households experience food insecurity at higher rates than the national average (USDA, 2019). The relationship that food security has to race/ethnicity is multifaceted as it is connected to other social determinants of health, such as incarceration, poverty, and unemployment (Odoms-Young, 2019). One driver of the disparities seen in food security is the persistent social

and economic disadvantages that people of color have experienced since the founding of the United States (Odoms-Young, 2019). A 2019 Survey of Consumer Finances showed that today, White* families typically have eight times the wealth of typical Black families and five times the wealth of typical Hispanic families (Bhutta, Chang, Dettling, & Hsu, 2020). Discrimination and institutionalized racism are at the heart of income inequality and thus disparities in food security and health outcomes. Discrimination, in this context, is understood as the unjust treatment of people based on their race. Institutionalized racism is defined as, "differential access to the goods, services, and opportunities of society by race. Institutionalized racism is normative, sometimes legalized, and often manifests as inherited disadvantage. It is structural, having been codified in our institutions of custom, practice, and law" (Jones, 2000). For example, studies show that racial discrimination impacts people of color's access to education and employment, resulting in social and economic consequences that can lead to food insecurity (Odoms-Young, 2019). Furthermore, practices like racist policing result in a disproportionate amount of Black people who become incarcerated, which later leads to employment discrimination and thus economic disadvantages and food insecurity (Odoms-Young, 2019). These few examples highlight how both interpersonal discrimination and institutionalized discrimination result in inequitable wealth outcomes and thus inequitable food security outcomes and consequently inequitable health outcomes for Black, Indigenous, People of Color (BIPOC). Interpersonal discrimination differs from

*The author denounces those who capitalize the "W" in White to assert White Supremacy *and* has made the intentional choice to capitalize White to bring attention to how Whiteness functions in our society. The author believes that to disregard 'White' as a proper noun is to allow White people to sit out of conversations about race and their complicity in racism. Additionally, it frames Whiteness as the standard. Black, and all races, will also be capitalized because in our society, race is tied to identity, it is not just a color.

institutionalized racism in that it is "personally mediated" (Jones, 2000). Personally mediated racism can be intentional or unintentional and it is typically what people think of when they think of racism (i.e. suspicion, devaluation, scapegoating, and dehumanization based on race) (Jones, 2000). Personally mediated racism is where prejudice (assumptions about abilities, motives, etc.) and discrimination (action) occur towards another based on their race (Jones, 2000).

### *2.3 Food Justice*

When talking about food security, it is important that it is addressed through the lens of *food justice* because of the disproportionate share of food insecurity among BIPOC individuals. Food justice is a holistic and structural view of the food system that addresses barriers and views healthy food as a human right ("Food Justice", n.d.). "A food justice lens examines questions of access to healthy, nutritious, culturally appropriate food, as well as: ownership and control of land, credit, knowledge, technology and other resources; the constituent labor of food production; what kind of food traditions are valued; how colonialism has affected the food system's development and more." ("Food Justice", n.d.). To neglect the food justice lens would be to neglect the difference between *equity* and *equality*. By applying the lens of food justice, one recognizes that barriers to food and nutrition access exist for some and not others, namely BIPOC individuals. *Equality* is when all groups are given the same resources and it results in unequal outcomes. *Equity* recognizes that different groups have different circumstances and needs and therefore groups require different resources in order to achieve equal outcomes. Food justice centers equity.

### *2.4 Food Insecurity and Health*

Numerous health problems are associated with food insecurity from birth defects to developmental problems to behavioral problems and chronic disease (Theuri, 2015). There is significant evidence that illustrates a link between food security and overall health, increased comorbidities, additional psychological distress, and inadequate health behaviors (Walker, Chawla, Garacci, Williams, Mendez, Ozieh, & Egede, 2019). Often times when an individual is food insecure, they rely on "energy-dense" foods such as refined grains and foods with added sugar (Seligman, Laraia, & Kushel, 2010). These foods are of poor nutritional quality but are often consumed because they are less expensive calorie-for-calorie (Seligman et al., 2010). These diets often lead to lower levels of micronutrients and are linked to chronic diseases such as diabetes and hypertension (Seligman et al., 2010).

### *2.5 Food Environments*

Complicating the challenges that come with food insecurity are "obesogenic environments" or "food swamps", environments that are structured to promote unhealthy food options which contribute to unhealthy outcomes. These environments have increased unhealthy food marketing (Lake, 2006) and an abundance of fast food options and convenience stores. "Food swamps" differ from "food deserts", and controversy exists around the use of each term. "Food deserts" are areas with limited access to healthy food and "food swamps" are areas with adequate access to healthy food but an overabundance of exposure to unhealthy food and beverages (Chen, 2017). In "food swamps", food insecurity can still exist because of *food mirages*. *Food mirages* exist for

low-wealth individuals as they may have a grocery store nearby but it is not accessible to them because of cost (Chen, 2017).

Many people point out that the terms “food desert” and “food swamp” are inaccurate portrayals of the issues experienced in these food environments. Because deserts are naturally occurring and “food deserts” are not, social justice advocates prefer the term *food apartheid*. *Food apartheid* is a way of naming the systematic and racist construction of the food landscapes seen today. Additionally, as pointed out by Ashanté Reese in her book, *Black Food Geographies*, the term “food desert” focuses on lack. It presupposes that residents are trapped in their environment and act as passive consumers when in reality residents make “ways out of no way” thus reflecting their hopes and desires for their communities (Reese, 2019, p.9, 67). Similarly, some individuals reject the phrase “food swamp” because swamps naturally support the health of our ecosystem, whereas “food swamps” harm health. Lastly, while the term “obesogenic environment” is widely accepted, it is important to note that obesity is only *one* factor that can impact an individual’s health. Often obesity is treated as an individualistic root cause of health issues but the term “obesogenic environment” emphasizes that there are larger systemic issues at play. Unfortunately, because obesity is a visible factor, it is stigmatized in society, including our health systems. “Obesogenic environments” contribute to health issues in people of any size.

### *2.6 Disparities in Food Environments and Health Outcomes*

The environments in which we live are a social determinant of our health and they can either be salutogenic (health-promoting) or pathogenic (health-restricting) (Kavi,

Sinisterra, Bodenreider, Bellay, Ayub, Ravichandran, Archer, & Wilson, 2019). Studies have shown that low-wealth communities are disproportionately food swamp environments, having less access to supermarkets, more expensive fruits and vegetables, and more access to fast food restaurants (Hendrickson, Smith, & Eikenberry, 2004; Block, Scribner, & DeSalvo, 2004; Powell, Slater, Mirtcheva, Bao, & Chaloupka, 2007). One Baltimore study found that 43% of predominantly Black and 46% of low-wealth neighborhoods had the lowest healthy food availability score compared to the 4% and 13% in predominantly White and higher-wealth neighborhoods, respectively (Franco, Roux, Glass, Caballero, & Brancati, 2008). The structure of these environments and their inequitable distribution result in inequitable health outcomes.

Consistent evidence links cardiovascular disease (CVD) to neighborhood environment. Reasons for this are related to zoning and planning as well as features of the social environment (Wilson, Hutson, & Mujahid, 2008). Zoning and planning contribute to built environment, which impacts a neighborhoods walkability, space for physical activity, and access to grocery stores (Wilson et al, 2008). A neighborhoods social environment is impacted by socioeconomic characteristics which proxy features like crime and social cohesion (Wilson et al, 2008). These social features are linked to health outcomes like insulin resistance, physical activity, and diet (Wilson et al., 2008). Because of persistent segregation in U.S. neighborhoods across racial and socioeconomic lines, low-wealth and BIPOC communities live in different areas than their White counterparts and bear the brunt of negative health outcomes (Wilson et al., 2008). One diet related disease experienced by people of color at higher rates than their White

counterpart is diabetes. This is largely due to BIPOC populations having lower incomes than White individuals ("The Devastating Consequences", 2016), a result of discriminatory behavior in education, hiring practices, etc. When left unmanaged, diabetes can cause further health complications like blindness, kidney damage, and poor circulation which can lead to amputations and cardiovascular diseases and/or events ("The Devastating Consequences", 2016). Adverse blood pressure is also more prevalent in African Americans and has been linked to diet as well as physical activity, tobacco use, education, and socioeconomic status (SES) (Chan, Stamler, & Elliot, 2015). Perhaps most relevant is its link to discrimination (Hedgepeth, 2020), as discrimination can be linked to all aforementioned determinants. For example, we know that low-wealth neighborhoods and neighborhoods with more Black residents have more tobacco marketing (Lee, Henriksen, Rose, Moreland-Russel, and Ribisl, 2015). Overall, it is clear that race based discrimination lies at the root of inequitable outcomes that we see. Often we identify social determinants of health as the root cause of health outcomes but this is not sufficient. Behind each social determinant of health like SES, physical environment, and education, lies discrimination.

### *2.7 Supermarket Redlining*

Addressing food insecurity requires us to understand the functioning of poverty, one of the strongest social determinants of health (Walker et al., 2019), and therefore capitalism and racism. To illustrate this we can look at "supermarket redlining" which encapsulates the intersection of zoning, racism, poverty, capitalism, and thus food insecurity. Each of these issues highlights how food insecurity has come to be

constructed and how the United States values capital over health and equity. "Supermarket redlining" is "a phenomenon [where] major chain supermarkets are disinclined to locate their stores in inner cities or low-income neighborhoods and usually pull their existing stores out and relocate them to suburbs" (Zhang & Debarchana, 2016). The drive for supermarket redlining is rooted in structural racism as it is a reaction to the racist zoning practice known as redlining.

Redlining was the act of outlining areas on a map in red ink where there was a large Black population (Perry & Harshbarger, 2019). These red outlined areas served as a warning to mortgage lenders, which resulted in the isolation of Black people in areas that would receive less investment than their White counterparts (Perry & Harshbarger, 2019). The practice of redlining was implemented by the Federal Housing Administration (FHA), a government agency that was established in 1934 to provide mortgage insurance for economic stimulation through home and community development (Federal Housing Administration, n.d.; Jackson, 1980).

In the 1940's, as low interest home loans were offered to White middle-class families in the suburbs (where Black families were unable to obtain the same loan due to redlining) supermarkets began to move out of cities and into the suburbs (Unshared Bounty, 2012). Supermarket redlining continues to shape the food landscape today, creating food apartheid environments. A 2019 Brookings report stated, "that in cities with a history of redlining, the redlined areas today generally remain more segregated and more economically disadvantaged, with higher Black and minority shares of the population than the remainder of the city" (Perry & Harshbarger, 2019).

### *2.8 Historical Impacts Seen Today in Washington, DC*

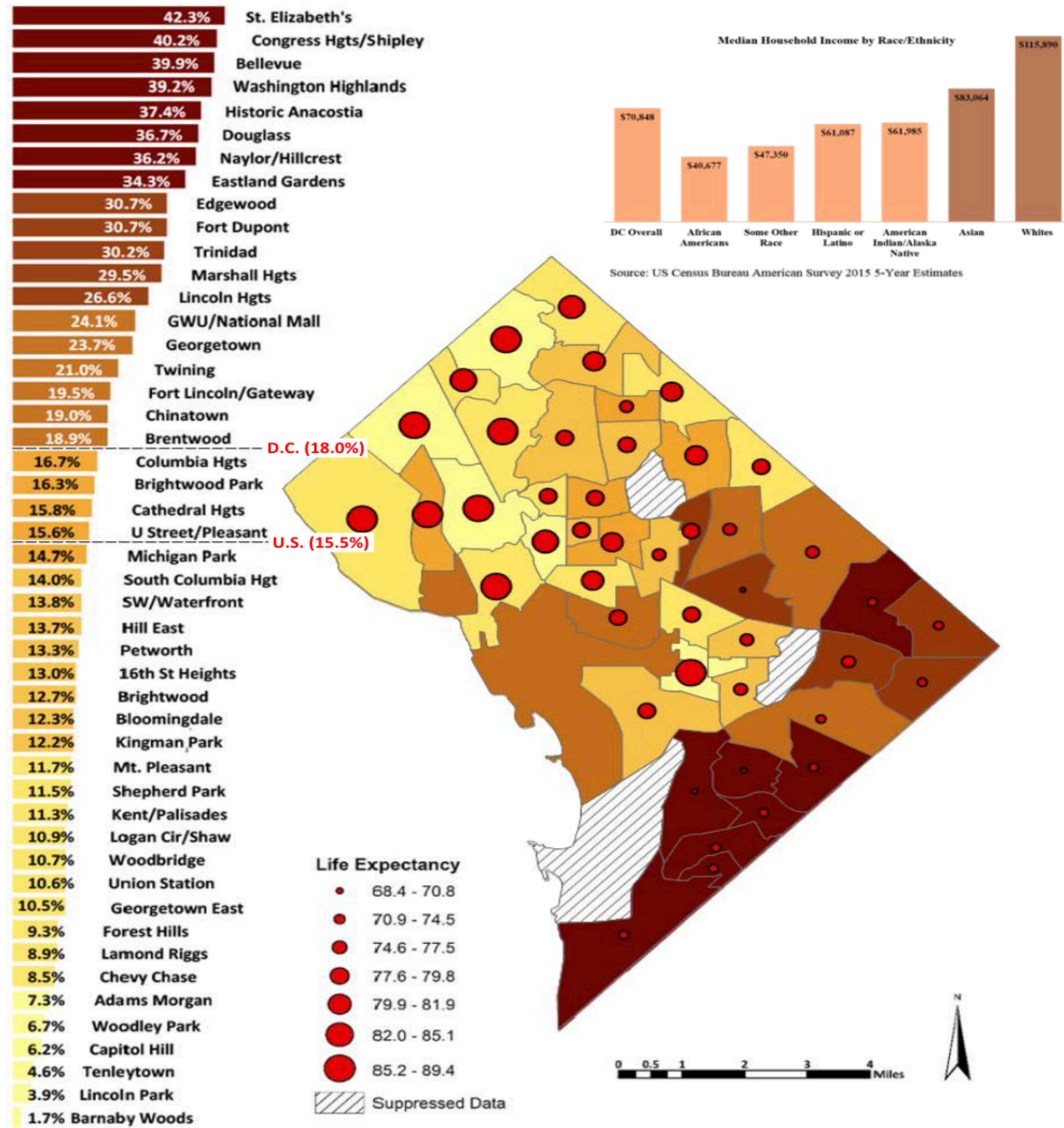
Washington, DC is a strong example of how historical racial and economic divides have impacted the food insecurity seen today. In the 1940s, the FHA provided federal assistance mostly in the northwest neighborhoods of Washington, DC, both White and prosperous areas, while very few mortgages were granted in Black central and southeastern parts of the city (Jackson, 1980). In addition to the discriminatory practices of the FHA in Washington, DC, there were also racially restrictive housing covenants that reflect some of the neighborhood demographics we see today. Racially restrictive housing covenants were imposed through deeds and by petitions, effectively keeping Black people from moving into certain neighborhoods, most notably in the northwest quadrant (Story Map Journal, 2017). Because of these covenants, and other zoning laws, Black residents were unable to build wealth through homeownership the same way White individuals could and thus were unable to transfer wealth to later generations (Zickuhr, 2018). Additionally, segregationist housing policies, like zoning practices that concentrated multifamily units in ward 8 (southwest/southeast) and single family units in ward 3 (northwest), have led to disinvestment in low-wealth neighborhoods, which places an additional burden on families of color (Zickuhr, 2018). Below are a few maps that highlight the stark disparities seen in DC, present day.

*Figure 1.* Levels of Opportunity Across DC

*Note.* From *Uneven Opportunities Report* by Woolf, Chapman, Hill, Schoomaker, Wheeler, Snellings, & Lee, 2018 (https://www.mwcog.org/documents/2020/10/26/uneven-opportunities-how-conditions-for-wellness-vary-across-the-metropolitan-washington-region-health-health-data/).

This map illustrates the different levels of opportunity across the city as well as healthy places. Opportunity is defined by education level, income, employment, poverty rate, public assistance, housing cost burden, and uninsured adults. You can see that the lowest level of opportunity (white dots) are mostly east of the Anacostia river in wards 7 and 8 and the highest levels of opportunity (black dots) are in northwest DC. Additionally, places with higher levels of opportunities have a higher healthy places index score (yellow). In contrast, places with lower levels of opportunity have a lower healthy places index score (dark blue).

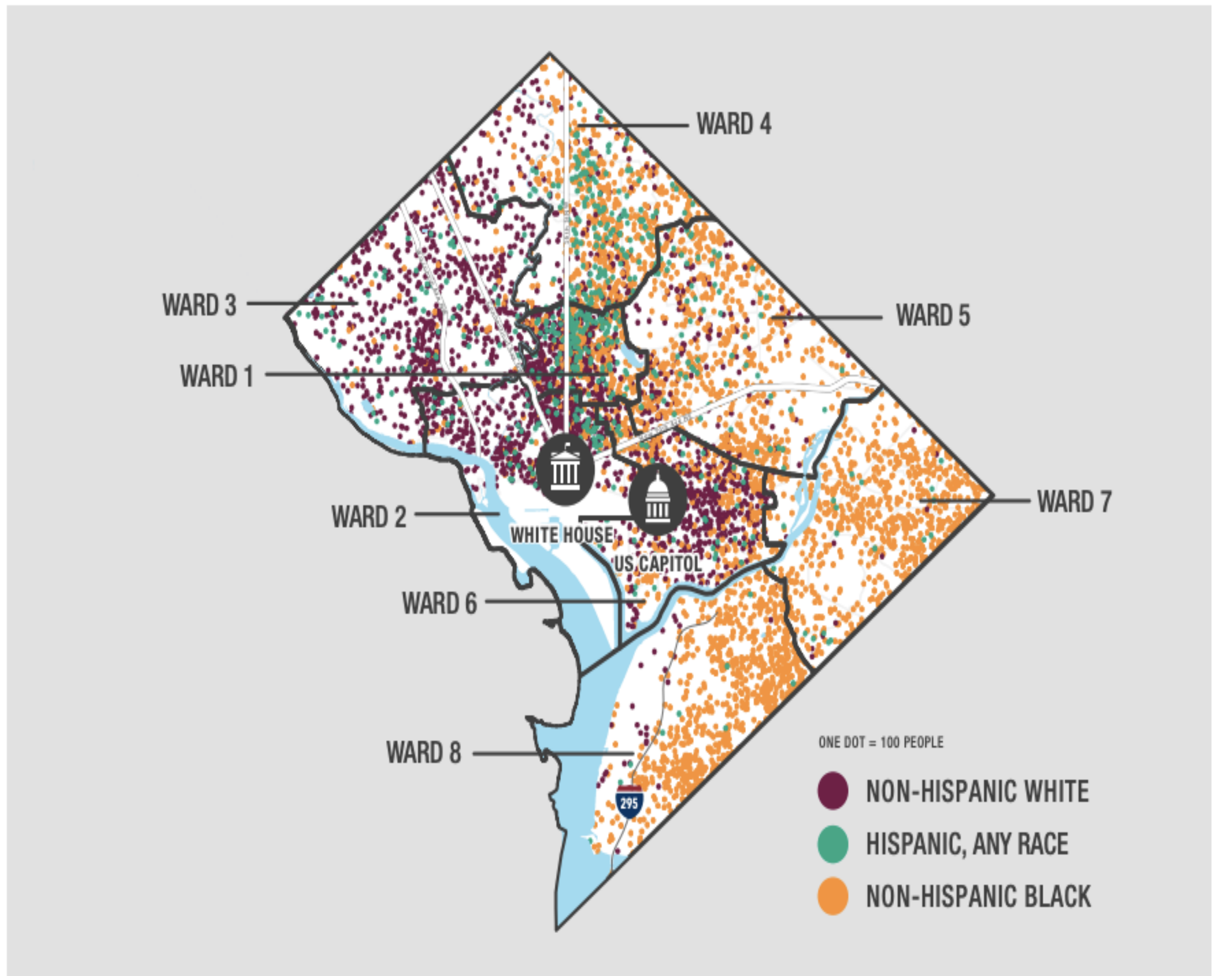
*Figure 2.* Percentage of Total Population In Poverty and Life Expectancy




*Note.* From *Health Equity Report: District of Columbia 2018,* 2019 (https://app.box.com/s/yspij8v81cxqyebl7gj3uifjumb7ufsw)

Above is the percentage of the population in poverty, the darker the brown, the higher the poverty. The parts of the city experiencing the most poverty are wards 7 and 8. Additionally, the red dots denote life expectancy. The smaller the dot, the shorter the life expectancy. This map illustrates that as poverty increases, life expectancy decreases.

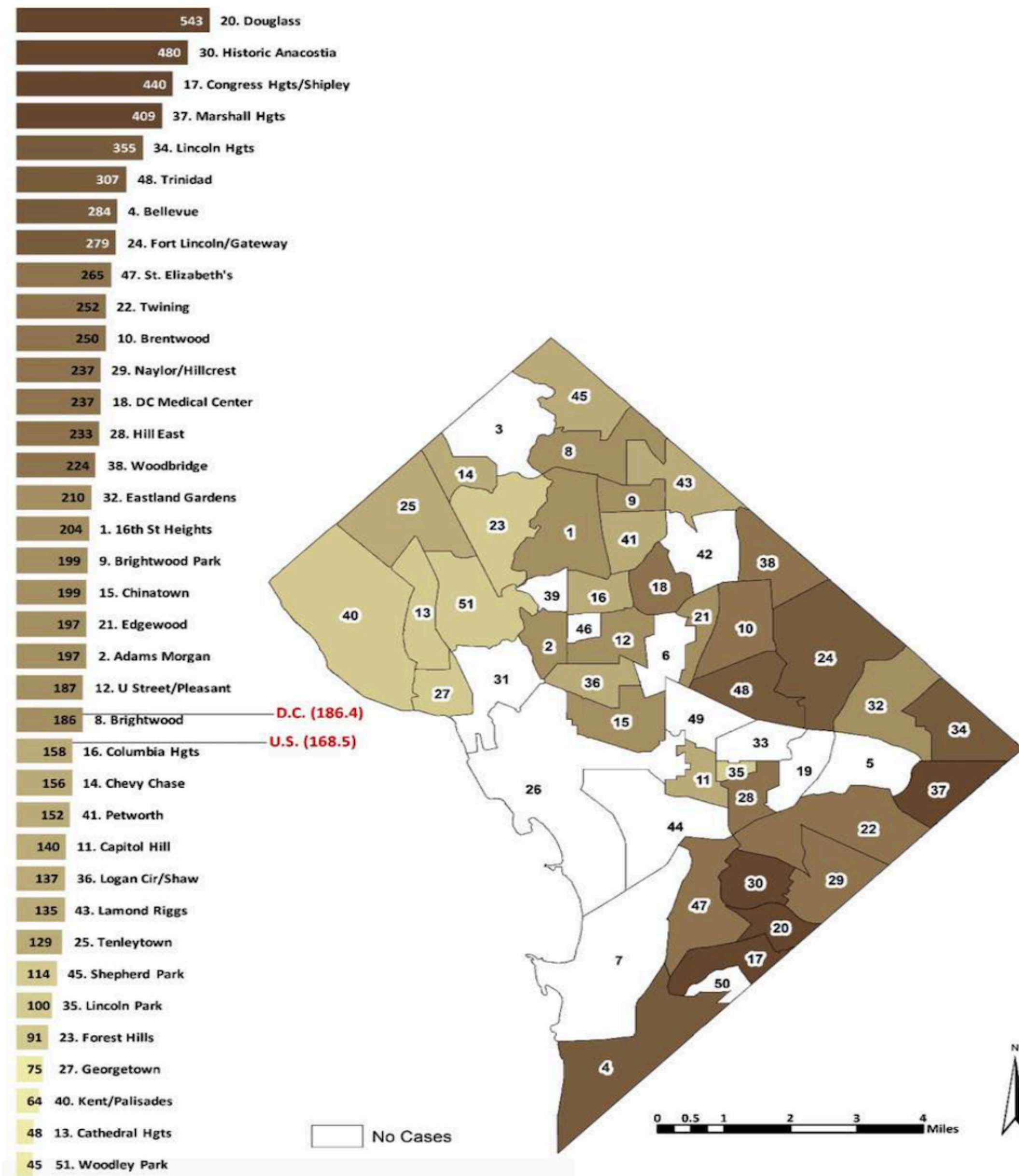
*Figure 3.* Distribution of Race Across DC




*Note.* From *Uneven Opportunities Report* by Woolf, Chapman, Hill, Schoomaker, Wheeler, Snellings, & Lee, 2018 (https://www.mwcog.org/documents/2020/10/26/uneven-opportunities-how-conditions-for-wellness-vary-across-the-metropolitan-washington-region-health-health-data/).

This map shows the breakdown of race among Non-Hispanic White, Hispanic- Any Race, and Non-Hispanic Black. Wards 7 and 8 have the highest concentration of Non-Hispanic Black individuals while ward 3 has the highest concentration of Non-Hispanic White individuals. This map illustrates segregation by race in Washington, DC.

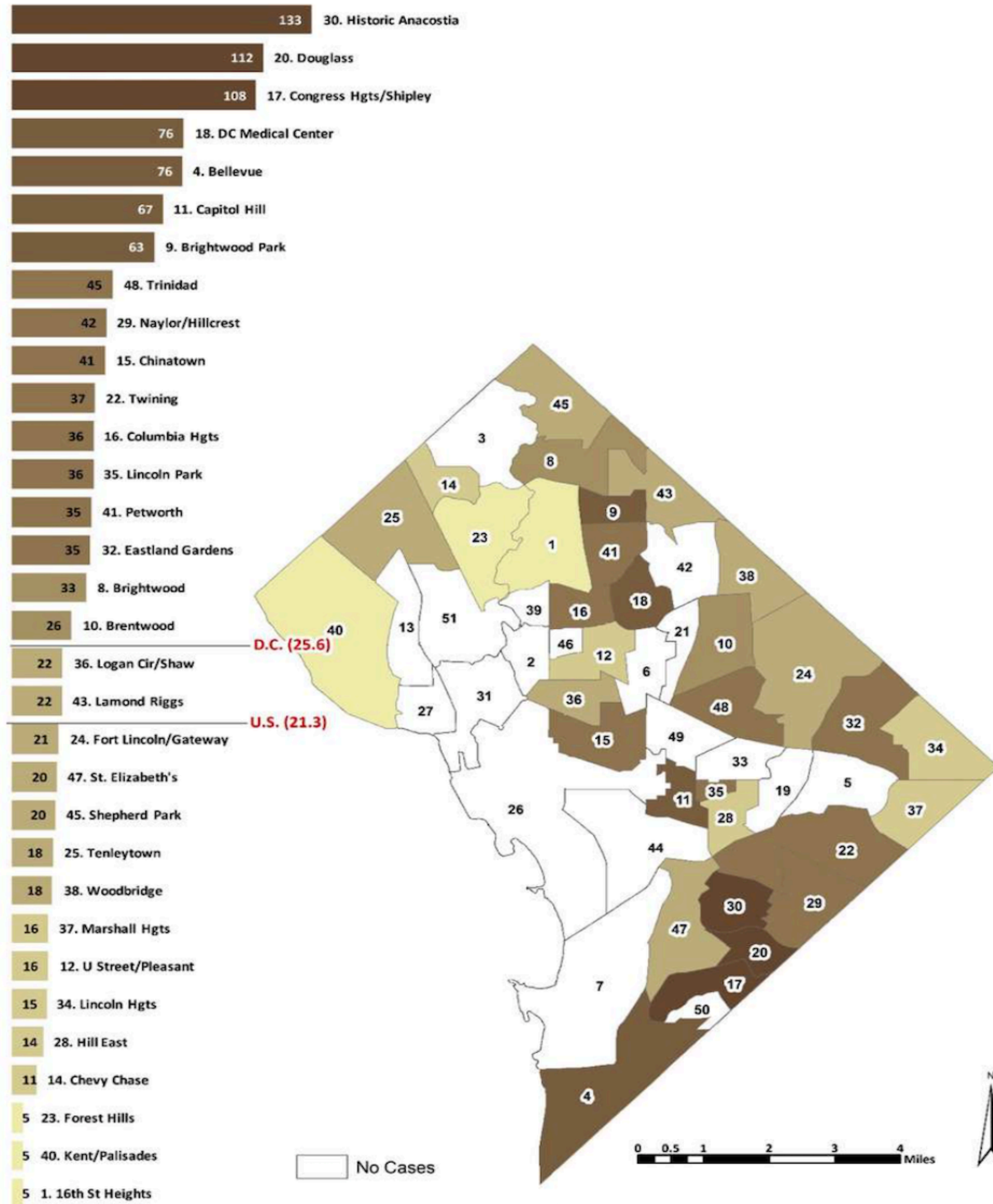
*Figure 4.* Population Health Status by Neighborhood Group- Heart Disease




*Note.* From *Health Equity Report: District of Columbia 2018,* 2019 (https://app.box.com/s/yspij8v81cxqyebl7gj3uifjumb7ufsw)

This map shows the health status of neighborhoods as they relate to heart disease. The darker the color, the more incidences of heart disease, a diet related disease. There are more incidences of heart disease in wards 7 and 8 than the rest of the city.

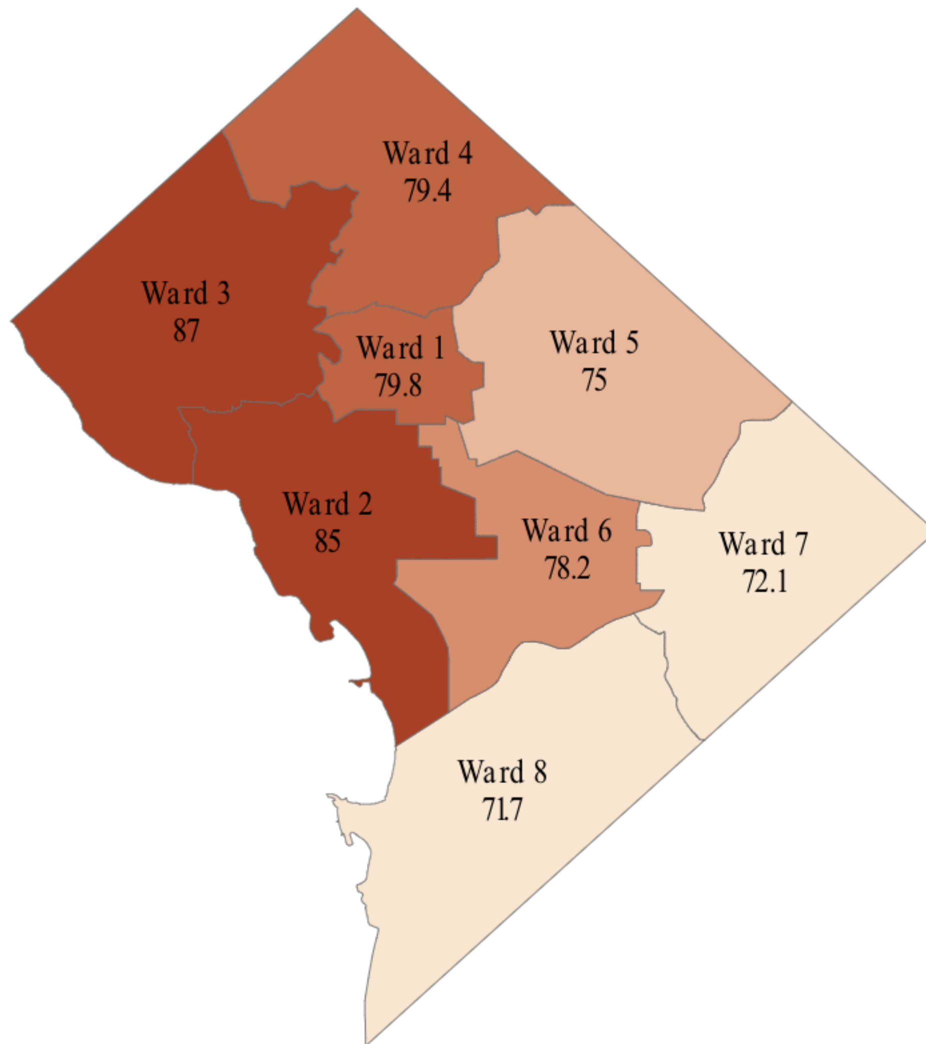
*Figure 5.* Population Health Status by Neighborhood Group- Diabetes




*Note.* From *Health Equity Report: District of Columbia 2018,* 2019 (https://app.box.com/s/yspij8v81cxqyebl7gj3uifjumb7ufsw)

Above illustrates the health status of neighborhoods as they relate to diabetes. The darker the color, the more incidences of diabetes, a diet related disease. There are more incidences of heart disease in wards 7 and 8 than the rest of the city.

*Figure 6.* Life Expectancy at Birth in Years, 2010-2014




*Note.* From *Health Equity Report: District of Columbia 2018,* 2019 (https://app.box.com/s/yspij8v81cxqyebl7gj3uifjumb7ufsw)

The map above shows life expectancy by ward. The more north and west one lives, the longer their life expectancy. In contrast, the more southwest and southeast one lives (wards 7 and 8), the shorter their life expectancy.

In the maps above, it is clear that wards 7 and 8 repeatedly experience less opportunities and worse health outcomes than the rest of Washington, DC. Today, we see that 31% of all “food deserts” in DC are located in ward 7 (southeast/northeast) and 51% are located in ward 8 (southeast/southwest) (Smith, 2017). Wards 7 and 8 are made up of over 90% Black/African American individuals with median household incomes around $36,000- $40,000 a year (DC health Matters, 2020). According to 2017 data, there were a total of 49 full-service grocery stores in DC with just two in ward 7 and only one in ward 8 (DC Hunger Solutions, 2017). In 2019 and 2020, wards 7 and 8 planned to add three additional “healthy food stores” (one in ward 7 and two in ward 8) which is an improvement but not sufficient (New Healthy Food Stores, 2020). One of those stores, Good Food Market, has yet to open. The latest data shows four full service grocery stores east of the Anacostia River (Grocery Store Locations, 2020). In contrast, ward 3 (northwest) consists of 82.2% non-Hispanic White residents with a median household income around $100,000 a year and has nine full-service grocery stores (DC Hunger Solutions, 2017).

Research on food “deserts” often links inequitable access to poverty but one study in DC shows that White, low-wealth individuals have more access to grocery stores than their Black counterpart (Apt, 2020). Similarly, Hispanic individuals also have better access to grocery stores despite their economic standing (Apt, 2020). While it is well documented that grocery stores choose their locations based on where they think they will make the most profit, these findings challenge that explanation. One evidence review

determined that in order to combat health inequities, we need to focus on eliminating racial residential segregation (Williams and Collins, 2001).

The inequitable access to grocery stores in wards 7 and 8 today stems from the structural differences between local grocers and supermarkets that had occurred by the 60's (i.e. supermarkets were larger than local grocers and open for longer hours). These changes contributed to the monopolization and consolidation of supermarkets thus eliminating many grocery stores in low-wealth Black communities (Reese, 2019, p.34,38). Then, after supermarkets monopolized the market, they moved out of the cities and into the suburbs, following White flight (Reese, 2019, figure 3, p.37). Because of redlining and mortgage loans provided to White people by the FHA and White residents' resistance to public school integration, nearly 60 percent of DC's White population left the city between 1950 and 1970 (Zickhur, 2018). Narrative accounts also suggest that many businesses chose to relocate after the 1968 DC riots over the assassination of Martin Luther King Jr. (Reese, 2019, p. 34). Reese states that the riots, "provide an example of how narratives of violence intertwined with Blackness become integral to justifying the systematic demise of access" (2019, p.34).

By 1982, there were only thirty-three grocery stores in DC compared to ninety-one in 1968 (Reese, 2019, p. 35). In the 1980's, Black entrepreneurs opened grocery stores in Black communities across the U.S., recognizing that they could not wait on outside forces to help their communities (Reese, 2019, p.38-39). However, small independent grocers, like Super Pride in Baltimore and DC, could not compete with the large supermarket corporations and went out of business by 2000 (Reese, 2019, p. 40).

Continuing the trend, between 2010 and 2017 wards 7 and 8 each lost two grocery stores resulting in the limited grocery stores we see east of the Anacostia River today (DC Hunger Solutions, 2017; Grocery Store Locations, 2020).

*2.9 Getting Grocery Stores to Open East of the River*

To try and increase grocery stores in wards 7 and 8, Mayor Bowser introduced a bill in January 2021, the "Reopen Washington DC Alcoholic Beverage Amendment Act of 2021". The bill is broadly about changing alcohol restrictions, so people can drink outdoors in designated commercial areas, as a way to boost DC's economy and make up for losses from the COVID-19 pandemic. This in itself has raised questions about equity as the commercial spaces are likely to be in White and wealthy areas (Hayes, 2021). In regards to grocery stores, embedded in the bill is an incentive for grocers to open up east of the river, in wards 7 and 8. The incentive is a class A retailer's license which allows grocery stores to sell liquor (ABRA Act, 2021). Currently, most grocery stores in DC can only sell wine and beer (Hayes, 2021). After a grocery store opens up in ward 7 and/or 8 and has been open for six months, they can then open one other grocery store in any other part of the city and get a class A license (ABRA Act, 2021). Only stores that open after January 1, 2021 can be eligible for a class A liquor license, and only after they first open in ward 7 and/or 8 and remain for six months (ABRA Act, 2021).

There are a couple of noteworthy stipulations with this incentive. For example, a grocery store with a class A license can only have 25% of its annual profits come from alcohol sales and the store must devote at least 8,000 square feet to selling produce, meat, dairy, canned goods, frozen foods, and non-alcoholic beverages (Hayes, 2021).

Incentivizing grocery stores in this way raises many questions such as: has this incentive worked elsewhere? Will adding liquor to the already sold beer and wine actually motivate grocers? What does it say when a grocery store is incentivized to move to a low-wealth community because of their ability to sell liquor, not just food? How will adding liquor to a grocery store impact other small businesses that sell liquor? Given that many low-wealth communities are already oversaturated with liquor stores, is this incentive harmful to the community? What incentive will the grocery stores have to stay open after the six months in wards 7 and/or 8, is this sustainable? Undoubtedly, wards 7 and 8 require more grocery stores and they deserve a plan that has been evaluated as not to result in added burden. Being new, the bill will likely be revised before being brought to a vote by the city council.

### *2.10 Affordability of Nutritious Food*

While access to grocery stores is one challenge, affordability of nutritious food is another. In DC, the living wage for a household of 4 is $79,539 a year and the poverty line is $25,250 (Hunger Report, 2020). A living wage is almost three times that of the poverty level, meaning that individuals who are above the poverty level will also likely experience food insecurity due to limited resources (Hunger Report, 2020). During 2016-2017, the food hardship rate in DC for overall households with and without children was 14.8% (Food Hardships, 2018). In households with children, that number jumped to 21.2% and for seniors it was 20.1%, the highest rate of seniors facing hunger in the nation (Hunger in DC, n.d.). College students are another group facing difficulties affording food. 34% of students report knowing someone who has dropped out because

of challenges affording food and over half of all college students report sometimes utilizing an off-campus food bank (Swipe Out Hunger, 2020). In Washington DC, there are multiple universities including the University of the District of Columbia (UDC), Georgetown, Howard University, and Catholic University, just to name a few.

Exacerbating the issue of limited resources and thus food insecurity, in DC and nationally, is COVID-19. Before the pandemic, an Urban Institute national report showed that hourly and self-employed workers struggled to pay for their basic needs at over two times the rate of salaried workers (Hunger Report, 2020). In the Washington metro area, 75% of low wage workers spent over 30% on their income on rent and had small financial reserves (Hunger Report, 2020). The COVID-19 pandemic is indicative of a widening wealth gap, partially due to the impact the pandemic has had on jobs (Hunger Report, 2020). Jobs impacted by COVID-19 were disproportionately performed by Black, Indigenous, People of Color, women, immigrants, and young people (Hunger Report, 2020).

In DC, the Capital Area Food Bank reports that their network of nonprofit partners has reported increases from 30% to 400% in the number of people they serve during the COVID-19 pandemic (Hunger Report, 2020). Additionally, a recent report put out by Mayor Bowser states that before the onset of COVID-19, the food insecurity rate in DC was 10.6% (Food Security Report, 2020). Now, because of the pandemic, the projected food insecurity rate in the district will be at least 16% (Food Security Report, 2020).

*2.11 Implementing Community Gardens*

To assist in addressing food insecurity, some individuals believe in developing community gardens. The idea of implementing more community gardens in a food insecure area seems logical but contains a lot of nuance. As noted in a Baltimore study on community gardens, successful gardens require dedicated community members, people knowledgeable about growing food, and support from the city and other organizations in the community, among other things (Corrigan, 2011). These various factors result in community gardens looking a variety of ways, from meager to robust.

While community gardens have the potential to increase food security (and there are case studies that show their positive impacts), the characteristics of each one are pertinent to their success. To ensure a healthier, more equitable, and sustainable food system through the use of community gardens, as proposed in the Sustainable DC 2.0 plan, it would be valuable to know more about the cultural norms associated, or not associated, with community gardens as well as the social and structural constructs of community gardens in specific communities.

Understanding how and why a community garden operates allows those interested in urban agriculture broadly to understand the role community gardens currently play and have the potential to play. Defining the role of community gardens could enable garden managers to implement a more detailed framework to maximize food security. Social constructs include, but are not limited to, race, socioeconomic status, and attitudes, behaviors, and beliefs about community gardens. Structural constructs include, but are not limited to, garden rules and regulations, garden events, and garden partnerships with

community organizations. The Baltimore community garden study also emphasized that it is important for gardens to be implemented from the ground up, meaning for the community, by the community (Corrigan, 2011). If people are unfamiliar with or have little interest in or time for growing food, it could be difficult to implement a successful community garden. Getting to know the community and understanding their wants and needs, their food landscape, their thoughts and feelings on the advantages and disadvantages of community gardens, etc. can help shape interventions for food insecurity.

### *2.12 Community Garden and Urban Agriculture Policies in DC*

While DPR is not the only entity with community gardens, they are a focal point due to their inclusion in Sustainable DC 2.0. and because they have over 30 gardens across the city. In reviewing DPR's website regarding community gardens, there are already a few frameworks in place outlining: how a partner organization should interact with a community garden, a code of conduct for gardeners, and guidance for creating garden bylaws. While there are some regulations related to equity, there is no explicit framework found that addresses food access and equity through DPR and their community gardens. Community gardens seem to operate with a lot of autonomy while DPR provides some resources, community gardening educational programming, and general oversight.

Understanding how these frameworks translate to the DPR community gardens may speak to the relationship gardens have with DPR and showcase how the frameworks play out. If the success of a community garden is reliant upon committed gardeners,

knowledgeable gardeners, and support from community partners and the city, it is important to look at the relationship DPR has with its community gardens. With this knowledge, we can better determine how to make community gardens in Washington, DC more accessible and more effective at addressing food insecurity.

In addition to the organizational level policies for community gardens through DPR, there is also city-wide policy to encourage urban agriculture, the DC Urban Farming and Food Security Act of 2014. This act established an initiative to identify vacant lots in the district that could be leased to independent farmers and farm cooperatives and it provides tax incentives to DC landowners who let their land be used for agricultural purposes, be it an urban farm or community garden (Grosso, 2014). While this legislation is positive for urban agriculture, it still faces challenges when it comes to leasing land as many land owners have other opportunities for, or want to remain open to, development. An example of this occurred with DC Green's K Street Farm back in 2019 when the land became a new substation for Pepco (Hayes, 2018).

## Chapter 3: Research Questions, Aims, and Framework

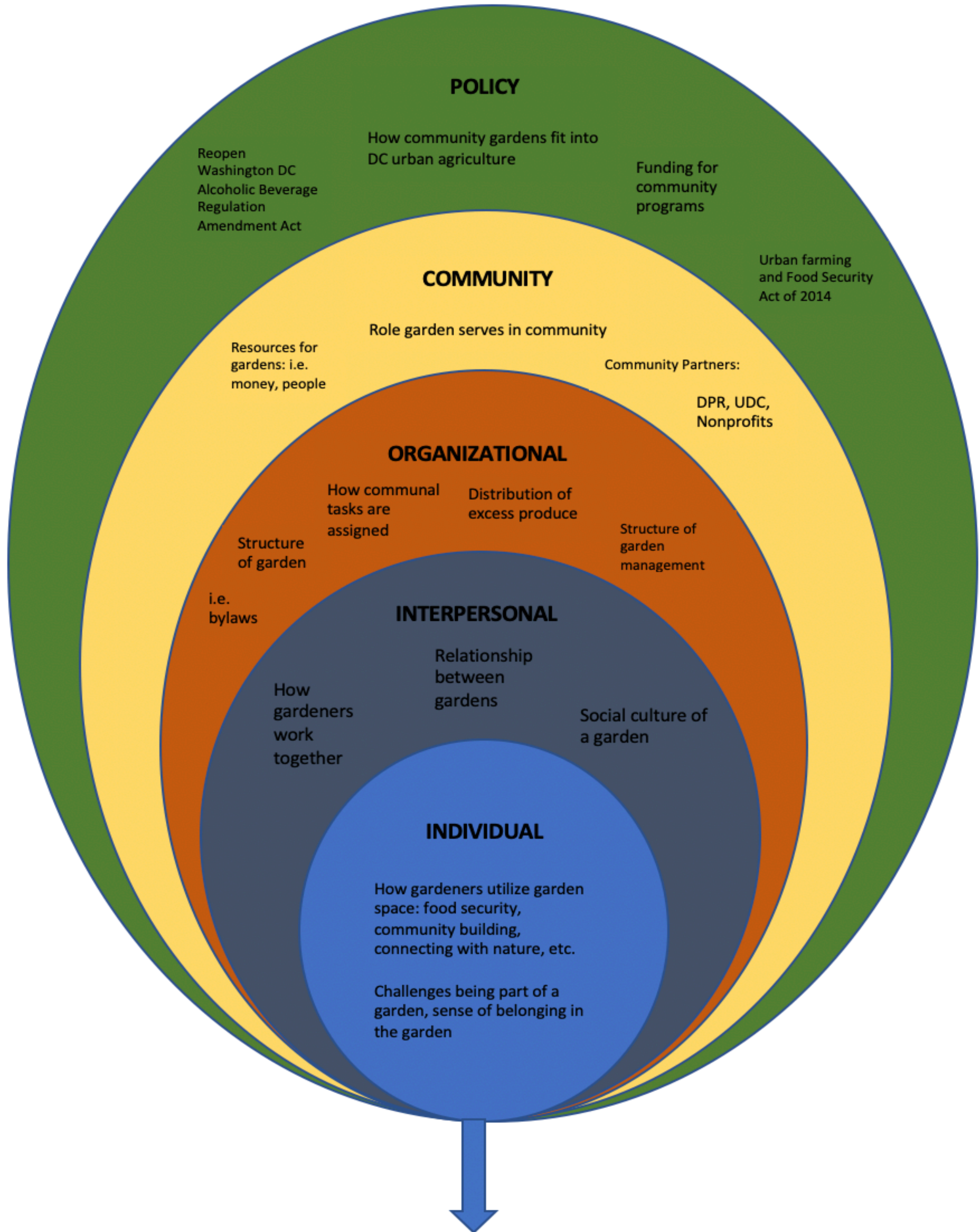
This research was conducted to identify if and how community gardens in DC intersect with food security. The research had three aims: 1) To understand why and how residents choose to participate in their local community garden; 2) To understand how social and structural norms impact the functioning of a community garden; and 3) To understand how community gardens fit into the broader urban agriculture landscape in DC.

These aims were explored by looking at the impacts of already existing community gardens in wards 1, 7, and 8. Interviewees consisted of gardeners, garden managers, and people who identified as urban agriculture advocates and/or policymakers. Gardeners were asked various questions about their relationship to the community garden in their neighborhood and garden managers were asked questions to understand community gardens from an organizational level. Speaking with urban agriculture advocates/policymakers provided more context on how community gardens fit into the local urban agriculture system of DC. Questions were broad to allow for a variety of answers.

Understanding the role community gardens play within the communities of DC is important for understanding best practices in addressing the issue of food insecurity. It is important to note that community gardens have shown to improve food security and dietary intake (Kan-Rice, 2016; Carney, Hamada, Rdesinski, Sprager, Nichols, Liu, Pelayo, Sanchez, & Shannon, 2012). However, gardens are not uniform in terms of foods, access, implementation, and location. Simply implementing more gardens is not

sufficient. Exploring the social, cultural, and structural components of DC community gardens can allow residents and decision makers who are concerned about food security to address it more effectively.

Social-Ecological Model Framework



# Chapter 4: Research Design and Methods

## *4.1 Study Design*

The overall research design for this project was an analytical observational cross-sectional study. Through interviewing community gardeners, community garden managers, and urban agriculture advocates and/or policymakers it became clear how one interacts with and understands community gardens from various levels in the Social Ecological Model. The Social Ecological Model was used for this research, providing a framework for understanding themes through the individual, interpersonal, organizational, community, and political levels. In looking at these different levels and their interactions, one can better understand community gardens and thus how they intersect with and impact food security.

## *4.2 Participants*

The participants of this study were community gardeners, community garden managers, and people working on an advocacy and/or policy making level that could provide context to how community gardens fit into the urban agriculture landscape. Community gardeners and garden managers were selected based on their location. This project focused on gardens in wards 1, 7, and 8. Wards 7 and 8, covering parts of northeast, southeast, and southwest DC, have high rates of food insecurity as defined by walkable access to a grocery store. Additionally, the median household income for Ward 7 and 8 is $40,963 and $36,697, respectively. Ward 1 falls within the northwest quadrant of the city which, as a whole, has lower rates of food insecurity but nonetheless, has food insecure communities. For example, according to DC Public School (DCPS) Emergency

School Meal Data from June 2020, ward 1 was the ward with the second highest total meals distributed through DCPS, after ward 8 (Food Access and Food Security, 2020). The median household income for ward 1 is $108,852 (DC Health Matters, 2020). Ward 1 was chosen because it was the one quadrant of the city not represented in Wards 7 and 8 and the DCPS data about school meals in ward 1 was compelling. Additionally, given the wealth difference between ward 1 and wards 7 and 8, there was reason to believe the contrast could be informative. Gathering information from a variety of community gardens allowed for an analysis of varying social and structural components and their impacts on food security.

Interviews with gardeners and garden managers were done with individuals associated with any kind of community garden, such as one through DPR or a local nonprofit, as long as it was in wards 1, 7, or 8. In total, 17 interviews were completed. Some interviews consisted of an individual who fit into multiple categories. The following is the breakdown of categories and number of individuals interviewed:

Gardener: 3
Gardener/Advocate: 2
Garden Manager: 5
Garden Manager/Advocate: 1
Advocate/Policymaker: 6

The garden manager/advocate individual was not a garden manager for a garden in wards 1,7, or 8. Their role as a garden manager informs their advocacy in DC and their ability to speak on both roles contributed to the main themes found in other interviews. The two gardeners/advocates that were interviewed were not active gardeners during the last gardening season because of COVID-19 restrictions. In non-COVID-19 times, they

were active gardeners at either a local nonprofit or public institution and were able to still provide valuable insight from a gardener's perspective. The obstruction of COVID-19 on their gardening activities added informative context to the different roles gardens can play. Of the 17 participants, 5 did not self-identify their race, 1 identified as multi-racial, 8 identified as Black, and 3 identified as White. There were two gardens from ward 1, 1 garden from ward 7, and 2 gardens from ward 8 included in this study. Gardens mentioned by the gardeners/advocates were not included in the garden count.

To reach gardeners and garden managers, garden managers from each garden in wards 1, 7, and 8 that are associated with DPR (except for Mother's Peace garden as it is in a period of transition) were contacted first. The contact information (email) for each manager is listed on DPR's Community Garden page. Some garden managers responded and then coordinated contact with their gardeners. Advocates/policymakers were also contacted personally via email after researching various people involved in urban agriculture in DC. Oftentimes, these conversations would lead to suggestions of other advocates and gardeners to reach out to. Lastly, a broad recruitment message was sent out to the DC Food Policy Council's Food Access and Equity working group and the DC Urban Gardeners Newsletter, which prompted individuals to reach out to their networks with the recruitment message. Multiple reminders were sent in order to recruit the final 17 interviewees.

### *4.3 Data Collection*

Data was collected through semi-structured virtual interviews during the months of February and March 2021. Zoom was utilized for recording and transcribing the

interviews. All interviews had questions that were broad so there was room for different information to come through that could be relevant in understanding the role of community gardens. The interview questionnaires were used as a guide to conversation but were not rigidly followed to allow for information to emerge that the interviewee felt was relevant. Interviews lasted anywhere from a half hour to an hour and fifteen minutes, depending on how much a person had to share and how engaged they were in the interview. All participants received an informational sheet and consent form prior to the interview and before all interviews began, the interviewer read the consent form out loud and recorded the participants verbal consent. The interview questionnaires were as follows (note: those with dual roles received a hybrid questionnaire):

For Gardeners

1. What are the benefits for you, personally, to participating in the community garden?
    a. Are you growing anything that is not available in the grocery store where you shop for food, and if the produce is available, is cost a consideration?
2. Do you have the opportunity to garden at your residence? If so, why do you participate in a community garden?
3. How long does it take you to get to the community garden? What is your mode of transportation?
4. How and where did you learn to grow food?
5. How do you incorporate food from the garden into your diet? Follow up questions include: Do you freeze or can your produce to eat during the non-gardening season? Do you plant successively to maximize your harvest (i.e. when one crop finishes do you remove it and plant another in its place)? How do you decide on what you will grow? When do you start and stop your garden and why?
6. Are there any challenges you experience with being part of a community garden?
7. How do you maintain the garden space with other gardeners? How is communal work decided and distributed? Are there challenges? How do you deal with them? Are there benefits? Do you pay membership fees to participate in the garden?
8. What role do you think the garden serves in your community?
9. Do you feel welcome in the community garden? Do you think the community garden represents and welcomes the people that make up your community? How?
10. Do you grow produce that you do not consume? Where does extra produce go?

For Garden Managers

1. Can you please describe your role and responsibilities as the community garden manager? Follow up questions: How are communal tasks assigned? Do you have a responsibility to teach any gardening skills? What are the benefits and challenges in your role?
2. What role do you think the garden serves in your community?
3. Does the garden yield excess produce? Do you donate excess produce? Where does it go? Does the surrounding community know when and where it is available?
4. Is there space for anyone to harvest from or can you only harvest if you have a plot?
5. What types of foods are grown at the garden? Are there rules around what can or cannot be grown? How is that decided?
6. How often do you interact with the members of the community garden? What does that interaction look like?
7. Does the community garden have a relationship with a community partner? What does that look like? What are the benefits of having this relationship?
8. Does your garden have a waitlist? How many people are on the waitlist? How does the waitlist work?
9. Do you think the community garden is welcoming to people of varying races, ethnicities, and socio-economic statuses? How? Are there any measures in place giving priority to any group of people (i.e. residents of low-income housing)?
10. Does the garden host other community events?

For Advocates/Policymakers

1. Could you please describe to me your perspective on the relative importance of urban agriculture in DC? Do community gardens have a significant role in urban agriculture in DC?
2. Have you been involved in a community garden? Why or why not?
3. Could you please describe your knowledge about how a location is chosen for a community garden in DC, specifically within the Department of Parks and Rec? What does that process look like? What are some challenges?
4. Do you have knowledge of the budget for community gardens in DC? If so, what does that look like?
5. How do you/your organization address food security issues through urban agriculture? Do community gardens play a role in this? If no, can they play a role in this?
6. Are community members involved in policy making and advocacy related to urban agriculture? What is the process for their input?
7. How does policy influence the functioning of a community garden? Can you speak to a specific policy?

8. Do you have any policy ideas for improving food security through community gardens? Is equity built into policy making decisions for community gardens? Please explain.

For Garden Managers/Advocates

1. Could you please describe your role in advocacy for community gardens in DC? What is your perspective on the relative importance of urban agriculture in DC? Do community gardens have a significant role in urban agriculture in DC?
2. Can you describe your role as garden manager? How does it inform your advocacy work?
3. Are you familiar with how garden spaces are determined in DC? If so, please explain.
4. Are you familiar with any budgetary information regarding community gardens in DC? If so, please explain.
5. How do you address food security issues through your work as a garden manager?
6. Are you aware of if, or how, community members are involved in policy making and advocacy related to urban agriculture? If so, what is the process for their input?
7. In your experience, how does policy influence the functioning of a community garden? Can you speak to a specific policy?
8. Do you have any policy ideas for improving food security through community gardens? Have you encountered policy making decisions for community gardens? If so, please describe that process.

For Gardeners/Advocates

1. Could you please describe your role as an advocate for community gardens and food access/security in Washington, DC?
2. Could you please describe to me your perspective on the relative importance of urban agriculture in DC? Do community gardens have a significant role in urban agriculture in DC?
3. What are the benefits to you personally with being involved in a community garden?
4. What role do you think the community garden serves in your community?
5. How do you incorporate food from the garden into your diet? Follow up questions include: Do you freeze or can your produce to eat during the non-gardening season? Do you plant successively to maximize your harvest (i.e. when one crop finishes do you remove it and plant another in its place)? How do you decide on what you will grow? When do you start and stop your garden and why?
6. Are there any challenges you experience with being part of a community garden?
7. Do you feel welcome in the community garden? Do you think the community garden represents and welcomes the people that make up your community? How?

8. Could you please describe your knowledge about how a location is chosen for a community garden in DC? What does that process look like? What are some challenges?
9. Are community members involved in policy making and advocacy related to urban agriculture? What is the process for their input?
10. How does policy influence the functioning of a community garden? Can you speak to a specific policy?

*4.4 Dependent Variable*

The dependent variable for this project is food security. Food security is defined by the USDA as "The ready availability of nutritionally adequate and safe foods [and the] assured ability to acquire acceptable foods in socially acceptable ways (that is, without resorting to emergency food supplies, scavenging, stealing, or other coping strategies)" (2020). Food security is also understood through the USDA's definition of low food security: "Households reduced the quality, variety, and desirability of their diets, but the quantity of food intake and normal eating patterns were not substantially disrupted" (USDA, 2020).

*4.5 Description of Variables*

Community Garden: A single piece of land (public or private) gardened by a group of people through either individual or collective plots. To be considered a community garden for this project, the harvest must consist of edible items.

Garden Manager: Individual in charge of overseeing the operations of a community garden.

Gardener: Individual with a plot at a community garden or individual who actively contributes labor to a communal/individual plot at a community garden. An active

participator will be defined as someone who is involved with the community garden at least once a month during the growing season.

Advocate/Policymaker: Individual who develops, shapes, and/or encourages policies around urban agriculture in Washington DC.

*4.6 Data Analysis*

Data was analyzed through an inductive thematic analysis where the researcher familiarized themselves with the data, transcribed the interviews, generated initial themes, reviewed the themes, defined the themes, and wrote up the analysis (Braun & Clarke, n.d.). The themes that were chosen were the themes most frequently discussed in interviews. Themes selected are umbrella terms that encapsulate various experiences of the majority of participants. Due to the small sample sizes for each group, a saturation point for new themes was not calculated.

# Chapter 5: Results and Discussion

After analyzing the data, three core themes related to community gardening emerged: food security, relationships, and quality of life.

*5.1 Food Security: Fences: A Barricade or a Bridge*

When it came to food security, participants spoke about community gardens either from the perspective that they were imperative or that they had no relevance. All gardeners and garden managers from wards 7 and 8 that were interviewed discussed community gardens for food security purposes and focused on giving excess produce to people in their community. All gardeners and garden managers living in ward 1 utilized the garden for other valuable reasons outside of food security. The following illustrates a contrast in speaking with a garden manager in ward 8 versus a garden manager in ward 1 when it came to the community's relationship with the garden for food security purposes.

> With Covid coming up, the theme this past growing season was: grow everything on the fence. So folks can just walk up and grab the food that they need. You need a tomato? Come to the fence. You need a cucumber? Come to the fence. You need a pepper? Come to the fence. You need some beans? Come to the fence. Everything was on the fence. Need some melons? Come to the fence. And then we also got chickens. Need some eggs? Come some fence. -Ward 8 Garden Manager

In contrast, the following response occurred after a ward 1 garden manager was asked why they raised their fence this past year.

> Some of our homeless neighbors… occasionally one of those people will jump over the fence and maybe grab a tomato or something. In that case, I've sort of said to the gardeners like, well, if that person was hungry and got one of our fresh vegetables, that's not a terrible thing. You know, it's just what's hard, is like someone's tomatoes are missing and you think like, did somebody in the garden take them? Did somebody hop the fence? So we just sort of felt like, well, okay, why don't we just make it a little you know-- also, we have a water supply. So some of the guys could take showers or could use the water to get clean. And

> again, it was like I said, we can't be against homelessness and then not deal with homeless neighbors right in our midst. So I kept challenging people saying, well, okay, what do we do? You know, but it's not just- so the fence went up just to sort of deter, you know, casual jumping over the fence to steal people's food. -Ward 1 Garden Manager

The garden manager in ward 8 utilized the fence around their garden as a way to invite the community into the garden space, emphasizing that this was important to them. It bridged the gap between the garden and neighbors living in a community with limited access to a grocery store, which interviewees stated lacked fresh, quality produce. The ward 8 garden manager also discussed how community members outside of the garden would warn them that their produce was going to be stolen. The garden team had to break this barrier with the community by continuously telling them that the produce on the fence was for them to take and that it was not stealing to do so. On the other hand, the garden manager in ward 1 utilized the fence around their garden as a barricade, specifically to people experiencing homelessness. While they would welcome a passerby into the gardens front gate while they were there, the fence was used as a way to deter people from stealing a gardener member's produce. Notably, this garden has a compost bin inside its fence, which over 100 non-garden members have access to via a lock in a lock box. Therefore, it is possible that an individual from those 100 plus people could be responsible for taking produce that is not theirs, making the raising of the fence irrelevant. Producing and/or distributing excess produce was a theme for all interviews with gardeners and garden managers in wards 7 and 8, low-wealth, primarily Black communities, but it was not a theme for gardeners and garden managers in ward 1, a higher wealth, majority White community.

*5.2 Food Security: Quality of Grocery Stores and Access to Nutrition*

The focus on producing and distributing excess produce in wards 7 and 8 highlights the issue of supermarket redlining in these wards. Food security is less of an issue in ward 1 than it is in communities east of the Anacostia River. Multiple interviewees from wards 7 and 8 preferred the term "food apartheid" over "food desert", with one ward 8 gardener stating, "It's just a given that you cross the state line to go get food… you have more access to illegal drugs in this community than you do fresh food and when you think about that, it's not by accident." Lack of access to grocery stores in wards 7 and 8 is well documented and individuals therefore find that gardening can be an important way to increase their food security. Illustrating this, as well as the lack of quality of produce ward 7 and 8 residents have access to, a garden manager in ward 7 stated:

> I live in an area that is considered a food desert… food is very scarce and quality, healthy food oh- that's even more scarce. So the need for community gardens is great in these areas: ward 7, ward 8… and that's why I am trying to do as much as I can to maximize my experience and exposure to it, because I know just as much as it has helped my son and I- just me bringing home some potatoes and some onions and some carrots- for a family that can mean a lot. You know, that can mean a difference between them starving or eating.

Because our food system is failing people, food insecure residents often take matters into their own hands by either gardening and/or exerting significant energy to map out and get to places where they can access nutritionally adequate food. One gardener/advocate in ward 8 explained how they navigate getting food:

> I go to Martha's Table on Mondays, but you can go seven days a week, and on Tuesdays I go to the church down at the bottom of the hill where I live... they give out produce and they give out canned goods, which I don't- I just put the canned goods downstairs, I have enough. But there's a lot of tuna fish. I have a life supply

of tuna fish. So I put all that downstairs. And on Wednesdays it's TheARC on Mississippi Avenue, and they give out fresh produce. But actually, Martha's Table supplies them… And then on Thursdays it's a community center up on 5th and Alabama. I can't think of the name of it. It's a block from Ballou High School. And they give out- like last time I went, they gave out shrimp. They gave out vegetable oil, canned goods, they had string beans. And on Fridays it used to be down the street, but they moved. So I'm still trying to find them.

This individual also detailed their efforts in helping out their community:

And what I do is I get a box or whatever, and I break it down for everyone in my building and my seniors… I just stock up and then I divide- I put them in bags and I just put it on their doors- like the girl next door, she just had a newborn and I make sure she gets fruits and then a girl across the street, she's very particular. She just really wants potatoes and onions. And then a little lady, diagonal across to me, she has a big family, so I make sure like Bread for the City gives me a bag every week. They gave me like 20 chicken wings. So I broke that down, gave her half. And then the girl downstairs, she has three girls. So I try to make sure they get a lot of fruit. So I know everybody in the building's diet.

This participants significant energy expenditure begs the question, what would our society look like if people did not have to be hyper focused on meeting their basic needs? They also discussed how they were in the process of trying to start a garden at a school by their building, which would make healthy foods more accessible than going around the city to a different food distribution site every day, but they were unsure if that was going to work out. Their uncertainty in gaining access to more land was a theme among other participants. This information is provided through DPR but is not accessible without asking for it. It would be useful for DPR to make this information more accessible to the public.

In regards to finding space for gardens, some participants discussed the value of rooftop gardening and farming. One participant expressed that we need to be thinking about urban agriculture differently than rural agriculture, noting that cities have a lot of

unused space on rooftops. This participant also spoke to the benefits of aquaponic and hydroponic farming in an urban setting, stating that through these controlled environments, one can grow twelve months a year, utilizing 95% less water. They expressed the need for innovation in order to advance urban agriculture, “If you're looking for traditional plots of lands and you're trying to outcompete a condominium or you try to outcompete Bozzuto that has a proven record of return on investment, you're not going to win. You're just not going to win in my mind. Right? So you have to be a lot more creative about how you utilize space.”

### *5.3 Food Security: The Limits of Community Gardens*

“Community gardens are sort of the grassroots of the food system.” - Urban Agriculture Advocate East of the Anacostia River

One theme throughout interviews with advocates and policymakers was that there are limits to what a community garden can do; and advocates, garden managers, and gardeners alike often discussed the importance of dedication when it comes to the success of a community garden. Dedication is not guaranteed and without it a community garden can fail to provide food security. Individuals from each category of interviews mentioned that oftentimes, people in food insecure communities do not garden because, as one ward 8 gardener put it, it is not a “priority for the people who need it most, they’re busy surviving and I can’t fault them for that.” When asked if they could reconcile the discrepancy between their call for more community gardens and their recognition that many people in food insecure communities do not prioritize gardening, the participant responded very matter of fact stating that you don’t need everyone to garden. They went on to talk about their garden's plans to operate as more of a farm, seeing the land they

have as a whole, instead of as individual plots. Doing so would allow for more food to be grown and distributed within their community.

To further showcase the lack of people attempting to utilize community gardens in wards 7 and 8 are the garden waitlists. One garden in ward 1 has upwards of 850 people on their waiting list while gardens in wards 7 and 8 ranged from no wait list to around 9 people. As one ward 8 garden manager put it, “Do I have a yearlong waitlist? Hell no. Hell no.” While gardening is an enjoyable activity with a multitude of benefits for all participants regardless of ward, with the people interviewed, there was an added value of food security in wards 7 and 8. More research would need to be done to determine why food insecure communities have smaller waitlists, though according to multiple participants in this sample, it appears to be less of a priority because people in food insecure communities have other pressing issues to manage. That said, it was noted that it does not take an excessive amount of gardeners to create more food security within a community. In ward 1, it does not appear that long wait lists relate to one’s desire to garden for food security purposes; it appears to be more of a leisure activity.

Though the critique of community gardens being insufficient for addressing food security is valid because ultimately our inequitable food system needs rebuilding, it does not mean that community gardens are not making a difference. Community gardens are like nonprofits (and often actually are): they can address a critical need but often are not able to get to the upstream cause of the problem. Furthermore, their robustness and functionality are quite dependent on those with resources and power. Highlighting the direct service a community garden provides, a couple participants were able to quantify

how much gardening saves them on their trips to the grocery store. One participant said that during the growing season, they save about $30 on each grocery bill, “to me, ten dollars, five dollar is a saving. So thirty dollars, that’s a no brainer.” While this might not seem like much for some people, it can really make a difference for others. Participants noted that with the money they saved they were able to buy items like deodorant for their kids or extra cleaning products that were needed during COVID-19.

One ward 8 gardener talked about the impact of food insecurity on their cousin saying, “Lack of food security killed my cousin… due to complications of diabetes. Because when you're living in an expensive city like DC you have to make decisions on the rising costs to live… people don't see how it does matter and it does affect your everyday life more than you think. So she died.” Interviews with people from each category discussed the ways in which lack of access to nutritionally adequate food has impacted their own health or the health of people that they know. For one ward 7 garden manager, their child becoming ill was the catalyst to them joining a garden, without any experience. They went on to tell the story about how shortly after joining the garden, they became a co-garden manager. Their decision to become a co-garden manager speaks to the need for access to healthy food and the susceptibility of community gardens ceasing to exist. At this participant’s first garden meeting, the garden manager at that time announced that they were stepping down and if someone did not replace them, the garden would close. They describe their decision to step up saying:

> We were standing there in the garden manager meeting and we looked at each other and I said, ‘[name redacted] we can’t let this garden go to waste. It would be foolish of us to let this whole garden go to waste.’ Because that's essentially what

> would have been happening… so we both stood right there and we both raised our hands and we held each other's hands and we said we'll be the garden managers.

The relationship two gardeners had built speaks to the power relationships have in sustaining community gardens. This relationship was especially important as this garden exists in a food insecure community.

*5.4 Relationships: Interpersonal Dynamics*

When it came to interpersonal relationships within gardens, gardeners and garden managers reported being part of gardens that ranged from communal to individualistic. In ward 1, one garden reported being a space with a lot of peer support while a gardener from a different ward 1 garden felt disappointed by the lack of community at their garden stating, "I mean, there were people that would come and not say hello or goodbye." In speaking with two people from the latter garden, it appears that this individualistic dynamic contributed to a lack of communal maintenance in the garden space, even when a "zone" system was implemented to encourage people to take care of parts of the garden outside their individual plot. A culture of community was always discussed when it came to effectively completing maintenance tasks at each garden. From eager or supportive members to community partners that helped with recruiting volunteers, having relationships came up as an important factor in the success of maintaining a garden.

In regards to individualism, one advocate/policymaker spoke to the idea of private property seeping into community garden spaces and the importance of relationship building as a means to dismantle that construct, both within the garden and between gardens. They discussed that when relationships are built, people can then speak more about what is going on in their community and the DC community at large, making room

for meaningful discussions around topics such as food security. They talked specifically about garden managers, stating that they are "very autonomous units and they're not necessarily thinking about, 'why is it that my garden did totally fine but I'm hearing my friend across the river is really having a difficult time'... they're not seeing themselves as kind of in it together." Relationships between gardens, especially of different demographics, may prove to be an important factor in addressing food insecurity.

*5.5 Relationships: Organizations and Community Dynamics*

Relationship dynamics were also discussed when talking about organizations that are part of communities. Participants often spoke about their relationship with DPR, UDC, and local organizations like nonprofits. Participants discussed classes they enjoyed through DPR and relationships with faculty at UDC that allowed them to learn. In learning more about DPR, their role overseeing their affiliated community gardens is fairly hands-off and garden managers were largely okay with this. One ward 8 garden manager expressed frustration with their relationship to DPR and described feeling like DPR's "stepchild" stating, "So the first year in our garden, DPR never even cut on my water. I was gardening out of rain barrels… The second year took them about a month or two to turn on the water… So just kind of trying to go through little isms like that can be really annoying." They went on to discuss their experience seeing a garden in northwest DC for the first time:

> I remember going to this one garden in northwest. And I'm gonna be mindful about what I say... but I was pissed off. Like that garden- oh, my God. It was so beautiful, like you can get married there, it was the sort of space like I saw a squirrel do a backflip off a tomato- it was just beaming. And I mean, here I am roughing it in the slums- like for real. My compost bins don't have covers, they won't re-do anything… I mean, they had shovels, they had a tool shed the size of

> my garage- like oh wow- I was so pissed! So that's kind of how that relationship with DPR is.

The description of a northwest garden as a place where squirrels do backflips and one could get married compared to their "slum"-like southwest garden painted a vivid image. By contrasting their garden, in a low-wealth Black community, to a garden in northwest, a higher-wealth White community, this participant highlighted the unjust discrepancies they've experienced from DPR based on the community they are from.

It is important to note that DPR does not have complete control over how a garden looks and operates, but they should operate equitably across the gardens they oversee. The individual expressing concern noted the difficulties that they had with accessing basic tools like water, compost bin covers, and shovels. How a garden functions depends largely on the involvement of community members, a basic supply of materials from DPR, optional annual membership fees, and optional community partnerships.

Based on the garden managers interviewed, it is understood that DPR encourages relationships with community partners for support but it is not a requirement. When a garden has a partnership with a community partner, they (the garden) sign an extensive agreement with the partner about what everyone's roles and responsibilities are. The optional nature of a garden partnership and membership fees can have a dramatic impact on how a garden looks. These options can be dependent on the connections garden members have and the socio-economic make up of gardeners, which likely exacerbates garden inequities. In addition to the partnership agreement, DPR has a code of conduct that all gardens must follow and they provide guidance on how each garden can create

their own bylaws. While these guidelines outline some equitable practices like keeping one plot free in any garden with more than ten plots, there does not seem to be a DPR framework that centers equity. To ensure equitable practices and initiatives through DPR, it would be beneficial for them to collect data, such as race and income, about each garden and perform needs assessments. Without measuring demographics and needs, discrepancies like the previous garden manager mentioned are more difficult to address. It would also be beneficial if DPR facilitated community partner relationships, for those who wanted them, as a way to enhance community connections for gardens that might not have any.

Another relationship dynamic discussed was about nonprofits that enter food insecure communities and start gardens. An advocate talked about how they see nonprofits coming into the community (referencing communities in wards 7 and 8) and that community members "know the game."

> They know that, okay this organization is going to come out here, they're going to use our community name to receive a grant, they're going to use our children's names and children's photos to show that 'hey I'm out here, these are my metrics, these are my statistics, I'm doing these programs' but the folks who need to be served aren't really being served.

They went on to say that:

> In my opinion, I've always believed that if you are a nonprofit or an organization coming in to help, there should be a point in time where you're leaving that community because you've done such a good job to help to empower folks… But that's not always what happens. There'll be a nonprofit out there 20, 30 years to where they've seen the community turnover. So that relationship building piece, I would say that is ultimately the biggest issue.

Similarly, a ward 8 gardener spoke about gardens popping up in their community without any relationship to the community; and nonprofits having plans for the

community without any follow through stating, “There's no community input. And when I say that, it's almost as if these things are being done for a community that's gonna be here, not the community that is here.” The idea of a nonprofit entering a community with the intention to serve but an outcome of community disconnect and/or harm speaks to the Nonprofit Industrial Complex. The Nonprofit Industrial Complex is a term used to describe the way nonprofits rely on government and other businesses for funding which in turn shifts their priorities from community needs and desires to the stipulations of the funder(s). This dynamic shifts power from knowledgeable communities to larger, disconnected entities. Ultimately, it perpetuates the existence of a nonprofit and disconnects the nonprofit from truly serving the community.

Other participants spoke to the *benefits* of some local nonprofits that are providing food, education, and gardening space. One person, who discussed how gardening with a nonprofit saved them around $75 a month, explicitly stated that the brief interactions they had with the receptionist where they gardened before COVID-19 was what made them feel so welcome in the space. “There was this one lady who, I don't know what her name is, but, you know, gorgeous woman. She just emanates Mother Earth. When you see her, you're just like, yes- just ask her about the garden and she'll send you right up. She's like, ‘What, you want to go up to the garden? Go on up. You know how to get there. Don’t get locked out- call me if you do’.” The participant talked about feeling welcome in the space because they did not have someone looking over their shoulder.

In contrast, another participant discussed their experience as a new farm manager at a local nonprofit, “People would come and share with me- they're like ‘oh, well you

cool, but the last farm manager, they didn't let us come in’, or ‘you cool but your co-workers, they not that friendly’ or ‘they not inviting’.” While this participant was talking about a community farm, it still speaks to the way an organization’s relationship with community members impacts a community from benefiting from a space like a community garden. This advocate specifically mentioned ward 7 and the lack of relationship building they see there between nonprofits and the community. These examples express the importance of organizations and community gardens building relationships with people in the community where the organization and/or garden is in order for there to be a positive impact.

*5.6 Relationships: Race Dynamics*

Race was another topic that was discussed by a few people regarding the functioning of interpersonal and community level relationships. Notably, race came up in interviews between Black interviewees and myself (a White interviewer). This in and of itself was an example of how race is an important part of the conversation when it comes to food security. Interviewees would preface something they were about to say with things like, ‘I don’t want to offend you but…’ followed by something about White people. One gardener explicitly stated that in food security, talking about race matters. They (a Black person) told a story about a Black child coming to them at their former place of employment and asking for some food because she was not getting enough at home. After providing the child with a bag of food, the participant went to the Food Corps person (a White person) at the organization to discuss what had happened and they

(the Food Corps person) replied by saying, "'Yeah, some kid came to me last year, she was a second grader, said she was hungry'." The participant continued:

> And I was like 'what did you do?'-- '*I gave her a granola bar*'. Hold the hell up… that baby had enough sense to come to the food lady about a food issue and the best you could do was give her a granola bar? Come on y'all! No- not with all the food that's going in this trash can every day… A granola bar? If you saw a hungry dog you would try to assess that dog's needs in a better way than that young lady thought she was able to in the school with which she is the food resource person. This is not okay. And I don't want to take it here, but part of me wants to know if that little girl came to her with pale blonde hair with pigtails- would she have assessed it and said 'here's a granola bar little Rebecca, have a good one'. I don't think so, you can't tell me. It was because she couldn't see herself in that child.

They followed up this story by saying, "this is why I'm in a community garden now going hard." By calling attention to race and its role in addressing the child's needs, this participant highlighted the importance of shared experience (in this case, race), empathy, and knowledge in addressing food insecurity. This participant made clear that when working towards food security, race must be part of the conversation. The drive the participant has to growing food in their community garden is partially derived from their experience with food insecure children and speaks to the failure of the food system in Black, low-wealth communities.

*5.7 Quality of Life*

One of the interview questions that was asked to gardeners and garden managers was about the benefits that members and people from the community get from their community garden. Every participant talked about the fresh quality produce that gardens gave them access to but there were also a variety of other repetitive answers that spoke to

the core theme of 'quality of life'. The theme of 'quality of life' encapsulates information that was received from every group of interviewees.

*5.8 Quality of Life: Benefits for Youth*

One of the biggest themes within this category was the benefits of community gardens on the youth. Participants discussed how instilling garden education into people while they are young can lead to healthier outcomes as they become adults. The importance of showing youth how food grows and where it comes from was discussed by a few people, with one garden manager who recalled kids' reactions when working with them in the garden. The kids would say, "'Oh man! This is how a cucumber grows! Wow! Why aren't they the same size? We have fifty cucumbers right here from this one seed! How does this one little seed produce so many?' So it opens up their minds to explore and actually connect it." Specifically, participants mentioned how this education and exposure is needed in wards 7 and 8. Youth can be exposed to gardening through summer camps, school programming, and exploration at their local garden. Gardening can be a tool for teaching young people about the environment, climate change, mathematics, nutrition, cooking, the food system, skills for job training, and more. It is an opportunity for youth, and all people, to connect with nature and experience green space, which can be hard to come by in a city.

*5.9 Quality of Life: Therapeutic*

The therapeutic quality of gardens was also a theme related to quality of life, for both members of the garden and people in the community. One garden manager discussed how they regularly see some of the same community members going for walks

around the garden, like a little boy who would wake his mom up every morning so they could walk to the garden and see the chickens and a gentleman in his 80's who does his walks by the garden. This description also highlights the benefits some spoke to about intergenerational and general community connection that happens at gardens. In regards to their therapeutic qualities, community gardens were often referred to as places where one can become "grounded" and "connect with the soil". This was spoken about as a value because it allowed folks to relieve stress and it also connected them to nature- seeing themselves as part of the environment instead of separate from it.

*5.10 Quality of Life: Ancestral Connection*

Beyond connecting with the soil, some people talked about the spiritual connection they felt by being in a garden, including feeling a connection to their ancestors. The discussions of ancestors ranged from "I speak to kids all the time who are like, dude, why would I want to be a farmer? My granddad worked his butt off so that I wouldn't have to be a farmer. Why would I want to go back to that?", referring to the enslavement of Black people and their forced labor in agriculture in the U.S., to another participant discussing how they access ancestral wisdom through working with the earth. One Black participant even discussed how their garden sends messages. They explained:

> Someone told me African-Americans have a weird relationship with the land, and it's true, it's true. I remember last year I was like, okay, I'm going to grow some cotton. Mm-mmm no I wasn't. My garden was- no. The energies in that garden- I was not growing cotton. It wouldn't allow it. It germinated and stuff but the garden m-mm. Bugs, everything attacked it. It was like, hell no we don't want it here.

As participants noted, Black people have ancestral trauma when it comes to connecting with the land. While some individuals choose not to work with the land for these reasons, others find connection there.

In Leah Penniman's book, *Farming While Black,* she begins with a dedication that states, "This book is dedicated to our ancestral grandmothers, who braided seeds in their hair before being forced to board transatlantic slave ships, believing against the odds in a future of sovereignty on land" (2018). Shortly after, the book details a discussion with a veteran civil rights activist, Baba Curtis Hayes Muhammad, regarding the role farmers play in the movement for racial justice. Muhammad explained that while "land and food have been used as a weapon to keep Black people oppressed" one must also recognize that "land and food are essential to the liberation for Black people" (Penniman, 2018, p.5). He explained that Black farmers played a central role in the civil rights movement by "coordinating campaigns for desegregation and voting rights as well as providing food, housing, bail money, and safe haven for other organizers" (Penniman, 2018, p.5). Penniman states how this discussion prompted her and her farm team to do more when it came to contributing to the racial justice movement (Penniman, 2018). In working towards racial equity, gardening is a tool. As this study revealed, it is already being used to fight food insecurity (though, again, this is a reaction to a flawed system that needs to be fixed); and it has the potential to do more in working towards racial equity and food security by providing a space where this country's historical and present day racism can be discussed through the lens of the food system and thus catalyze action.

*5.11 Quality of life: Sense of Ownership*

Another benefit of community gardens that was discussed was how they add beauty to a neighborhood and therefore a sense of ownership. One gardener stated that in ward 8, “We don't have anything that really foster's pride in residents. So it's easy to tear up a neighborhood that you're not proud to live in.” They later said that the garden is one of the few things that has not been demonized about the community stating, “to hear some urban guys proud because ‘there’s chickens back there man! That's alright!.’ It’s alright, it’s a good thing.” Green spaces, like community gardens, give people a sense of pride and a feeling of ownership in their neighborhood. In organizational psychology, people tend to be more engaged when they feel a sense of ownership (Buriro, Jantan, Brohi, Ng, & Ho, 2018). Therefore, community gardens may be a useful tool in creating engaged communities.

Along the lines of sense of ownership is cultural wellness. Some participants also discussed how gardens can be a space for people to grow foods that are culturally relevant and may be more difficult to find in a grocery store. Gardens allow people to control parts of their diet. Food is an important part of cultural identity and garden spaces provide an opportunity for some individuals to practice and feel connected to elements of their culture, therefore increasing their quality of life.

Recognizing the value of gardens beyond the food that they can grow is a powerful way to structure arguments against development projects that eliminate green spaces. In addition to the benefits of food security, community gardens also provide educational opportunities for people of all ages, a connection to the environment, a

connection to ancestors, a place for neighbors to engage with one another, a sense of ownership, green space, and so much more.

*5.12 Social-Ecological Model Lens*

In doing this research, it became more clear how "urban agriculture" was an umbrella term for different efforts that appear disjointed. Urban agriculture has to do with the growing, processing, and distribution of food through urban farming, community gardening, school gardening, beekeeping, and more. Speaking to this disjointedness, advocates and policy makers tended to focus on urban farming versus community gardening in their interviews. The distinction between gardening and farming is necessary and important as they produce on different scales and have different goals. Urban farming is primarily focused on large scale food production with farmers who have extensive knowledge and an advanced skill set while community gardening is smaller scale, done in an individual's spare time. While the distinction between urban farming and urban gardening is valid, there is an argument to be made that more can be done to enhance their connection. One advocate spoke about the potential community gardens have to operate as food hubs where other food can be brought in for distribution purposes. Speaking to why this connection can be difficult, another advocate stated that different types of urban agriculture in DC are under different jurisdictions, so while individuals in the urban agriculture community know one another, it is difficult to work together because each facet of urban agriculture reports to and operates under a different agency.

A couple of examples from one garden east of the Anacostia River spoke to the disconnect between the policy level and the organizational level of a community garden. A participant shared that sometimes things happen at the garden without any member of the garden being notified. For example, one day when they showed up to the garden, a few trees had been planted. While they appreciated the trees, they were planted in an area that resulted in the blockage of some light from the garden, which now impacts their ability to grow. They also talked about arriving to the garden another time and a bamboo thicket that they harvested from for trellising in the garden had been removed. Additionally, two participants from this same garden talked about a tree that fell by their garden that they wanted to use for wood chips, but to do so, there would have to have been a memorandum of understanding between the DC Government and the U.S. Army because of the land the tree fell on. It is easy to see how these actions all add up and impact the functioning of this garden that utilizes their space for individual and community level food security purposes.

One DC policy that impacts both urban farming and urban gardening is the Urban Farming and Food Security Act of 2014. While it is for both farming and gardening, individuals at the advocacy and policy level spoke about it only in terms of urban farming. It was reported that this policy has not been extremely successful over the past couple of years, though there are a few spaces across the city that utilize it. Moving forward, advocates and policymakers are focusing on pursuing a community land trust model that will ensure long term land tenure for urban farmers, eliminating the threat of land being bought by a developer.

Talking with gardeners, garden managers, and advocates/policymakers allowed community gardens to be viewed through an individual, interpersonal, community, organizational, and policy level lens. While advocates/policymakers were in support of an increase in gardens, policy level activity with community gardens was not prevalent. Additionally, at the advocate/policymaker level there was sometimes a disconnect where advocates did not participate much when it came to policy, one stating that their involvement in policy was too draining. While policy is not for everyone, disconnect between the policy level and community level can lead to ineffective solutions to problems and is something those working at the policy level should be mindful of when addressing issues like food insecurity.

# Chapter 6: Conclusion

## *6.1 Recommendations*

After analyzing every interview and organizing each theme, there are multiple recommendations to be made related to community gardens and how they can improve food security. Before beginning this research, it was unclear if gardens actually had a role in food security in Washington, DC. This study revealed that community gardens are important for food security purposes when an individual or community is food insecure. That said, there is room for improvement in order to increase food security. First, gardens have the potential to act as food hubs for food insecure communities. A food hub is "a business or organization that actively manages the aggregation, distribution, and marketing of source-identified food products primarily from local and regional producers to strengthen their ability to satisfy wholesale, retail, and institutional demand" (USDA, 2015). Gardens do not need to be the producers of the food that is being distributed, but they can be a place where distribution occurs. Since gardens already address food security, it makes sense to loop them into the portion of the food system that is working on solving this issue. There is also more room for those working on food security to be exploring innovative solutions such as rooftop gardening, aquaponics, and hydroponics. As one advocate mentioned, we cannot think of urban agriculture in the same way we think of rural agriculture, as we have different landscapes and we need to maximize the spaces that we occupy. While gardens in the traditional sense remain important for reasons like green space, and there is value in maintaining them as part of our natural world (versus separate from it), there is a lot of unused rooftop space in cities. If we think

of rooftops like land, we have an incredible amount of space that can be used for growing food in order to address food security. This option comes with structural considerations but is a model that is being implemented across the country, including here in DC. Furthermore, and perhaps farther outside the scope of community gardens, indoor practices like aquaponics and hydroponics allow us to grow food every month of the year in climates that otherwise would not allow us to do so. Aquaponics and hydroponics allow for food to grow without soil, utilizing nutrients from water that gets repeatedly cycled through the plants root systems. In hydroponics, the water gets a formulated nutrient solution; and in aquaponics, the water gets nutrients from organic matter that is usually produced by fish. These growing practices use less water than traditional farming and also create opportunity for vertical growing spaces, maximizing what can be grown. Lastly, urban farms may also benefit community gardens for food security purposes by sharing some of their knowledge about growing food on a larger scale. One garden in this study discussed possible plans to get rid of their individual plots in order to create more room for growing. Guidance from a farm could help gardeners grow more efficiently thus enhancing food security.

Collaboration amongst urban farms and gardens speaks to the second theme of relationship building. Relationships are important between every level of the Social-Ecological Model. Relationships between gardeners, and gardeners and garden managers, improve a sense of community and allow for better management of a garden. Relationships between garden managers and community partners enhance the resources to a garden and thus a gardens functionality; and relationships between community

organizations and those at the policy level impact the ways in which a community organization can provide support. This research revealed some key areas for improvement when it comes to community gardens and their ability to enhance food security.

While there was a general theme of the importance of community organizations creating relationships with community members, one key organization stood out that could implement improvements. That organization is DPR, a government run organization that oversees parks, gardens, and recreational activities in DC. As such, these recommendations are pointed at DPR as a government entity. Interviews revealed that DPR does not have a strong relationship with gardens and furthermore did not always treat gardens equitably. To enhance garden outcomes, it is recommended that DPR perform needs assessments for each of its gardens to determine who needs what resources. A needs assessment will allow DPR to see differences amongst gardens and their access to resources and thus provide resources in an equitable way that can achieve more equal outcomes. Additionally, it is recommended that DPR have more regular communication with garden managers to avoid issues such as the removal of one gardens bamboo thicket that they were utilizing for trellising. In regards to equitable outcomes, it would also be beneficial if DPR facilitated community partner relationships for gardens that desired one. The lack of a framework in facilitating these relationships leaves room for bias in who ends up benefitting from community support, this can lead to inequitable outcomes. Lastly, it would also be valuable if DPR facilitated relationships between gardens, perhaps by hosting monthly garden manager meetings. Facilitating relationships

between gardens allows for relationship building and awareness around how gardens operate in different parts of the city. These relationships could lead to more understanding around inequitable opportunities and food security outcomes. Furthermore, this space could be an opportunity for gardeners, advocates, and/or policymakers to occasionally come and speak and therefore increase collaboration among the different levels in the Social-Ecological model. With this enhanced knowledge and collaboration, it is possible that more people who already have an interest in food would be motivated to work together and act in addressing food insecurity.

It is unclear to the researcher what types of resources DPR has to begin with but it should be noted that these suggestions do not all have to involve high financial cost. That said, since DPR is a government entity, they therefore are influenced and restrained by what happens at the policy level of the Social-Ecological Model. In order to enhance food security in the District, it would be beneficial to provide DPR with the resources needed to adequately serve community gardens and enhance their ability to address food insecurity.

When it comes to Sustainable DC 2.0's plan to increase community gardens through DPR, the suggestions above should be considered. It is not sufficient to just add more gardens as a means to enhance food security. Knowledge of, input from, and support from the community and community organizations are needed for a successful garden. This also means that organizations require the proper support and structures from the policy level. Additionally, as previously mentioned, resources such as how to navigate the process of finding land to create a community garden should be widely

accessible to the public so those interested in creating more gardens can be more knowledgeable. This knowledge would also allow more gardeners to take advantage of the Urban Farming and Food Security Act of 2014, which was reportedly underutilized.

The final theme in this research was quality of life. The recommendation to come out of this theme is to center all of the benefits of community gardens when making decisions about the built environment of Washington, DC. If we are only valuing gardens for the small amount of food they put out (though it's helpful for food insecure people), then we are missing the variety of other values that they bring to a community. Gardens enhance community engagement, cultural wellness, sense of belonging, beauty, and education around the environment, nutrition, injustices, and more. Focusing on gardens many attributes creates a better argument for their value when up against a developer. Strengthening the argument for community gardens by highlighting their many values ultimately creates more opportunity for food security.

### *6.2 Study Strengths and Limitations*

This study's strength was its deeper context to the cultural, social, and structural composition of the community gardens of Washington, DC and how they relate to food security. This study is limited in its small sample size with limited demographics. It was not feasible to do an in depth analysis on every single garden in the District and therefore it is possible that this data is skewed and cannot apply to Washington, DC gardens as a whole, but only to the specific gardens the information came from. That said, data from individual gardens is still relevant and speaks to how some gardens are functioning in DC. A possible limitation to this study is that it was performed in the non-peak gardening

seasons. This possibly limited interaction with gardeners and garden managers as they could not be reached through stopping by a garden. Additionally, advocates/policymakers were extremely busy working on food security issues amongst the COVID-19 pandemic, which may have reduced their capacity for an interview. Perhaps the biggest limitation of this study was the lack of representation of people who live near community gardens but do not use them. The original intent of this study was to focus on those perspectives but because of COVID-19, reaching those residents was looking like an unreasonable challenge. The Coronavirus pandemic also limited my ability to recruit and interact with people in person. Performing interviews over Zoom was not ideal as it made it more difficult to understand body language. Zoom also required participants to have access to, and knowledge about, operating a computer. Lastly, my identity as a researcher and a White woman could have influenced the interaction with and participation of interviewees. One participant noted that they chose to wait and get word about me first before they decided to participate because they were cautious about people who come and "look at" them.

### *6.3 Public Health Significance*

This project is a small step to gaining a deeper understanding of the community gardens of Washington, DC and their effectiveness at addressing food insecurity, a growing public health issue. Understanding that gardens can play a role in food security allows for better planning to address it and therefore improve public health.

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