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UNIVERSITY OF CALIFORNIA,
IRVINE

Planting Seeds: Perspectives from Urban Agriculture Leaders in Long Beach, California

DISSERTATION

submitted in partial satisfaction of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

in Social Ecology

by

Vivianna Marie Goh

Dissertation Committee:
Professor Emeritus Kirk Ralph Williams, Chair
Professor Susan Bibler Coutin
Assistant Professor Karna Lorraine Wong

2024

DEDICATION

To Sheila Grantham:

for her strength and determination,

for planting positive seeds

and nourishing young minds.

Thank you for showing me the power

that we all have

to change our community.

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“A Public University’s Approach to Student Food Insecurity.” Food Studies: An Interdisciplinary Journal, 2022.

“Taste Detection in Post-Laryngectomy Head and Neck Cancer Survivors and Its Effect on Dietary Intake and Malnutrition Status.” Journal of Nutritional Oncology, 2019.

“Taste Testing in a Pediatric Case of Congenital Aglossia.” Communication Disorders, Deaf Studies & Hearing Aids, 2017.

ABSTRACT OF THE DISSERTATION

Planting Seeds: Perspectives from Urban Agriculture Leaders in Long Beach, California

by

Vivianna Marie Goh

Doctor of Philosophy in Social Ecology

University of California, Irvine, 2023

Professor Emeritus Kirk Williams, Chair

Community-led urban agriculture (UA) can potentially address health inequities, increase access to green space, and increase food security for socioeconomically disadvantaged neighborhoods. Guided by the social determinants of health and community cultural wealth model, I analyzed field observations and interviews with leaders of Long Beach community gardens, school gardens, and urban farms. This dissertation presents a socio-ecological model of UA and recommendations for community, research, and policy. One major finding was the importance of collaboration between community members, local organizations, and city officials to build UA. Beyond growing food, UA participants formed bonds, exchanged knowledge, coped with stress, and engaged in outdoor physical activity. Interviewees stressed that funding and long-term land rights are necessary for UA sites and communities to thrive.

GLOSSARY

Community Cultural Wealth (CCW): Cultural knowledge, skills, and abilities gained by communities, which can include six forms of capital: 1) aspirational, 2) linguistic, 3) familial, 4) social, 5) navigational, and 6) resistant (Yosso, 2005).

Community garden: Land collectively gardened by a group of individuals to grow food (Castro et al., 2013; Draper & Freedman, 2010)

Environmental justice: A movement that seeks to address issues of social injustice, including health inequities (Bullard, 2001; Johnson, 2012; Morello-Frosch & Jesdale, 2006; Sprainer, 2022).

Farm: A place that grows, raises, and sells agricultural products, such as dairy, poultry, and fruit farms. Farms can include plantations, ranches, nurseries, ranges, greenhouses, orchards, woodlands, or other structures used for agriculture (van der Hoeven, 2022).

Health inequities: Systematic differences in the health outcomes and risks of different population groups (Braveman & Gruskin, 2003; Braveman et al., 2011; World Health Organization, 2018).

Socioeconomic status (SES): The combined total measure of a person's economic and social position in relation to others, which broadly consists of a person's financial, educational, and employment status (Fiscella & Williams, 2004; Gee & Ford, 2011; McMaughan et al., 2020; Worthy et al., 2020).

Minority: While there is no internationally agreed definition as to who is a minority, minorities can be defined by objective factors (the existence of a shared ethnicity, language or religion) and subjective factors (individuals identify themselves as belonging to a

national or ethnic, religious or linguistic minority group; United Nations, 2010). In the United States, minority racial groups are determined by the Office of Budget and Management as American Indian or Alaska Native, Asian, Black or African American, and Native Hawaiian or other Pacific Islander; Latino or Hispanic is classified as an ethnicity (National Institute on Minority Health and Health Disparities, 2022; Phinney, 1996; United States Census Bureau, 2022c).

Social Determinants of Health (SDOH): A framework which offers specific dimensions to study health inequities. The Healthy People 2030 Initiative, created by the U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion, groups SDOH into five domains: 1) social and community context, 2) economic stability, 3) education access and quality, 4) neighborhood and built environment, and 5) health care access and quality (Healthy People, 2023; Ochiai et al., 2021).

Urban agriculture: The cultivation, processing, and distribution of agricultural products in urban and suburban areas (including tribal communities and small towns). Examples include community gardens, rooftop farms, hydroponic, aeroponic, and aquaponic facilities, and vertical production. (United States Department of Agriculture, n.d.).

CHAPTER 1: INTRODUCTION

The City of Long Beach, located in Los Angeles (LA) County of Southern California, is home to a diverse population of about 451,000 people (U.S. Census Bureau, 2022a). Long Beach is 20 miles south of downtown Los Angeles and borders the west side of Orange County (City of Long Beach, 2009; U.S. Census Bureau 2022a). Out of 88 cities in LA County, Long Beach is the second most populous after Los Angeles, which has 3.8 million residents (U.S. Census Bureau, 2022a). The land area of Long Beach (50.71 square miles) accounts for just 1.2% of land in LA County (U.S. Census Bureau, 2022a). However, the coastal city is well-known for the Port of Long Beach (the busiest port on the West Coast), the Queen Mary (retired ocean liner and tourist attraction), California State University, Long Beach, and the Aquarium of the Pacific (City of Long Beach, 2009).

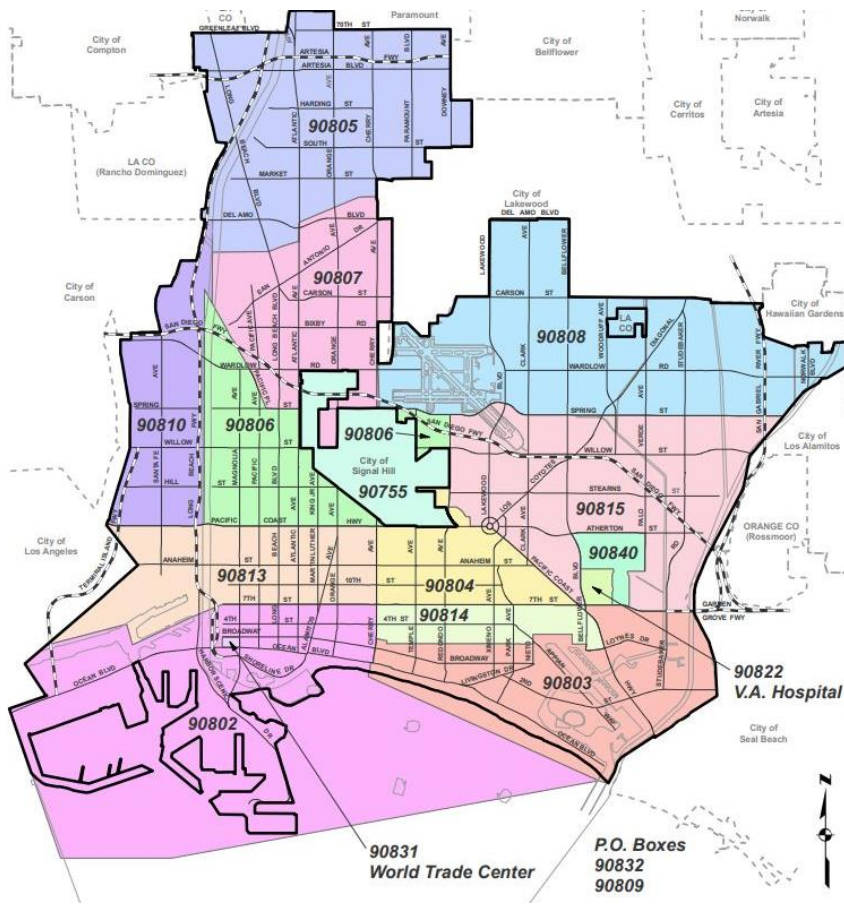
This dissertation focuses on the City of Long Beach due to its high prevalence of community gardens compared to other cities in LA County. A 2013 comprehensive report of LA County urban agriculture (UA) identified the city as having 19 community gardens, one-sixth of the county's total (Jackson et al., 2013). As of 2024, Long Beach has about 28 community gardens according to multiple sources (City Fabrick, 2020; City of Long Beach, n.d.; City of Long Beach Office of Sustainability, 2014; Google, n.d.; Lai et al., 2023; Long Beach Fresh, 2017; Long Beach Fresh, 2018; Long Beach Grows, n.d., Long Beach Organic, 2024). This suggests that about 22% of the county's estimated 125 community gardens are in Long Beach (Jackson et al., 2013; Los Angeles Community Garden Council, 2018).

There is evidence that UA (the cultivation, processing and distribution of agricultural products in urban and suburban areas) can increase communities' access to

green space and food, while also creating opportunities for socialization and the exchange of resources and knowledge (Alaimo et al., 2008; Cooper et al., 2020; Draper & Freedman, 2010; Ferris et al., 2001; Horst et al., 2017; Siewell et al., 2015; Wolch et al., 2014). The high prevalence of community gardens in Long Beach may result from local efforts to increase access to food. Compared to LA County, Long Beach has higher rates of food insecurity, meaning that residents “lack consistent access to enough food for an active, healthy, life” (Long Beach Department of Health and Human Services [LBDHHS], 2019, p. 100). The food insecurity rate in Long Beach (38.4%) is 10% more than that of the county (28.2%). Communities of color who live in North, Central, and West Long Beach are at highest risk of being food insecure (LBDHHS, 2019; PolicyMap, 2021a). These areas include the 90805, 90806, 90807, 90810, 90813 ZIP Codes (see Figure 1), where communities are disproportionately burdened by disease and health conditions, such as asthma, diabetes, and hypertension (LBDHHS, 2019).

Figure 1

Map of ZIP Codes in Long Beach, 2012



Note. Map from “City of Long Beach, California Zip Codes” by City of Long Beach Department of Technology Services GIS, 2012.

Long Beach residents’ life expectancy is vastly impacted by where their neighborhood is located. For example, those who live in the 90813 ZIP Code have a life expectancy of 71.9 years, which is nine years lower than the highest average life expectancy in Long Beach, 81.1 years in the 90808 ZIP Code (LBDHHS, 2019).

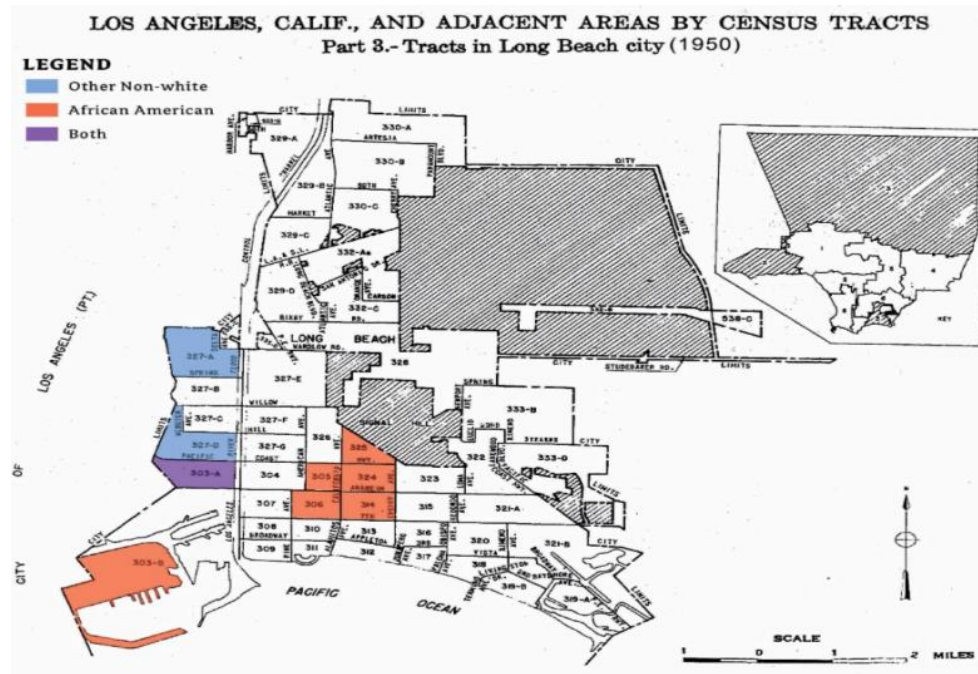
Acknowledging the discrepancy in life expectancies for different ZIP Codes, the Long Beach Office of Equity (n.d.) stated:

A history of unfair laws and practices, in the US and in Long Beach, created many of these differences. Hiring discrimination, laws about who could buy homes and where, and poorly funded schools created many obstacles for people of color and low-income residents. While the City has been making investments and progress on many fronts, many of our communities still need better access to grocery stores, banks, good jobs, safe parks, and affordable housing. (p. 3)

Existing health inequities in Long Beach may be explained by housing practices enacted nearly a century ago. According to the City of Long Beach's Historic Context Statement, neighborhoods were shaped by redlining, the restriction of housing loans based on race (City of Long Beach, 2009). Federal Housing Association and private banks implemented redlining in the 1930s, preventing people of color from purchasing or renting in certain areas. Although the U.S. Supreme Court ruled in 1948 that such housing restrictions could not legally be enforced, redlining continued into the 1970s. Housing discrimination even affected professors of color at Long Beach State College, presently known as California State University, Long Beach. Despite being recruited to teach at the university, they were not allowed to buy homes near the campus, located on the East side of Long Beach (Historic Resources Group, 2022). Figure 2, a census tract map from 1950, shows that most African American (highlighted in red) and other non-White residents (blue) were concentrated in Central and West Long Beach. The purple tracts represent areas where both groups resided (Historic Resources Group, 2022).

Figure 2

Census Tracts in Long Beach, 1950



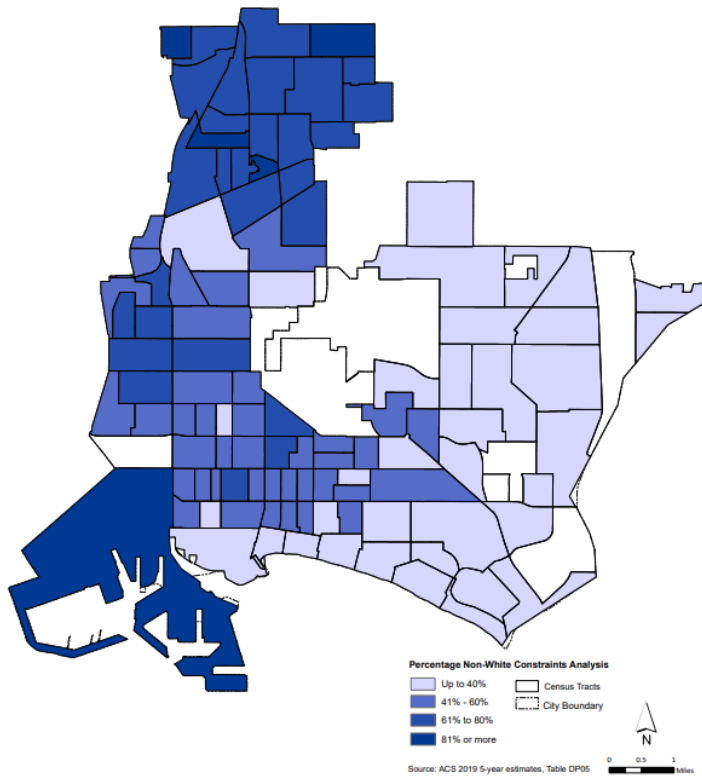
Note. Map of 1950 Long Beach Census Tracts with color added from “Historic Context Statement: Suburbanization & Race City of Long Beach,” by Historic Resources Group, 2022.

Long Beach became more ethnically diverse over time, partially due to increased immigration from Mexico, Central America, South America, and Southeast Asia. However, as acknowledged by Long Beach Community Development (2022), “it remains a very segregated city” (p. 66). Recent data suggests that Long Beach’s communities of color are still concentrated geographically (City of Long Beach, 2009; City of Long Beach, 2022).

Figure 3 maps the 2018 percentage of non-White residents by census tract.

Figure 3

Percentage of Non-White Long Beach Residents by Census Tracts, 2018



Note. Map of 2018 Census Tracts from “Adopted 2021-2029 Housing Element Technical Appendices” by Long Beach Community Development, 2022.

The dark blue shading represents areas where 81% or more of residents identify as non-white, while the lightest shading represents areas where up to 40% of residents are non-White. People of color are most concentrated in North, Central, and West Long Beach (Long Beach Community Development, 2022; LBDHHS, 2019).

A Brief Overview of Long Beach’s Agricultural History

Before Long Beach’s incorporation as a city, its demographics were impacted by colonization. Present day Long Beach was originally the traditional and ancestral territory

of the Tongva/Gabrieleño and the Acjachemen/Juaneño indigenous peoples (City of Long Beach, 2022). Puvungna, once a large settlement, was located where California State University, Long Beach stands today. It continues to hold spiritual and cultural significance to several tribes (City of Long Beach 2022). The Tongva (referred to as Gabrieleño by Spanish colonizers, after the nearby Mission San Gabriel), consumed a variety of meats, insects, and plants (City of Long Beach, 2009; Rancho Los Cerritos, n.d.). Instead of maize, which was more popular in the Colorado River region, the Tongva favored nutrient-rich acorns, high in both fiber and fat (Zappia 2019). They also consumed a meal made from ground seeds of *islay* (also known as hollyleaf cherry), *cholla* cactus seeds, wild sunflower seeds, chia seeds and shoots, and clover (City of Long Beach, 2009; U.S. Forest Service, n.d.).

In 1542, Spanish explorer Juan Rodriguez Cabrillo seized land from the Tongva tribe (City of Long Beach, 2009). European colonization resulted in the spread of new diseases, death, and displacement of the Tongva and other indigenous peoples. Over time, Spanish settlers established *ranchos* throughout the region to raise horse, cattle, and other livestock. One of the largest ranchos in California was owned by retired soldier Manuel Nieto, who received 300,000 acres of land in 1784 as a reward for his military service (Rancho Los Cerritos, n.d.; City of Long Beach, 2009). Nieto's rancho spanned from the Los Angeles River to the Santa Ana River. After his death in 1804, Nieto's children inherited the land. During their joint ownership of the rancho, California became part of Mexico in 1821 after the country gained independence from Spain (City of Long Beach, 2009). In the early 1830s, Nieto's family divided their land into six parcels. The United States claimed

California as a territory in 1848, and in 1950, California became the 31st state (City of Long Beach, 2009).

As California assimilated into the U.S., Nieto's rancho became further divided and sold to American ranchers. For example, the 27,000-acre *Rancho Los Cerritos*, Ranch of the Little Hills, was owned by Nieto's daughter Manuela Cota, then sold after her death to Massachusetts-born John Temple in 1843 (Rancho Los Cerritos, n.d.). Temple used the land to raise cattle for their hides and tallow. Although he mainly resided in Los Angeles for his mercantile business, Temple lived at Rancho Los Cerritos during the summer, and built a two-story adobe headquarters and garden. After retiring, Temple sold Rancho Los Cerritos to Flint, Bixby & Co. in 1866. The Bixby family kept 30,000 sheep to provide wool. However, the sheep industry declined during the late 1870s, and so Jotham Bixby began to lease and sell portions of the property. Over time, the cities of Long Beach, Bellflower, Paramount, Signal Hill and Lakewood were founded on Los Cerritos lands (Rancho Los Cerritos, n.d.).

The City of Long Beach was incorporated in 1888, with 800 citizens (City of Long Beach, 2009). The City of Long Beach (2009) Historic Context Statement included this quote from a newspaper reporter, written two years after the city was founded:

All the land in the vicinity is well watered and suited to agriculture or to horticulture, and is subdivided into farm lots of five, 10 and 20 acres each. Many of these, within the year, have been purchased by settlers, and are now occupied by families making a beginning in fruit-growing. (p. 52)

Agriculture was an important part of Long Beach's early economy that drew long-term settlers. 19th century farmers raised cattle and sheep, and grew flowers, fruits, and

vegetables such as corn, beans, barley, and alfalfa (Rancho Los Cerritos, n.d.). During the 20th century, the city placed a stronger focus on tourism and industry, advertising Long Beach as a seaside resort town. This attracted seasonal tourists but marked an overall decline in agriculture. The city's population increased due to national and regional immigration and the discovery of oil. Landowners sold large tracts of real estate for industrial, commercial, and residential expansion (City of Long Beach, 2009).

Many of Long Beach's UA sites from the last century were developed from vacant land, either by city officials or local organizations. One example, Rancho Esperanza, was originally created to extract labor from Long Beach's jail population, which overflowed with a "staggering number of drunks" (Grobaty, 2013, p. 1). The idea was initially proposed in 1949 by city prosecutor Kenneth Sutherland and endorsed by court judge Charles Wallace police chief William Dovey. Rancho Esperanza became known as the "Honor Farm." In 1954, "42 alcoholics and assorted vagrants and traffic law violators" were sent to the Honor Farm, and after eight months, grew enough food to feed themselves and the inmates back at the city jail (Grobaty, 2013, p. 1). Though the farm was abandoned in the 1970s, it was later converted into a community garden. In 1974, the Long Beach Parks Department was requested by the city council to study how vacant city properties could be converted into private vegetable plots (Long Beach Community Garden Association, 2023). In January of 1976, the City Council approved the Honor Farm community garden, which was described as "heaven to a gardener," featuring 218 garden plots, compost bins, rustic building, and a small orchard. The Long Beach Community Garden Association (LBCGA) was organized in May of that year to supervise operations and maintenance. In 1997, city

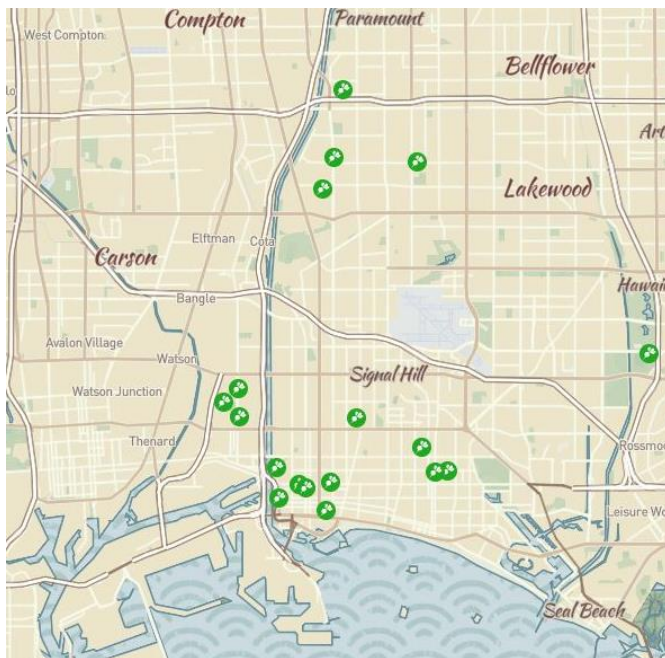
officials relocated LBCGA’s garden to be adjacent to El Dorado Park, on 8.5 acres of land. LBCGA currently has a food bank which donates fresh produce to local charities, and its tree orchard “provides a visual and sound buffer between the gardens and the 605 Freeway” (Long Beach Community Gardens Association, 2023).

Long Beach Urban Agriculture in the 21st Century

In addition to its community gardens, Long Beach has multiple school gardens and urban farms which have yet to be studied. Though North, Central, and West Long Beach are considered “park poor” compared to East Long Beach (Addison, 2019), a 2018 map from the nonprofit Long Beach Fresh shows that these areas are also where most community gardens (Figure 4) and urban farms (Figure 5) are located.

Figure 4

Community Gardens in Long Beach, 2018

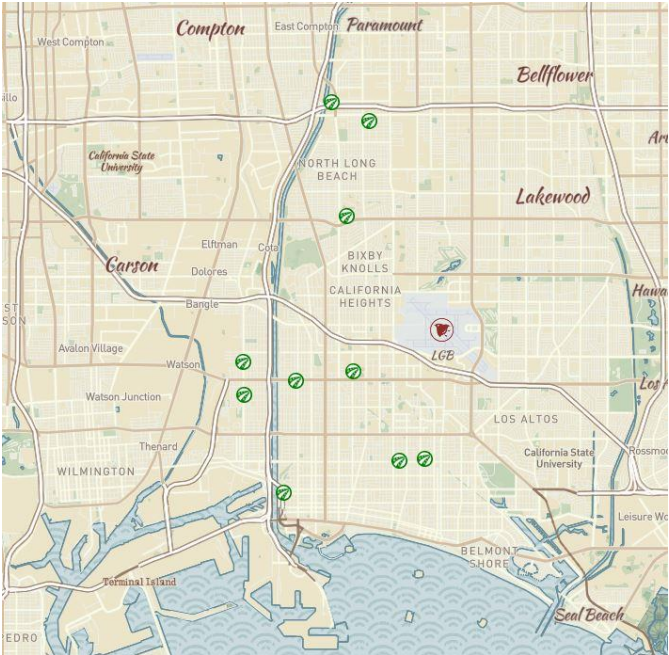


Note. Map and icons from “Long Beach Food Map” by Long Beach Fresh, 2018.

The map in Figure 4 indicates 18 community gardens with a carrot icon, shows clusters of community gardens: three gardens to the west of the Route 710 freeway, four gardens in the northern area by the 710 and State Route 91, and 10 gardens to south of Signal Hill, near Central and Downtown Beach. In contrast, Long Beach Community Garden, located in East Long Beach, is not surrounded by any other community gardens.

Figure 5

Urban Farms in Long Beach, 2018



Note. Map and icons from “Long Beach Food Map” by Long Beach Fresh, 2018.

Figure 5 identifies 10 urban farms, which are dispersed along the 710 freeway in similar areas as the community gardens.

At the time of writing, research on Long Beach UA is limited to a comprehensive paper (Fitch, 2018), a senior practicum project report (Ban et al., 2013), and a master's thesis (Tijerina, 2014). The first paper discusses UA zoning and land security in the cities of Long Beach and Los Angeles (Fitch, 2018), while the latter two papers are case studies of The Growing Experience, a 7.5-acre community garden and urban farm in North Long Beach (Ban et al., 2013; Tijerina, 2014). Fitch (2018) assessed spatial data from UA sites and conducted surveys with 12 community gardens in Long Beach and Los Angeles. Gardeners reported social and emotional benefits, such as an increased sense of community, pride in growing their own food, and cultivating a safe, educational space for children (Fitch, 2018). According to Fitch (2018), a major challenge for all community gardens surveyed was the high cost of starting and maintaining a garden, which was exacerbated by water and trash collection bills.

The Growing Experience

Ban et al. (2013) and Tijerina (2014) both studied The Growing Experience, a joint collaboration between the Housing Authority of Los Angeles County and the University of California Cooperative Extension, which transformed a neglected lot into a community resource. Ban et al. (2013), who studied the impact of a Community Service Agriculture (CSA) program, found that The Growing Experience offered organic produce at a more affordable cost than supermarkets, and made a conscious effort to include ethnically-appropriate crops targeted to the local primarily Latino and African-American population

of the Carmelitos Housing Project. CSA subscribers and Carmelitos residents who used The Growing Experience's Farmer's Market ate more fruits and vegetables than residents who did not participate in The Growing Experience. However, the CSA boxes were more expensive than the majority of non-organic produce from local supermarkets, so some residents were unwilling to participate due to financial and time restraints. One resident described that it was difficult to buy fresh produce then cook it after working all day (Ban et al., 2013, p. 27).

The Carmelitos Housing Project was originally designed for low-income families, specifically serving soldiers who had just returned home from World War II. Unfortunately, Carmelitos became notorious for violence, drug, and gang culture (Ban et al., 2013; Tijerina, 2014). Tijerina (2014), who focused on types of environmental justice offered by The Growing Experience, found that the area surrounding Carmelitos was a food desert located near 309 hazardous waste sites, 48 sites that released toxic chemicals, and 15 sites that reported air emissions to the Environmental Protection Agency. The Growing Experience resisted environmental injustices and aimed to uplift locals from poverty by offering a CSA program, farmer's market, community garden, community kitchen, business and job training, and other educational and economic opportunities (Tijerina, 2014).

However, nearly a decade after Ban et al. (2013) and Tijerina's (2014) case studies were published, the Los Angeles County Development Authority nearly shut down The Growing Experience due to budget constraints. In 2021, they laid off all but one staff member (DiMaggio, 2022). As of 2022, The Growing Experience is managed in partnership

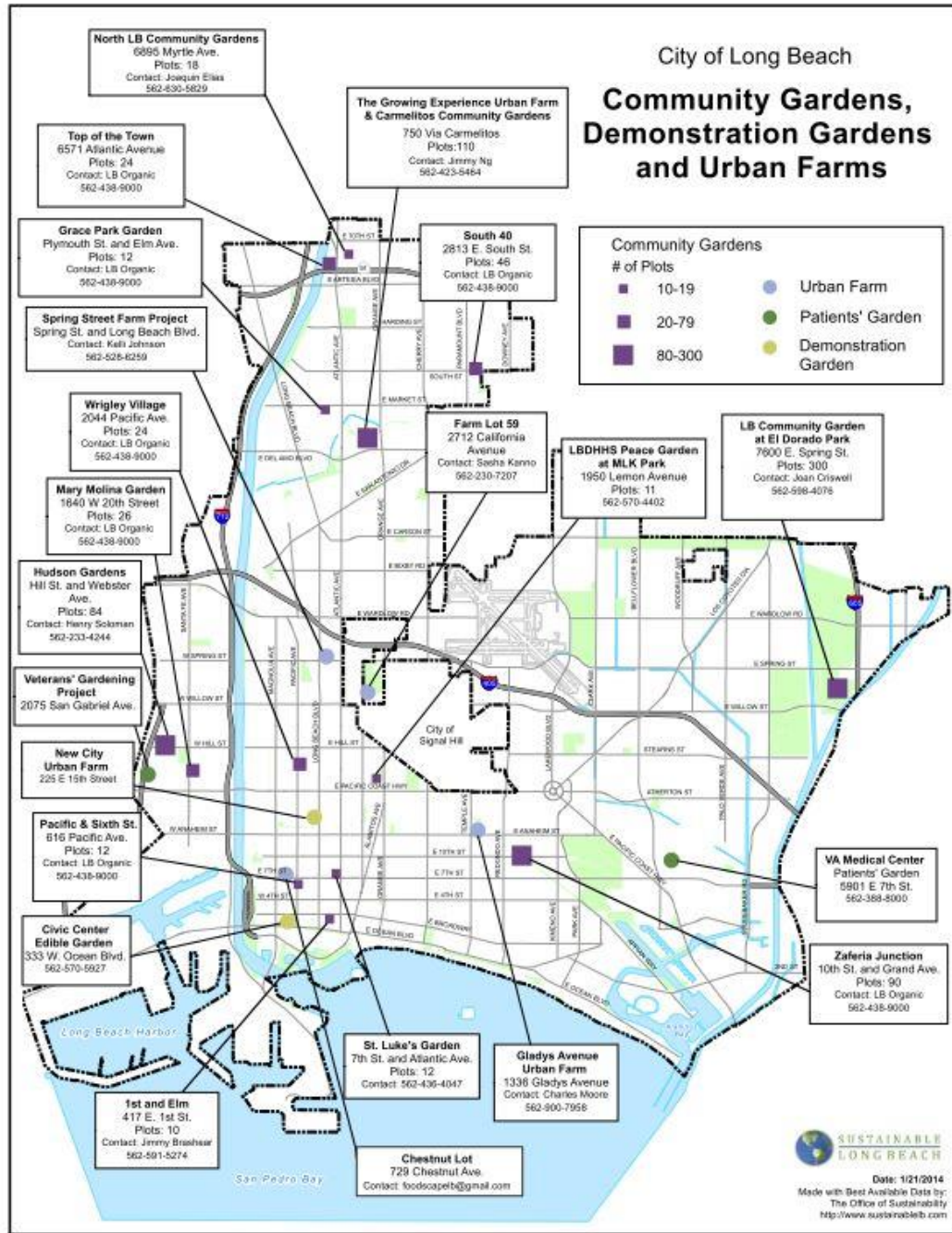
with the MAYE Center, a nonprofit that helps Cambodian residents cope with trauma from the Cambodian Genocide (DiMaggio, 2022).

Identifying Active UA Sites in Long Beach

Over the past decade, UA in Long Beach has expanded. Ban et al. (2013) and Fitch (2018) identified a total of 26 active UA sites including community gardens, school gardens, and farms. Ban et al. (2013) also noted additional gardens which had ceased operations, including the Civic Center Edible Garden and Wrigley Garden on Henderson Avenue. However, these two gardens are both listed on a 2014 document published by the City of Long Beach Office of Sustainability (Figure 2).

Figure 6

Gardens and Urban Farms in Long Beach, 2014



Note. Map from “Community Gardens, Demonstration Gardens, and Urban Farms” by City of Long Beach Office of Sustainability, 2014

This document listed a total of 22 UA sites, suggesting that attempts to map UA in Long Beach may be inconsistent. More recent sources from 2017 to 2023 indicate that there are potentially 66 UA sites in Long Beach, including 28 community gardens, and 30 public school garden sites, and 10 urban farms (City Fabrick, 2020; City of Long Beach Office of Sustainability, 2014; Long Beach Fresh, 2017; Long Beach Fresh, 2018; Long Beach Organic, 2024; Murray, 2021). Some UA sites are managed by one entity. For example, as of 2024, nine community gardens are managed by the nonprofit organization, Long Beach Organic (Long Beach Organic, 2024).

As of March 2024, the nonprofit Ground Education manages 24 school gardens in the Long Beach Unified School District (LBUSD). Additionally, Ground Education provides gardening activities to other UA sites, including Adventures to Dreams Enrichment, Farm Lot 59, and Sowing Seeds of Change (Ground Education, 2024). An undated webpage from the City of Long Beach (n.d.) claimed there are 30 LBUSD gardens. In a 2021 article from the local newspaper *The Grunion*, assistant public information director Evelyn Somoza reported that LBUSD has 20 district-approved gardens that receive mulch and weed pick-up (Murray, 2021). Murray (2021) elaborated that while 20 school gardens completed the district's application process, there may be additional self-maintained gardens. Information on Long Beach school gardens was limited to those within Long Beach Unified School District (LBUSD) and did not include private or charter schools. In general, there is a lack of research on Long Beach school gardens (Ban et al., 2013; Fitch, 2018; Tijerina, 2014). This dissertation will contribute to scholarly knowledge on gardens and urban farms in Long

Beach, by investigating community engagement in UA through field observations and interviews.

Research Objectives and Questions

This study was guided by the social determinants of health framework (SDOH) and the community cultural wealth (CCW) model, which relate to the dissertation's focus on communities uniting to improve their health and environment through UA. UA can positively impact SDOH, which are socioeconomic and environmental factors that influence individual or community health (Audate et al., 2019). The Healthy People 2030 initiative, developed by the Office of Disease Prevention and Health Promotion of the U.S. Department of Health and Human Services, groups SDOH into five domains (social and community context, economic stability, education access and quality, neighborhood and built environment, and health care access and quality). These domains provide context for why health inequities occur, as well as how they can be addressed (Ochiai et al., 2021). By targeting SDOH, UA can potentially improve physical and mental health outcomes (Audate et al., 2019; Bryant et al., 2015; Lake et al., 2012). For example, many studies reported that UA fosters social capital (Audate, et al., 2019; Draper & Freedman, 2010; Lanier et al., 2015; Siewell et al., 2015). Social capital is part of Yosso's (2005) CCW model, which highlights communities' cultural knowledge, skills, and abilities. Additionally, social capital connects to the "social and community context" domain of SDOH. The dissertation aimed to understand how communities develop and mobilize capital to create UA by answering the following research questions:

1. How do communities create, maintain, and engage in urban agriculture (UA)?

2. What forms of skills and knowledge do communities draw on to create UA?
3. How does engaging in UA foster community skills and knowledge?
4. How does UA address health inequities and the social determinants of health?

Personal Role and Research Paradigm

In this section, I will disclose my background to provide context for qualitative data collection and analysis. Self-reflexivity is an important consideration of qualitative methods, as researchers' experiences affect their interpretation of data (Tracy, 2013; Uhrin, 2022). Tracy (2013) describes "the mind and body of a qualitative researcher" as a literal research instrument, "absorbing, sifting through, and interpreting the world through observation, participation, and interviewing" (p. 2).

I am a Social Ecology doctoral candidate and the Assistant Director of a Long Beach UA nonprofit, Adventures to Dreams Enrichment (AtDE). AtDE empowers youth (ages 5-16) by providing the resources and education for youth to grow their own food. The organization's mission is to engage youth in hands-on enrichment activities, create a safe environment to learn and play, and provide mentorship (Adventures to Dreams Enrichment, 2024). While collecting and analyzing data, I will be mindful of how my subjective experiences may influence the research (Uhrin, 2022). I began volunteering at AtDE in 2017 while completing my Bachelor's in Dietetics and Food Administration at California State University of Long Beach. Since then, I assisted AtDE in building and maintaining a youth garden, harvesting produce, coordinating volunteers and interns, and raising funding. These experiences allowed me to build rapport with not only AtDE, but with community members of Long Beach, which is essential for recruitment and data

collection for this evaluation. For this study, I could be considered a “complete participant” as a researcher studying a context in which I already am a member (Tracy, 2013, p. 107). My role as the Assistant Director of a nonprofit engaged in youth gardening offered the advantage of insight into the world of UA. Subjects of a study may act more open and candid around a complete participant, as if a colleague or friend is visiting, rather than a researcher (Tracy, 2013).

Study Design

This research investigated UA sites in Long Beach that fit the United States Department of Agriculture’s (n.d.) definition of cultivating, processing, and distributing agricultural products. UA sites in Long Beach include community gardens, school gardens, and urban farms. An important distinction between community gardens and farms is that community gardens are collectively maintained by a group of individuals to grow food, compared to farms which may be privately owned (Castro et al., 2013; Draper & Freedman, 2010). Although rooftop farms, hydroponic, aeroponic, and aquaponic facilities, and vertical production qualify as UA, these UA types were not identified in Long Beach (Google, n.d). Equipment facilities, distributors, and green spaces that do not grow food, such as botanical gardens, were excluded from this study. This study also collected information on UA sites that are no longer in operation, such as the community gardens deemed “no longer operational” by Ban et al. in 2013 (p. 19).

IRB approval was granted by the University of California, Irvine in May 2023. I used publicly available contact information to request a site visit and interview with the main person responsible for the site (referred to in this dissertation as the UA leader). Additional

participants were recruited through snowball sampling, or recommendation by initial study participants (Parker et al., 2019). UA site leaders were contacted via email with a study information sheet. The interview was conducted with the interviewee's verbal consent, and interviewees received a \$25 gift card as compensation for their time.

Strengths and Limitations

Data collection took place from June 2023 to December 2023. I interviewed 19 people in a leadership role at a Long Beach UA site (e.g., Director, Board Member, Founder, Lead Volunteer). Interviewees were aged 22 to 69 years old, with the average age being 49. In addition to the broad range of ages, interviewees had varying levels of experience. The longest amount of time a UA leader held their position was 13 years, and the shortest amount was one month. About 58% of interviewees were female, and 42% of interviewees were male. I conducted field observations at 27 sites, about 39% of 66 sites that were actively operating in Long Beach at the time of writing, in 2024. I observed, interacted with, and volunteered with over 60 adults engaged in UA (e.g., gardeners, employees, interns, volunteers) and over 200 LBUSD students. A limitation of this research is the lack of perspectives from UA leaders who choose not to participate in this study. Additionally, about 68% of interviewees identified as White, which is higher representation compared to the city's population. Only less than a third of Long Beach residents are White (U.S. Census Bureau, 2022a). Therefore, the demographics of UA leaders who participated in this study may greatly differ from that of all gardeners, students, and farmers engaged in UA.

Field Observation Protocol

During the site visits, I wrote fieldnotes as a qualitative method for collecting descriptive information about the UA sites and people involved. Fieldnotes allow researchers to understand others by immersing themselves in events, experiencing and interpreting those events as participants, and “transforming witnessed events, persons, and places into words” (Emerson et al., 2011, p. 12). This provides description that may otherwise be missed by a survey questionnaire with prefixed questions (Emerson et al., 2011). Using a field observation protocol (Appendix A), I recorded the date, time, and duration of sites visit and notes of my initial impressions, including sights, tastes, smells, and sounds. Based on this protocol, I first created a “raw record,” my first, unprocessed writing of the site (Tracy, 2013, p. 114). Within 36 hours of the site visit, I typed the raw record and saved it as an electronic document (Emerson, 2011; Tracy, 2013).

I recorded any site characteristics that corresponded with the SDOH domains of social and community context, economic stability, education access and quality, neighborhood and built environment, and health care access and quality (Ochiai, 2021). For example, while observing the Neighborhood and Built Environment, I noted the type of land that the site is located on and its size, any amenities (e.g., raised beds, containers, in-ground plots, greenhouse, seating), crops, plants, and vegetation, agricultural techniques, animals and/or insects kept at the site, nearby public transportation, and security features. I took notes on the UA site’s Social and Community Context by recording the number of people present, their visible characteristics (such as age, gender, race/ethnicity), any ongoing activities, programs, or events, and any rules or policies followed at the site. (See

Appendix A for more detail.) In my reflections, I documented key events or incidents that are perceived as “significant” or “unexpected” by myself and/or those at the site (Emerson, 2011, p. 24-25). I also noted any aspects of the UA site that demonstrate CCW, which will be further explored in interviews with UA leaders (Yosso, 2005).

Interview Guide

The interview guide (refer to Appendix B) included 31 questions organized into 7 sections: 1) Description of Urban Agriculture Site, 2) Management, 3) Transportation, 4) Description of the Community, 5) Community Engagement, 6) Relationships and Partnerships, and 7) Successes and Challenges. Interviewees were asked to describe their role, their UA site or organization, participants at the UA site (such as staff, growers, and volunteers), the surrounding community and environment, types of community outreach and programs, collaborators, obstacles related to maintaining the site, and any notable accomplishments. Interviews lasted about 45-60 minutes and were audio recorded. During the interview, I wrote short notes (scrapes) to record my observations (Uhrin, 2022). Interviews were transcribed with the assistance of Otter.ai, a speech-to-text transcription tool.

The interview guide was designed to address the five SDOH domains and CCW forms of capital (aspirational, linguistic, familial, social, navigational, and resistant). SDOH interview questions served to collect detailed information about the community from the perspective of the UA leader, that may not be available from fieldnotes and external sources. For example, Question 15 asked interviewees to describe the UA site’s social and community context: “In your own words, how would you describe the community where

your site is located?” Question 17, “How would you describe your community’s environment?” specifically asked for information on the neighborhood and built environment domain of SDOH. CCW questions focused more on abilities, resources, skills, or knowledge actively contributed or gained by the community through participation in UA. For example, Questions 21 “How do community members contribute to the site?” and 22 “How do community members benefit from your space?” were created with social capital (networks of people and community members) in mind. Questions 26, “What are some of the biggest challenges in sustaining a space for urban agriculture?” and 27, “How have you overcome these challenges in the past?” touched on aspirational capital (the ability to maintain hopes and dreams despite barriers), navigational capital (the ability to maneuver through social institutions), and resistant capital (the knowledge and skills fostered through behavior opposing inequality).

Analysis

I used ATLAS.ti to analyze the fieldnotes and interviews, following the primary-cycle and secondary-cycle coding procedure described by Tracy (2013). After reading over the transcriptions, I highlighted ideas that the participant emphasized or repeated, then used ATLAS.ti’s search function to identify words and phrases related to CCW and SDOH (e.g., “neighborhood,” “access,” “resist”). I developed first-level codes by assigning words that captured the essence of phrases. After completing primary-cycle coding, I conducted secondary-cycle coding by organizing codes and related quotes into “hierarchical codes,” systematically grouping multiple codes under a smaller number of categories (Tracy, 2013, p. 195). I reviewed these categories to create second-level codes to interpret and explain

the data. Then, I identified recurring themes from the second-level codes until reaching theoretical saturation, when no new or relevant codes seemed to emerge (Morse, 2015a; Tracy, 2013).

Criteria of Rigor.

Rigorous qualitative research requires care and effort to ensure that there is enough data to support claims, the context or sample is appropriate, and methods are valid and reliable (Morse, 2015b; Tracy, 2010). Tracy (2010) outlines eight criteria for producing qualitative work with rigor: 1) worthy topic, 2) rich rigor, 3) sincerity, 4) credibility, 5), resonance, 6) significant contribution, 7) ethical, and 8) meaningful coherence. As mentioned in the previous chapters, this study's topic is relevant, timely, significant, and interesting due to emerging UA literature, and limited research on UA in the City of Long Beach. The study design addresses rich rigor by carefully explaining how survey and interview questions were developed, based on the SDOH and Yosso's (2005) CCW model. I aim to be sincere and transparent in this dissertation, by reflecting on my own involvement with UA in Long Beach and providing clear details on methodology. Regarding credibility, open-ended interview questions invited participants to describe their narrative on their own terms. This research incorporated thick description, an in-depth illustration that will allow readers to understand context and come to their own conclusions about the data.

The study's major contribution is that it will offer a new lens on the topic of UA in the context of communities addressing health inequities, by exploring the perspectives of UA leaders in Long Beach. Findings may resonate with others involved with UA and community health. The results of this study will be informative for community groups or

organizations who are operating, developing, or interested in creating similar UA sites. Additionally, readers may be able to replicate methods to transfer findings to another context, such as another city or region (Morse, 2015b; Tracy, 2010). The following chapters will provide meaningful coherence by explaining how the study achieved its goals and connecting findings to previous literature.

Chapter Overview

Chapter 1: Introduction included a review of relevant literature, an overview of Long Beach, and a description of the study methods. **Chapter 2: Conceptual Framework** will describe the conceptual and theoretical frameworks that guide this research and connect them to the study's goals. **Chapter 3: Urban Agriculture in Long Beach** will provide descriptive findings on community gardens, school gardens, and urban farms. **Chapter 4: How Urban Agriculture Changes Communities** will share recurring themes and quotes from interviews. This chapter will connect findings from fieldnotes and interviews to the Yosso's (2005) CCW model, to explain how Long Beach UA uses and/or bolsters community skills and knowledge (Ochiai et al., 2021). **Chapter 5: Implications for Community, Research, and Policy** will summarize main takeaways of the research and provide recommendations for community members, researchers, and policymakers.

CHAPTER 2: CONCEPTUAL FRAMEWORK

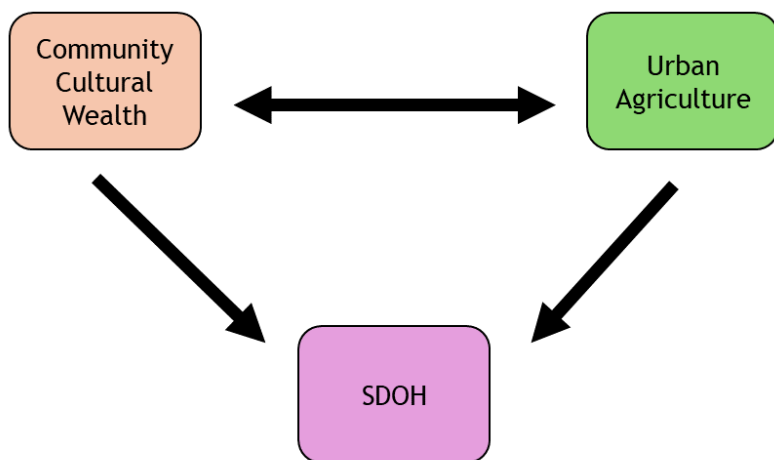
In this chapter, which explains the dissertation's theoretical significance, I will describe the social determinants of health (SDOH) and how they apply to the City of Long Beach. Then, I will explain how Yosso's (2005) community cultural wealth (CCW) model is applicable to addressing health inequities through community-led urban agriculture (UA). From a social ecology perspective, UA can influence multiple, interrelated factors, such as individual attributes and behaviors, interpersonal relationships, the surrounding environment, organizations, corporations, government, and culture (Stokols, 1996). Although the research questions of this study focus on the community's role in UA, this dissertation will later explore UA impacts on interconnected, social-ecological systems. The SDOH framework offers specific dimensions to further study health factors health within systems, such as access to education and health care (Ochiai et al., 2021). SDOH provides context to study health inequities, which are systematic differences in the health of different population groups (World Health Organization, 2018). Health inequities result from socioeconomic inequality, not natural causes or harmful behaviors (Whitehead, 1992).

This dissertation will build on existing UA research by connecting SDOH to the CCW model, which highlights communities' cultural knowledge, skills, and abilities (Yosso, 2005). CCW is necessary for developing and maintaining UA spaces, often converted from lots that were abandoned or not designated for growing food (Cartagena, 2020; Cooper et al., 2020; Ferris et al., 2001; Siewell et al., 2015). UA is the cultivation, processing and distribution of agricultural products in urban and suburban areas, including tribal

communities and small towns (United States Department of Agriculture, n.d.). Examples include community gardens, rooftop farms, hydroponic, aeroponic, and aquaponic facilities, and vertical production. UA can improve health by increasing access to fruits and vegetables, which prevent disease and supply nutrients (Boeing et al., 2012; Cases et al., 2016; Castro et al., 2013; Miller et al., 2016; Slavin & Lloyd, 2012). However, UA provides more than just dietary benefits. I developed Figure 7 to illustrate the conceptual framework for this study, which analyzed how CCW is used to develop UA, which in turn bolsters CCW. Both CCW and UA can address inequities in different facets of SDOH (Healthy People, 2023; Ochiai et al., 2021).

Figure 7

Visualization of Conceptual Framework



Note. Adapted from “The Evolution of the Healthy People Initiative: A Look Through the Decades” by E. Ochiai, C. Blakey, A. McGowan, Y. Lin, 2021, *Journal of Public Health Management and Practice*, 27(Suppl 6), S225–S234.

<https://doi.org/10.1097/PHH.0000000000001377>.

This figure represents how communities can leverage CCW to build UA sites; simultaneously, UA promotes CCW and addresses SDOH by providing a space to grow food, increase social support, share resources, and develop educational and economic opportunities (Alaimo et al., 2008; Horst et al., 2017; Lanier et al., 2015).

Community Cultural Wealth Model

Rather than focusing on disadvantages faced by lower SES populations, the CCW model highlights their cultural knowledge, skills, and abilities (Yosso, 2005). Yosso's (2005) CCW model describes six forms of capital: 1) aspirational, 2) linguistic, 3) familial, 4) social, 5) navigational, and 6) resistant. Aspirational capital is the resilient ability to maintain hopes and dreams for the future, despite barriers. Linguistic capital includes communication skills in more than one language or style. Familial capital refers to cultural knowledge nurtured among kin, which fosters commitment to community wellbeing. Social capital includes networks of people and community resources. Navigational capital is the ability to maneuver through social institutions not created with communities of color in mind, and resistant capital is built from oppositional behavior that challenges inequality (Yosso, 2005).

Social capital, resistant capital, and other aspects of CCW can be seen in community-led initiatives to create UA (Audate, et al., 2019; Draper & Freedman, 2010; Lanier et al., 2015; Siewell et al., 2015). Urban areas are complex systems and networks (Meerow et al., 2016), which the United States (2022b) classifies as “densely developed territory” that has “residential, commercial, and other non-residential urban land uses.” Any areas not

included within this definition of urban are classified as rural.¹ Because access to agricultural land is less common in urban areas, urban dwellers typically purchase their food from stores (Ruel et al., 2010). While UA can increase access to food, it also has the potential to bolster CCW through cross-cultural social interactions and educational and employment opportunities (Horst et al., 2017; Ferris et al., 2001; Rogus & Dimitri, 2017; Siewell et al., 2015; Twiss et al., 2003). Communities can potentially use UA to address health inequities through social and environmental changes (Draper & Freedman, 2010; Garvin et al., 2013; Horst et al., 2017; Jennings et al., 2012; Lanier et al., 2015; Rogus & Dimitri, 2014; Schelly & Stretesky, 2009).

Social Determinants of Health and Health Inequities

While SDOH may be broadly defined as “the conditions in which people are born, grow, live, work, and age,” Hahn (2021) clarifies that SDOH encompasses social resources and health hazards controlled by societal systems which, in turn, have consequences on health outcomes and risks (p. 1). SDOH can include health-related knowledge, attitudes, beliefs, and behaviors, but these factors are often the result of social factors that are uncontrollable by individuals, such as discrimination (Braveman et al., 2011; Braveman & Gottlieb, 2014; Foege, 2010; Worthy et al., 2020). Populations that experience wide

¹ While there is no U.S. Census definition for suburban (Joint Center for Housing Studies of Harvard University, 2019), the United States Department of Agriculture (USDA, 2019) defines “rural” as territories outside legally prescribed boundaries (such as that of urban cities) and places smaller than a selected population threshold (USDA’s Telecom Hardship Loan Program defines rural as any area outside Census places of 5,000 or more people).

disparities in SDOH are affected by health inequities, such as higher risk of disease and earlier mortality (Fiscella & Williams, 2004; Stringhini et al., 2017). Research suggests that low income and education levels are strong predictors of physical and mental health problems (McMaughan et al., 2020). Socioeconomic status (SES), which can be broadly defined as the combined total measure of a person’s social and economic position in relation to others, is also positively correlated with health outcomes (Fiscella & Williams, 2004; Gee & Ford, 2011; McMaughan et al., 2020; World Health Organization, 2018; Worthy et al., 2020). The following sections will describe SDOH in the context of Long Beach, based on the domains described by The Healthy People 2030 initiative: 1) social and community context, 2) economic stability, 3) education access and quality, 4) neighborhood and built environment, and 5) health care access and quality.

Social Determinants of Health and the City of Long Beach

As of 2022, the city of Long Beach is home to a diverse population of over 450,000 people (City of Long Beach, 2009; U.S. Census Bureau, 2022a). Table 1 displays general demographic data for Long Beach in comparison to LA County and the state of California.

Table 1

Population Estimates for Long Beach, County, and State, 2022

	Long Beach, CA	Los Angeles County	California
Population	456,062	9,829,544	39,029,342
Persons under 18 years	21.4%	21.1%	22.4%
Persons 65 years and older	12.0%	14.6%	15.2%
Female persons	50.8%	50.4%	50.0%
High school graduate or higher	80.6%	80.0%	84.2%

Bachelor's degree or higher	32.8%	34.0%	35.3%
With a disability	7.3%	6.3%	6.8%
Without health insurance	9.9%	10.2%	8.1%
Median household income	\$71,150	\$76,367	\$84,097
Annual per capita Income	\$35,856	\$37,924	\$41,276
Persons in poverty	15.4%	14.1%	12.3%

Note. Adapted from “QuickFacts” by U.S. Census Bureau, 2022a.

As seen in Table 1, demographic characteristics of Long Beach are similar to that of the county and state. These demographics provide general information related to the social and community context, access to health care, education access and quality, and economic stability (Ochiai et al., 2021). In Long Beach, 12% of the population is 65 years and older, which is less than estimates for LA County and California. About 21.4% of Long Beach’s population is under 18 years old (U.S. Census Bureau, 2022a). About 1 out of 10 people in Long Beach lack health insurance, and 7.3% of the population has a disability. Like most of LA County, about 80.6% of persons in Long Beach who are 25 or older are high school graduates. However, only 32.8% earned a bachelor’s degree or higher, which is slightly lower than LA County and California. Median household income (\$71,150) and annual per capita income (\$35,856) in Long Beach is also lower compared to the county and state, while the poverty rate in Long Beach (15.4%) is higher.

Social and Community Context.

The social and community context domain refers to the relationships people have with others. Factors like social support, self-esteem, and self-efficacy may protect against health risks from adverse social conditions (Braveman et al., 2014). These protective

factors may be fostered through the CCW model (Yosso, 2005). This is especially important for marginalized groups targeted by discrimination (Abramson et al., 2015; Dovidio et al., 2008; Luo et al., 2012). Those who have a low SES due to social disadvantages, such as discrimination due to race/ethnicity, gender, sexual orientation, and disability, are more likely to suffer from health inequities (Foegen, 2010; Morey, 2018). Children born into low SES have greater risk of experiencing sudden infant death, infectious diseases, exposure to lead poisoning, household smoke, accidents, and child abuse, which may explain why low SES children have higher rates of asthma, developmental delay, and avoidable hospitalizations (Braveman & Gottlieb, 2014; Fiscella & Williams, 2004). Children from low SES neighborhoods face greater barriers to health-promoting behaviors and often experience stressors from family conflict and economic instability (Braveman & Gottlieb, 2014). Additionally, they are at greater risk of being exposed to intimate-partner and community violence. Low SES adolescents report worse health than their peers, experience higher rates of obesity, pregnancy, sexually transmitted disease, depression, and suicide, and more likely to be sexually abused, drop out of high school, or be killed. (Fiscella & Williams, 2004). Compared to those who are more economically advantaged, low SES adults experience higher rates of mental illness, food insecurity, coronary heart disease, and other chronic health conditions, and experience earlier mortality (Schiller et al., 2012; Stringhini et al., 2016).

When discussing SES, it is important to note that in the United States, “race, socioeconomic status, and health have historically been inextricably intertwined” (Fiscella & Williams, 2004, p. 1139). Federal agencies collect data primarily by race due to Statistical

Directive No. 15 of the Office of Management and Budget (OMB), originally adopted in 1977 (Williams, 1996). As of 1997, the directive requires federal agencies in the United States to report statistics for one ethnic category, Hispanic, and five racial groups: American Indian and Alaskan Native, Asian, Black, Native Hawaiian or Other Pacific Islander, and White (U.S. Census Bureau, 2022c). United States census data is based on how individuals self-identify to one or more groups, and reflects a general, social definition of race, independent of biological, anthropological, or genetic factors (U.S. Census Bureau, 2022c).

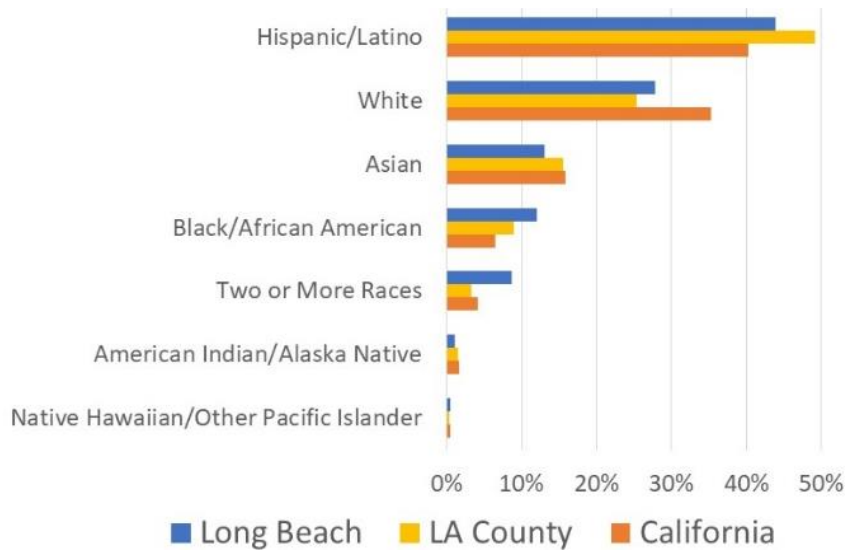
For clarification, when this dissertation describes “minorities,” “people of color,” or “communities of color,” this typically refers to non-White racial groups. There is no internationally agreed definition for minority (United Nations, 2010), but in the United States, racial and ethnic minorities are groups of non-European descent: American Indian/Alaska Native, Asian, Black or African American, Native Hawaiian/other Pacific Islander, and Hispanic/Latino (National Institute on Minority Health and Health Disparities, 2022; Phinney, 1996). As of 2020, most United States residents identify as White (61.6%). The U.S. Census Bureau predicts that the nation’s population will become more racially and ethnically diverse, as immigration is projected to surpass birth as the primary driver of population growth. People who identify as more than one race are projected to be the fastest growing racial or ethnic group over the next several decades, followed by Asian Americans and Hispanic/Latino Americans (Vespa et al., 2021).

Over 70% of Long Beach’s population identifies as a racial/ethnic minority, or people of color (National Institute on Minority Health and Health Disparities, 2022;

Phinney, 1996; U.S. Census Bureau, 2022c). About 44.1% of the population is ethnically Hispanic or Latino² (Figure 8).

Figure 8

Race/Ethnicity Demographics for Long Beach, LA County, California, 2022



Note. Bar graph adapted from “QuickFacts” by U.S. Census Bureau, 2022a.

² Because the U.S. Census considers Hispanic or Latino as an ethnicity rather than a race, this group includes those who identify as Hispanic or Latino in addition to another race.

The major racial groups represented in Long Beach are White (27.2%), Asian (12.7%), and Black/African American (12.0%). About 11.3% of the population identifies as two or more races (U.S. Census Bureau, 2022a). However, despite this diversity, Long Beach residents are impacted by socioeconomic inequality.

Economic Stability.

A stable income is necessary to afford food, housing, and health care. Steady employment can prevent poverty, which is experienced disproportionately among most non-White populations. Compared to 8.2% of non-Hispanic White persons, poverty rates are over twice as high for Black (19.5%) and Hispanic (17%) people (Braveman & Gottlieb, 2014; Shrider et al., 2021). Unemployment is strongly associated with worse health and higher mortality, and those who live in poverty are unable to afford health-promoting living conditions (Braveman et al., 2010). Higher education often leads to employment in jobs with higher compensation, better health care benefits, and safer working conditions. Conversely, those with a lower education are at greater risk of being injured and exposed to hazardous chemicals while working (Braveman et al., 2010).

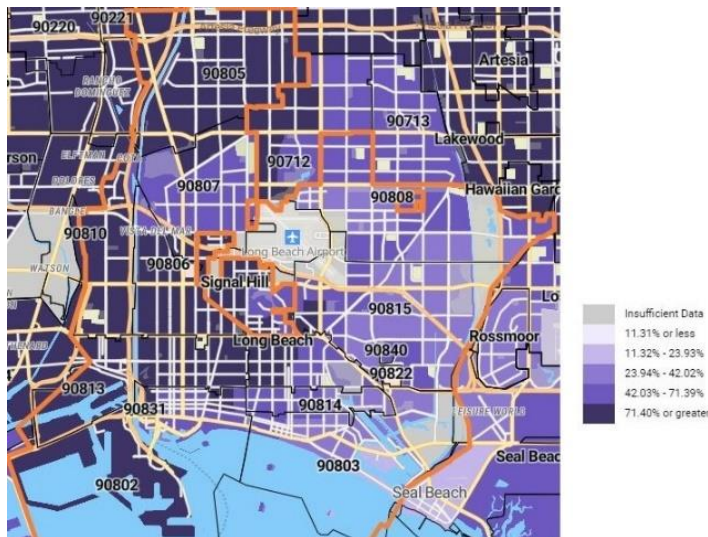
As mentioned previously, historical redlining practices shaped the neighborhood demographics of Long Beach. For example, housing lenders imposed deed restrictions to prohibit non-White residents to purchase, lease, or occupy property (City of Long Beach, 2009). Such restrictions were common in East Long Beach and Bixby Knolls, which, decades later, still report lower minority populations than other parts of Long Beach (PolicyMap, 2021). The National Association for the Advancement of Colored People (NAACP) advocated against such discriminatory housing policies, and worked toward local

policy reform in education, employment, economic development, and law enforcement. Their work resulted in the end of racial deed restrictions during the 1960s, though a 1975 study found that unfair housing practices still continued (City of Long Beach, 2009). That same year, Cambodians escaping civil war found refuge in Central Long Beach, which lenders considered risky for investment. Despite this, Cambodians created a commercial district there, and Long Beach became home to the largest Cambodia diaspora. In 2006, the Long Beach City Council officially designated a portion of the city as “Cambodia Town” (City of Long Beach, 2009).

Recent data shows that communities of color are still concentrated in North, Central, and West Long Beach. Figure 9 shows a map of Long Beach (outlined in orange). The dark purple areas represent where communities of color are the most concentrated.

Figure 9

Long Beach People of Color Map, 2017-2021

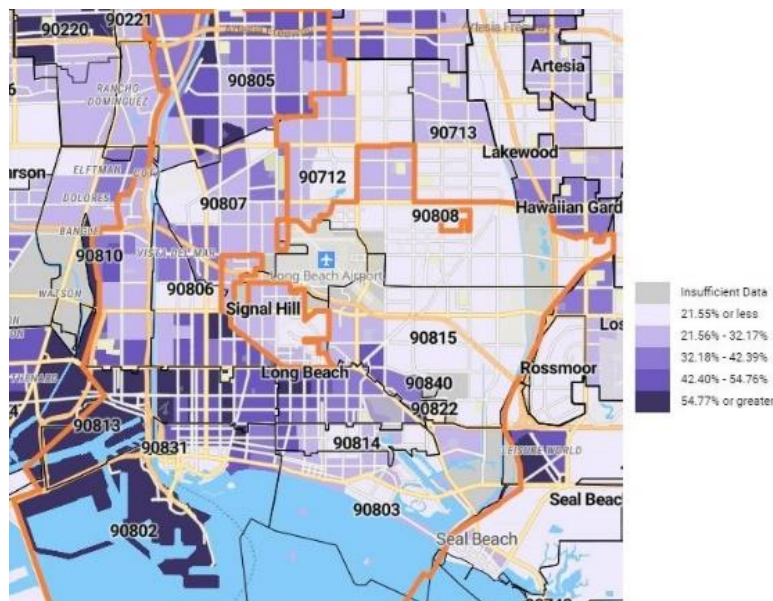


Note. From “Estimated percent of the population that is people of color, between 2017-2021” by PolicyMap, 2021a.

From 2017 to 2021, more people of color lived in the 90802, 90804, 90805, 90806, 90810, and 90813 ZIP Codes. These areas had non-White populations of 71.4% or greater. Figure 10 illustrates the estimated percent of all households with incomes less than \$50,000, lower than the \$71,150 median household income in Long Beach, from 2017 to 2021.

Figure 10

Long Beach Map of Households with Incomes < \$50,000, 2017-2021



Note. From “Estimated percent of all households with incomes less than \$50,000, between 2017-2021,” by PolicyMap, 2021b.

The ZIP codes with more communities of color reside are also where a higher percentage of lower-income households reside. The 90813 ZIP Code has a median household income of \$31,775, the lowest in the city, and less than a third of the highest median household income (\$97,500) in ZIP Code 90808 (LBDHHS, 2019).

Recognizing the inequities faced by Long Beach’s low-income and minority communities, the Long Beach City Council declared systemic racism a public health crisis

on June 23, 2020 (Haire & Munguia, 2021). Reports from the City of Long Beach (2020) show that systemic racism particularly affects Black residents of Long Beach. Despite only making up 12% of Long Beach's population, 2019 data shows that 27.4% of the individuals stopped by police were Black- the highest rate compared to other racial groups. Black residents have the highest rates of hospitalization for asthma, diabetes, and heart disease. Only 25% of Black residents are homeowners, half the homeownership rate for Whites. Black women also experience the highest rate of rent burden, paying more than 30% of their income on rent (City of Long Beach, 2020).

Education Access and Quality.

Education increases access to economic opportunities and resources which can influence health (Braveman et al., 2010). Persons with less than a high school education are expected to live six years less compared to those with a college education (Fiscella & Williams, 2004). Almost half of all deaths among working-age adults in the United States can be attributed to potentially avoidable factors associated with lower educational attainment, including discrimination in health care settings (Abramson et al., 2015; Braveman & Gottlieb, 2014; Fazeli et al., 2016). In addition to racial/ethnic groups and women, lesbian, gay, bisexual, and transexual (LGBT) groups and persons with disabilities also experience health inequities, which can be attributed to reduced education and employment (Almeida et al., 2009; Fiscella & Williams, 2004; Krahn et al., 2014; Shandra, 2018; Wyss, 2007). Higher education is associated with increased social support, which may benefit physical and mental health by buffering the effects of stress, enhancing health knowledge, and encouraging healthy behaviors (Braveman et al., 2010). Education level is

also highly correlated with health literacy, the ability to comprehend and use information to manage medical care and make informed health decisions (Braveman et al., 2010; Fazeli et al., 2016).

According to Long Beach Unified School District (LBUSD) enrollment data from 2021-22, 37,952 students (over half of the 67,573 children enrolled) were socioeconomically disadvantaged. The California Department of Education (n.d.) states that socioeconomically disadvantaged students meet at least one of the following: neither parent received a high school diploma, eligible for the Free or Reduced Price Meals Program, are a migrant, homeless, or foster youth, or were enrolled in a Juvenile Court School. In Long Beach, over 40% of residents are Hispanic or Latino, and 12% are Black. Hispanic/Latino and Black families are more likely to have lower educational attainment and quality, due to living in neighborhoods with under-resourced schools (Braveman et al., 2010). LBUSD enrollment data from the California Department of Education (2023) shows that most socioeconomically disadvantaged youth identified as Hispanic or Latino (67.7%), African American (14.5%), or Asian/Pacific Islander (10.2%).

Neighborhood and Built Environment.

Residential segregation forces communities of color into hazardous areas, resulting in detrimental effects on mental and physical health (Fiscella & Williams, 2004; Gee & Ford, 2011; Morello-Frosch & Jesdale, 2006; Osborn et al., 2022). Neighborhoods with increased social disorder may heighten anxiety and depression (Braveman et al., 2010). Particularly for poor and Black neighborhoods, health risks are exacerbated by increased exposure to polluted air and contaminated water, because toxic waste facilities, industrial plants, and

landfills are often intentionally sited in low SES neighborhoods (Adelodun et al., 2021; Castellón, 2021; Morello-Frosch & Jesdale, 2006; Schelly & Stretesky, 2009; Sprainer, 2022). Pollution also increases risk of COVID-19 (coronavirus disease 2019), which, after its discovery in December 2019, became the nation's third leading cause of death after heart disease and cancer. Compared to non-Hispanic Whites, those who identified as American Indian or Alaska Native, Black, and Hispanic or Latino were about twice as likely to become hospitalized and die from COVID-19 (Centers for Disease Control and Prevention, 2022). According to Sprainer (2022, p. 126), this is because "low-income communities and communities of color across the country are exposed to higher long-term concentrations of an air pollutant that makes COVID-19 more deadly." Low SES communities are historically exposed to pollutants due to perceived lack of political power to control zoning, which is controlled by largely white governance structures for industrial development (Bullard, 2001; Pulido, 2016; Schelly & Stretesky, 2009; Sprainer 2022).

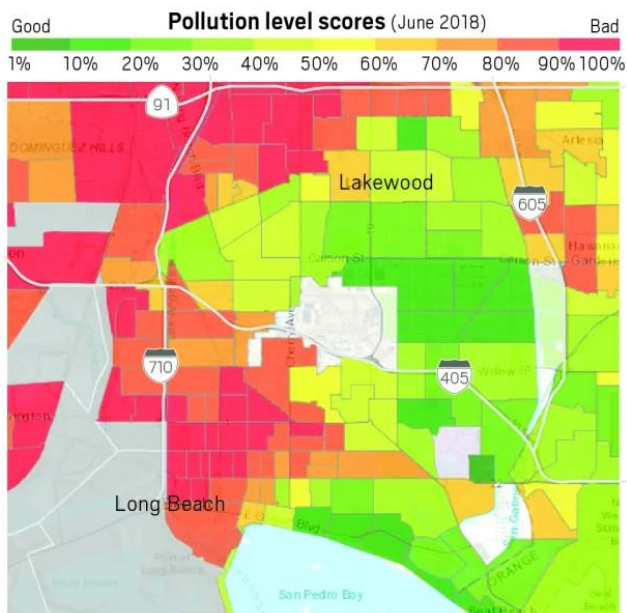
In urban areas, low SES communities also have less access to green space (e.g., parks, forests, community gardens, green roofs, and streams). Green space is typically more present in predominantly White and affluent communities (Taylor, 1999; Jennings et al., 2012; Wolch et al., 2014). Additionally, not all green spaces are equally healthy and well-maintained. Data from Su et al. (2011) suggested that low-income and minority residents with access to city parks have greater exposure to air pollutants such as nitrogen dioxide (NO₂), fine particulate (PM_{2.5}), and ozone (O₃). Therefore, low SES populations have less opportunity to experience green spaces and their associated benefits, such as improved

physical and mental health, and even safer neighborhoods (Landry & Chakraborty, 2009; Louv, 2008; Wolch et al., 2014).

These patterns of pollution exposure and access to green space can be clearly seen throughout Long Beach. The Long Beach Airport was ranked by the Environmental Protection Agency as having the second highest lead emissions of airports nationwide (Staggs, 2022). Air pollution is further exacerbated by emissions from cars and trucks, particularly those transporting goods from the Port of Long Beach. As seen in Figure 10, areas closest to the port and 710 Freeway, toward the west, have pollution levels of 70-100%. In comparison, areas of East Long Beach, where the minority population is lower and household incomes are higher, pollution levels are less than 40% (Munguia, 2021).

Figure 10

Long Beach Pollution Level Map, 2018



Note. From “Environmental racism: Why Long Beach residents of color have worse health outcomes” by H. Munguia, 2021, *Press Telegram*.

The areas with the highest concentration of minorities, air pollution, asthma, and diabetes are furthest from the largest parks in Long Beach (Recreation Park and El Dorado Park). West Long Beach only has one acre of green space per 1,000 residents (about the size of a soccer field. In comparison, East Long Beach averages 16.7 acres per 1,000 residents, higher than the 10-acre minimum standard for healthy cities set by the National Recreation and Parks Association (Addison, 2019). Low SES communities in Long Beach are also susceptible to contamination from industries. For example, an empty lot of upper West Long Beach was used as a sludge dumping ground for oil companies in Long Beach and Signal Hill (Echeverry, 2021). This has resulted in years of toxic waste build up, including lead and arsenic. In 2021, local residents opposed developer plans to build a storage facility and requested officials to conduct an environmental impact report. They also argued that the empty lot, which became an area for homeless encampments, should be used to develop a park (Echeverry, 2021).

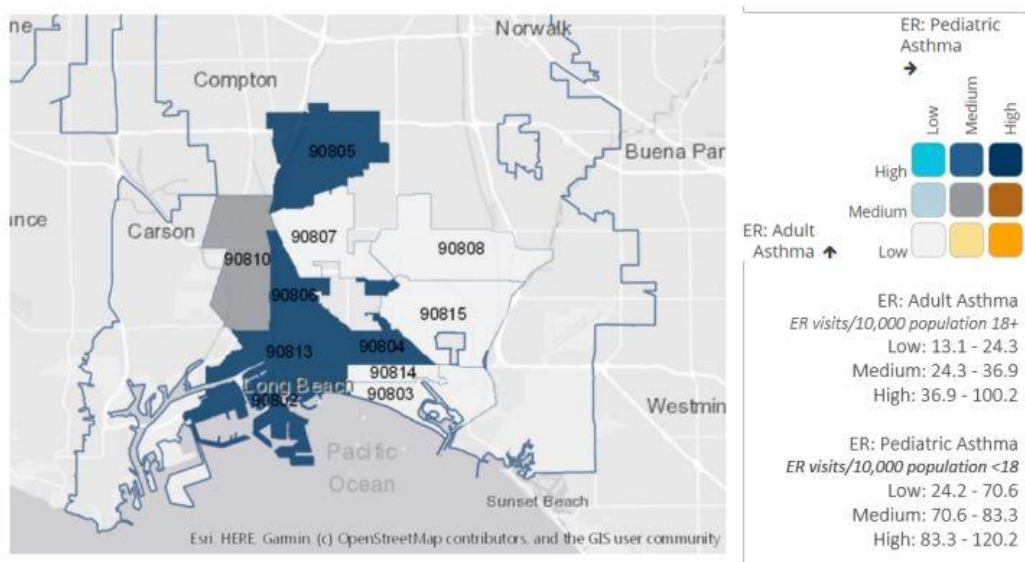
Health Care Access and Quality.

The multitude of health risks associated with low SES cannot be addressed by health care alone and may even be exacerbated by discrimination in health care settings (Braveman et al., 2011; Braveman & Gottlieb, 2014; Fiscella & Williams, 2004; Stringhini et al., 2017). Discrimination perpetuates health inequities by increasing health risks, lowering health care quality, and disrupting the economic opportunities available for low SES populations (Braveman et al., 2011; Morello-Frosch & Jesdale, 2006). There is evidence

that people of color in Long Beach, who live in areas with higher air pollution and lower access to green space, have higher hospitalization rates. Long Beach’s hospitalization rates for asthma (11.3 per 10,000 adults, and 12.4 per 10,000 children) are higher than that of LA County (8.2 and 11.6) and California (6.4 and 10.1). Data from the Long Beach Department of Health and Human Services (2019) also reveals that age-adjusted emergency room (ER) rates due to adult and pediatric asthma are over eight times higher for Black residents (21.2 hospitalizations per 10,000 residents), than White residents (2.5). Asthma rates for the Asian and Pacific Islander population (8.5) Hispanic/Latinx population (5.2) were also higher (Long Beach Department of Health and Human Services [LBDHHS], 2019). Figure 11 displays adult and pediatric rates of asthma by ZIP Code.

Figure 11

Adult and Pediatric Asthma by ZIP Code, 2013-2015

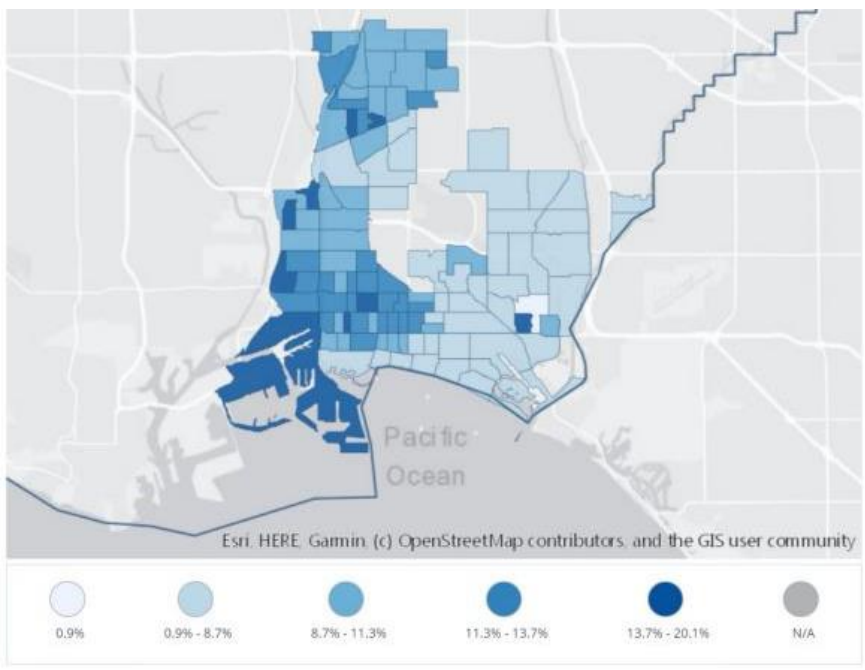


Note. From “2019 Community Health Assessment” by City of Long Beach Department of Health and Human Services, 2019.

ZIP Codes 90802, 90804, 90805, 90806, and 90813 exhibit the highest rates for ER visits due to asthma. Asthma is a common respiratory condition that can be prevented by avoiding exposure to air pollutants (LBDHHS, 2019). These areas, as well as the 90810 ZIP Code, have higher rates of hospitalization for diabetes than average in Long Beach (Figure 12).

Figure 12

Adults with Diabetes by Census Tract, 2016



Note. From “2019 Community Health Assessment” by City of Long Beach Department of Health and Human Services, 2019.

Similar to asthma, hospitalization rates for diabetes are also higher in Long Beach (24.9) compared to the county (19.3) and state (16.7). In 2016, 9.7% of adults in Long Beach reported being diagnosed with diabetes. Blacks, American Indians/Alaskan Natives, Pacific Islanders and some Asian Americans are at increased risk for prediabetes and type 2 diabetes, which can cause premature death (LBDHHS, 2019). Data shows that many of the census tracts with higher rates of diabetes in Long Beach are also low-income areas, where a significant number of residents are located over half a mile away from supermarkets, including food stores, grocery stores, and food warehouses (United States Department of Agriculture Economic Research Service [USDA ERS], 2022). This supports previous research findings, which suggest that low SES groups lack access to healthy foods due to insufficient resources or low availability in their neighborhood and schools (Cannuscio et al., 2010).

Across the United States and other countries, high produce costs are a barrier for food-insecure individuals to consume fruits and vegetables, which prevent cancer, diabetes, and obesity by supplying dietary fiber, vitamins, and antioxidants (Boeing et al., 2012; Cases et al., 2016; Castro et al., 2013; Miller et al., 2016; Slavin & Lloyd, 2012). This is particularly challenging for those who live in a “food desert,” defined by the USDA as an urban community or neighborhood located over a mile away from venues that offer nutritious foods, such as grocery stores (Dhillon et al., 2019). Food deserts are often located in lower SES regions, in which members lack resources and access to transportation (Cooper et al., 2020; Dhillon et al., 2019). For food deserts, urban gardening

is one of the main options available for access to fresh fruit and vegetables (Cooper et al., 2020).

Addressing SDOH through CCW and UA

UA shows promise as a potential intervention for addressing inequities in the neighborhood and built environment, primarily by increasing access to both food and green space. UA sites can bring communities together, influence health outcomes, and create educational and employment opportunities (Barthel & Isendahl, 2012; Jennings et al., 2012; Siewell et al., 2015; Twiss et al., 2003). While UA can increase CCW, CCW is also necessary for communities to create and maintain UA.

Using Community Cultural Wealth to Resist Environmental Injustice

CCW enables low SES communities to unite for environmental and food justice. Environmental justice is a movement that seeks to address health inequities, specifically by targeting the inequitable distribution of environmental hazards and benefits (Bullard, 2001; Johnson, 2012). This movement was a direct response to the injustices faced by communities disproportionately exposed to environmental risks, due to their race, color, national origin, or income (Bullard, 2001; Castellón, 2021; Morello-Frosch & Jesdale, 2006; Sprainer, 2022). Though low-income communities of color typically lack the resources to politically and legally oppose or hold accountable polluting companies in their neighborhoods, they have historically made several efforts to resist environmental injustice through protest and social change (Bullard, 1990; Schelly & Stretesky, 2009; Siegler, 2022).

In relation to CCW, social, resistant, and navigational capital are important for communities to organize against injustice. As described in Chapter 1, Native Americans have experienced the loss of land, water, minerals, and other raw materials since the appearance of non-Native explorers and settlers in the late 15th century (Vickery & Hunter, 2014). The intellectual and legal traditions of Native Americans and other Indigenous peoples, such as collective systems that encourage sharing resources, share much in common with modern principles of environmental justice (Parsons et al., 2021; Vickery & Hunter, 2014). The First National People of Color Environmental Leadership Summit, a multinational movement “of all peoples of color to fight the destruction and taking of [their] lands and communities,” drafted and created 17 principles of Environmental Justice (People of Color Environmental Leadership Summit, 1991, p. 1). These principles affirmed the right of all species to be free from ecological destruction, and called for public policies free of discrimination, ethical uses of land, education of present and future generations on social and environmental issues, and the opposition of exploitation from multinational corporations and militaries. In 1994, the Environmental Protection Agency formally recognized the aims of an environmental justice strategy through Executive Order 12898:

(1) promote enforcement of all health and environmental statutes in areas with minority populations and low-income populations; (2) ensure greater public participation; (3) improve research and data collection relating to the health of and environment of minority populations and low-income populations; and (4) identify differential patterns of consumption of natural resources among minority populations and low-income populations. (p. 2)

Similarly, food justice is “the right of communities everywhere to produce, process, distribute, access, and eat good food regardless of race, class, gender, ethnicity, citizenship, ability, religion, or community” (Institute for Agriculture and Trade Policy, 2012, p. 1) Food justice contests how food systems perpetuate socioeconomic disparities. Despite often being exploited as farm laborers or fast food workers, communities of color are often excluded from food production and prevented from owning land (Horst et al., 2017).

Examples of Communities Uniting for Urban Agriculture

Several communities across the United States reported benefits from UA, which can transform the built environment while creating positive social change (Alaimo et al., 2008; Cooper et al., 2020; Ferris et al., 2001; Lanier et al., 2015; Siewell et al., 2015). In New York, community activists took the initiative to build gardens on lots left empty by the city council. They were “squatted by local community activists” to grow flowers and vegetables in an otherwise neglected site, once occupied by gangs and drug dealers (Ferris et al., 2001, p. 562). In a study of 17 community gardens in Illinois, Lanier et al. (2015) found that the most frequently reported benefits were learning how to build and tend a garden, giving back to the community, promoting healthy living, increasing physical activity through gardening, and fostering new friendships between volunteers and the population served (Lanier et al., 2015). In Bakersfield, California, graduate students, community members, and local agencies collaborated to transform a low socioeconomic neighborhood’s vacant lot into a garden. The community garden improved residents’ eating habits, increased property value, and “fostered a tighter-knit, stronger community” (Siewell et al., 2015, p. 185). Ron Finley of South-Central Los Angeles, a food desert where healthy food options

were limited, began planting vegetables in neighborhood parkways. After being cited by the City of Los Angeles for gardening without a permit, he petitioned with fellow activists to gain the right to grow food in their community (Cartagena, 2020; Ron Finley Project, 2023). In San Diego, the Ocean View Growing Grounds (OVGG) community garden was developed in 2012 from a privately owned vacant lot, which was used as parking and storage for an automotive repair facility. OVGG, now equipped with a kitchen and amphitheater, grows a variety of crops including figs, limes, and strawberries. Cooper et al. (2020) note the risk of converting spaces for urban gardening, as they found detectable levels of lead in the leaves of fruit trees and arsenic in leafy green crops grown directly in the ground. However, edible fruit tissues did not accumulate heavy metals and arsenic, and crops grown in raised soil beds had no detectable contamination. The study recommended soil and food sample testing but concluded that UA can minimize health risks by providing a source of fruits and vegetables, as well as a space for cultural exchange and social connections in the community (Cooper et al., 2020).

Health, Economic, and Educational Benefits of Urban Agriculture

Research suggests that UA can influence health by improving the environment, increasing access to healthy food, and providing a space for educational workshops and classes in nutrition education and physical activity (Castro et al., 2013; Draper & Freedman, 2010; Twiss et al., 2003). In general, UA increases access to green space. Residents with access to green space have lower asthma prevalence, reduced mortality from circulatory disease, and greater longevity (Jennings et al., 2012). Studies suggest that access to green space helps urban dwellers increase their access to physical activity, cope with stress, ease

symptoms of attention-deficit/hyperactivity disorder (ADHD) and depression, and reduce aggression and crime (Jennings et al., 2012; Landry & Chakraborty, 2009; Louv, 2008; Twiss et al., 2003). Spaces with trees remove air pollution, while also providing shade and preventing heat-related illnesses (Nowak et al., 2006; Wolch et al., 2014). Additionally, green space in the form of gardens and urban farms can increase access to affordable food (Heim et al., 2009; McClintock, et al., 2013; Siewell et al., 2015; Wolch et al., 2014).

UA can generate economic benefits by providing an affordable source of fruits and vegetables, promoting entrepreneurship, and alleviating poverty and social exclusion (Draper & Freedman, 2010; Ferris et al., 2001). Ferris et al. (2001) documented the efforts of St. Mary's Youth Farm, which offered affordable organic produce, employment (at wages nearly double minimum wage), and training opportunities to residents of a San Francisco housing project. A 2004 study of Latino community gardens in New York City found that an investment of \$5 to \$10 in plants for a garden plot can yield \$500 to \$700 worth of fruits and vegetables, which some participants sold to markets or restaurants (Saldivar-Tanaka & Krasny, 2004). In 2017, Saha and Eckelman conducted a geospatial analysis of potential UA spaces at ground level and rooftops in Boston and found that UA could yield enough fruits and vegetables for the city's population. UA sites can also provide employment opportunities, which increase job and interpersonal skills such as respectfulness and teamwork (Draper & Freedman, 2010).

There is evidence that UA provides educational opportunities, which can also influence health habits (Alaimo et al., 2008; Castro et al., 2013; Draper & Freedman, 2010; LaRowe et al., 2014; Lee et al., 2017). A study of 845 residents from Flint, Michigan found

that respondents with a household member who participated in a community garden consumed fruits and vegetables 1.4 more times per day, compared to those without household participation in a community garden. In addition, households with a community gardener were significantly more likely to have participated in a neighborhood cleanup or beautification project (Alaimo et al., 2008). According to a California study of six community garden programs in the cities of Berkeley, Escondido, Loma Linda, Oceanside, San Bernardino, and West Hollywood, community gardens increased participants' average fruit and vegetable consumption and provided space for nutrition education and physical activity workshops (Twiss et al., 2003). Through funding from California Healthy Cities and Communities, these cities established garden programs to serve residents, children at schools and day care centers, or seniors. Programs offered classes in gardening, exercise, and cooking. Twiss et al. (2003) found that staff and gardeners also had opportunities to build their skills in leadership, community organizing, program planning, and cultural competency (e.g., by developing culturally appropriate training materials, educational resources, and cookbooks).

Multiple studies documented UA's influence on children's knowledge, attitudes, and behaviors related to nutrition (Blair, 2009; Castro et al., 2013; Draper & Freedman, 2010; LaRowe et al., 2014; Lee et al., 2017). In 2008 and 2009, Growing Healthy Kids (GHK) established three community gardens in Carrboro, North Carolina (Castro et al., 2013). This program hosted weekly gardening sessions, cooking and nutrition workshops, and family events. According to the evaluation report, participating families (60% of whom were Latino) reported a 146% increase in fruit and vegetable availability and increases in fruit

and vegetable consumption. At the end of GHK, 17% of obese or overweight children had improved their BMI classification. According to parental reports, there was an increase of 146% in the availability of fruits and vegetables and a 28% increase children's in fruit and vegetable intake. Following GHK's implementation, Carrboro changed its planning policies to include community gardens at designated parks, require recreation spaces in private developments, and periodically review plans with the GHK program team to sustain current garden sites (Castro et al., 2013). Youth gardening programs were found to improve access and consumption of healthy foods, promote development through social relationships and respect for others, and increase science achievement and environmental attitudes (Draper & Freedman, 2010). One example of such a program is AmeriCorps Farm to School (F2S), which was established in Wisconsin in 2008 (LaRowe et al., 2014). The F2S program evaluation included nine school sites, with 1,191 students. F2S incorporated locally grown ingredients into school meals, and consisted of activities such as gardening, field trips, and nutrition education. F2S schools served more fruits and vegetables to students, and students from schools with one year or more of F2S demonstrated increased knowledge and improved attitudes on food, nutrition and agriculture. (LaRowe et al., 2014). Another program, Sustainability via Active Garden Education (SAGE), was developed as a community-based participatory research intervention, to increase physical activity and produce consumption among children aged 3 to 5 years old at early childhood education centers in Phoenix, Arizona and Houston, Texas, (Lee et al., 2017). In addition to garden maintenance and taste tests, children participated in interactive learning activities, such as songs and games. Though participants did not report significant changes in fruit

and vegetable consumption, participants had a higher amount of physical activity post-intervention (Lee et al., 2017).

Table 2 provides an overview of the conceptual framework for this dissertation, which aims to further explore this concept, through a case study of community-led UA in Long Beach, California.

Table 2

Overview of Conceptual Framework

Social Determinants of Health (SDOH)	Community Cultural Wealth (CCW) Model	Urban Agriculture (UA)
<p><i>Differences in SDOH lead to health inequities</i></p> <ul style="list-style-type: none"> • Social determinants of health, such as neighborhood conditions, can affect a wide range of health outcomes and risks¹ • Those of low socioeconomic status (based on factors such as income, education, and occupation) are more likely to experience health inequities¹ • Discrimination due to race/ethnicity, gender, sexual orientation, and disability¹⁻² also influences SDOH 	<p><i>Communities address inequities in SDOH using CCW</i></p> <ul style="list-style-type: none"> • According to the CCW model, communities gain cultural knowledge, skills, and abilities through different forms of capital: 1) aspirational, 2) linguistic, 3) familial, 4) social, 5) navigational, and 6) resistant³ • By using these forms of capital, communities can address inequitable distribution of environmental hazards for low SES populations⁴ • Examples of this include protests and community-led initiatives for environmental justice and food justice⁵ 	<p><i>Using CCW, communities implement UA to address SDOH</i></p> <ul style="list-style-type: none"> • UA can potentially increase access to green space (e.g., parks, forests, community gardens, green roofs, and streams)⁶ and food security (access to enough food for a healthy life)⁷ • Communities utilize CCW to transform vacant lots and low SES areas into spaces for urban agriculture⁸ • Urban gardening is important for communities with reduced access to nutritious food, such as food deserts located far from grocery stores⁹

¹Braveman et al., 2011; Braveman & Gottlieb, 2014; Foege, 2010; Ochiai et al., 2021; Worthy et al., 2020

²Almeida et al., 2009; Fiscella & Williams, 2004; Krahn et al., 2014; Shandra, 2018; Morey, 2018

³Yosso, 2005

⁴Bullard, 2001; Horst et al., 2017; Johnson, 2012; Parsons et al., 2021; Vickery & Hunter, 2014

⁵Morello-Frosch & Jesdale, 2006; Schelly & Stretesky, 2009; Sprainer, 2022

⁶Jennings et al., 2012; Ruel et al., 2010; Wolch et al., 2014

⁷Alaimo et al., 2008; Barthel & Isendahl, 2012; Cooper et al., 2020; Lanier et al., 2015

⁸Draper & Freedman, 2010; Ferris et al., 2001; Horst et al., 2017; Siewell et al., 2015

⁹Cooper et al., 2020; Crowe et al., 2018; Joassart-Marcelli et al., 2017

In summary, previous research demonstrates how communities can collectively utilize their cultural wealth to create spaces for UA, which has the potential to improve health through access to green space, food, and educational and economic opportunities. The following chapter will discuss study findings on Long Beach UA sites.

CHAPTER 3: URBAN AGRICULTURE IN LONG BEACH

Chapter 3 will partially answer my first two research questions regarding how communities create, maintain, and engage in UA, and what forms of skills and knowledge do they draw on to create UA sites. This chapter provides context for what UA sites in Long Beach look like, where they are, when they were formed, what they grow, and how they are managed. From May to January 2024, I visited 26 active UA sites in Long Beach, including 17 community gardens, five school gardens, and four urban farms. During these field visits, I also identified 14 gardens and farms that are either no longer operational or under new ownership. In this chapter, I share photographs from my field visits and discuss descriptive findings from UA sites: location, year when the site was built, who owns the property, who manages the property, amenities, and food grown. Long Beach is in USDA Plant Hardiness Zone 10b, which means that extreme winter temperatures range from 35 to 40 degrees Fahrenheit (USDA, 2023). From my observations, all UA sites planted seasonal crops that thrive in the warm Southern California climate, such as the following fruits and vegetables: arugula, beans, beets, bok choy, broccoli, carrots, chard, collard greens, cucumber, eggplant, kale, lettuce, mustard greens, peas, peppers, radishes, strawberries, tomatoes, zucchini and other types of squash, and wheat. Due to the similarity of crops, this chapter will only discuss plants that were unique to a site or specifically mentioned by gardeners. It is important to note that I intentionally wrote about UA sites in the present tense, based on the concept of the ethnographic present (Pina-Cabral, 2000). Though UA sites will inevitably change over time, I chose to distinguish operational sites (which were active at

the time of writing) from nonoperational sites (which ceased operations due to the land being sold, transferred, or repurposed).

Long Beach Community Gardens

Community gardens are UA sites collectively gardened by a group of people. I visited a variety of community gardens throughout Long Beach, managed by not-for-profit and nonprofit organizations, a housing community, the city, and other entities. This section is organized chronologically, by when each garden or its organization was established.

VA Hospital Patient Garden

The Veterans Affairs (VA) Hospital Patient Garden is a two-acre site that has served long-term patients since the 1960s. The Patient Garden is behind the main hospital, the Tibor Rubin VA Medical Center (5901 E 7th St, Long Beach, CA 90822), and next to the Fisher House, which provides temporary accommodations at no cost for families and caregivers of Veterans and Service members receiving treatment through a VA Medical Facility. Long Beach's VA Hospital was established in 1941 as a Naval hospital and became part of the Veterans Administration in 1950 (City of Long Beach, 2009). The hospital fulfills the health care needs of over 50,000 veterans as part of the VA Long Beach Healthcare System (Dressendorfer, 2023). A variety of therapy groups use the Patient Garden as a meeting space. As a volunteer mentioned, patients are "prescribed by psychiatrists to come and garden." Additionally, healthcare workers and veterans participating in the VA's Compensated Work Therapy Program use the garden for growing food and taking breaks.

Visitors are welcome to enjoy the garden at any time. Unlike most other UA sites that will be mentioned in this chapter, there is no gate at the front entrance, though there

are security cameras monitoring the property. Signs instruct visitors not to pick crops without permission. There are accessible pathways for those with mobility-aiding devices (such as wheelchairs and walkers), a restroom, benches, a barbecue grill, a building with a refrigerator, and a large gazebo and seating area. Eagle Scouts from the Boy Scouts of America installed raised garden beds and a flagpole for the garden. Figure 13 shows a large greenhouse surrounded by California native plants, shade-providing trees, chairs, and rainwater barrels.

Figure 13

Photograph of Greenhouse at Patient Garden



In 2023, the Surfrider Foundation donated six 50-gallon rain barrels to collect rainwater, to water plants and prevent stormwater pollution from runoff. The rain barrels were upcycled using mosquito netting, barrels used to ship food items, and PVC pipes and spouts (Dressendorfer, 2023). These amenities helped gardeners plant a variety of edible crops and about 70 fruit trees, such as bananas, pears, and persimmons. The Patient Garden is also decorated with cacti, roses, bird feeders, a rock garden full of painted stones, and a sensory garden with plants meant to see, smell, and touch.

Long Beach Community Garden Association

The Long Beach Community Garden (LBCG) was first established in 1976 at the abandoned Honor Farm (LBCGA, 2023). Originally, LBCG was 6.5 acres with 218 garden plots, located between the Interstate 605 (San Gabriel River Freeway) and East Carson Street. However, city officials asked LBCG to relocate in 1996, following the demolition of a Naval hospital and construction of a shopping center, which included Walmart and other stores (Grobaty, 2013). On December 1, 1997, LBCG opened its new 8.5-acre location, which is between the 605 freeway and El Dorado Park, on Spring Street in the 90815 ZIP Code. With 300 plots each measuring 20' x 30', LBCG is the largest community garden in the city.

LBCG is managed by the Long Beach Community Garden Association (LBCGA), a not-for-profit organization with no paid staff. A board of eight members oversees the LBCG's budget, which goes toward the maintenance and enhancement of the garden. Gardeners pay an annual membership fee of \$160 and are required to complete four hours of community service per year, to maintain common areas of the garden. Only LBCG members

and authorized individuals can enter. The garden is protected by a locked gate, which features a remote-controlled entryway for cars and large trucks for trash collection and mulch delivery. The photograph in Figure 14 shows a tree in front of one of the many paved roads inside LBCG, which allows accessibility for both vehicles and gardeners.

Figure 14

Photograph of Long Beach Community Garden



LBCG features a large gazebo, benches for sitting, a storage shed, and a fruit tree orchard. Gardeners may donate food from their garden plots and the fruit orchard to the Food Bank Collection Station. The food from this station is distributed to a variety of local charities, such as Long Beach Rescue Mission. LBCG's fruit orchard has over 100 trees, including but not limited to: avocado, banana, cherimoya, grapefruit, lemon, lime, loquat, kumquat, orange, peach, pear, persimmon, pineapple guava, and pomegranate. There are several varieties of fruit and hybrids such as aprium, nectaplum, and pluerry (plum and cherry). A unique feature of LBCG is that there are metal signs with QR codes in front the orchard. The QR codes direct to the official LBCG website with information on each tree.

Long Beach Organic

As of 2024, the nonprofit organization Long Beach Organic (LBO) manages nine gardens, about a third of the 28 community gardens identified in Long Beach (City Fabrick, 2020; City of Long Beach, n.d.; City of Long Beach Office of Sustainability, 2014; Lai et al., 2023; Long Beach Fresh, 2017; Long Beach Fresh, 2018; Long Beach Grows, n.d., LBO, 2024). LBO was founded in 1994 by Captain Charles Moore, a third-generation resident of Long Beach known for discovering "The Great Pacific Garbage Patch," a vortex of plastic debris in the Pacific Ocean. Passionate about both organic gardening and the sea, Captain Moore founded LBO in the same year that he founded Algalita Marine Research Foundation. In 2020, he founded the Moore Institute for Plastic Pollution Research. Captain Moore has continued to actively participate in and advocate for UA and marine research in Long Beach. (Moore, 2023).

Nine LBO gardens are located throughout North, Central, and West Long Beach. LBO converts public and private lots into community gardens, and rents plots on a six-month basis (March to August and September to February). The average cost to build an LBO garden is \$30,000. LBO is managed by one paid director and a board of directors (7 members, from 5 to 9 members), and sustained through interns, volunteers, donations, fundraisers, and grants. Table 3 provides details on each garden.

Table 3

Community Gardens Managed by Long Beach Organic, 2023

Name	ZIP Code	Year Built	Size (Acres)	Owner	Plot and/or Garden Bed Information	Average Wait Time
Pacific & 6th	90802	2001	0.06	City	12 in-ground plots	4 years
Grace Park	90805	2008	0.12	City	24 raised beds	None
Orizaba Park	90804	2010	0.06	City	13 raised beds	2 years
South 40	90805	2010	0.26	Private	40 plots, in-ground and raised beds	None
Mary Molina	90810	2011	0.17	City	22 plots, in-ground and raised beds	6 months
Zaferia Junction	90804	2012	1.4	City	90 plots, in-ground and raised beds	2 years
7th & Chestnut	90813	2013	0.06	Private	22 plots, in-ground and raised beds	18 months
Crown Victory	90804	2019	0.15	Private	24 plots, in-ground and raised beds	1 year
Captain Charles Moore	90807	2023	.34	Private	34 plots, in-ground and raised beds	None

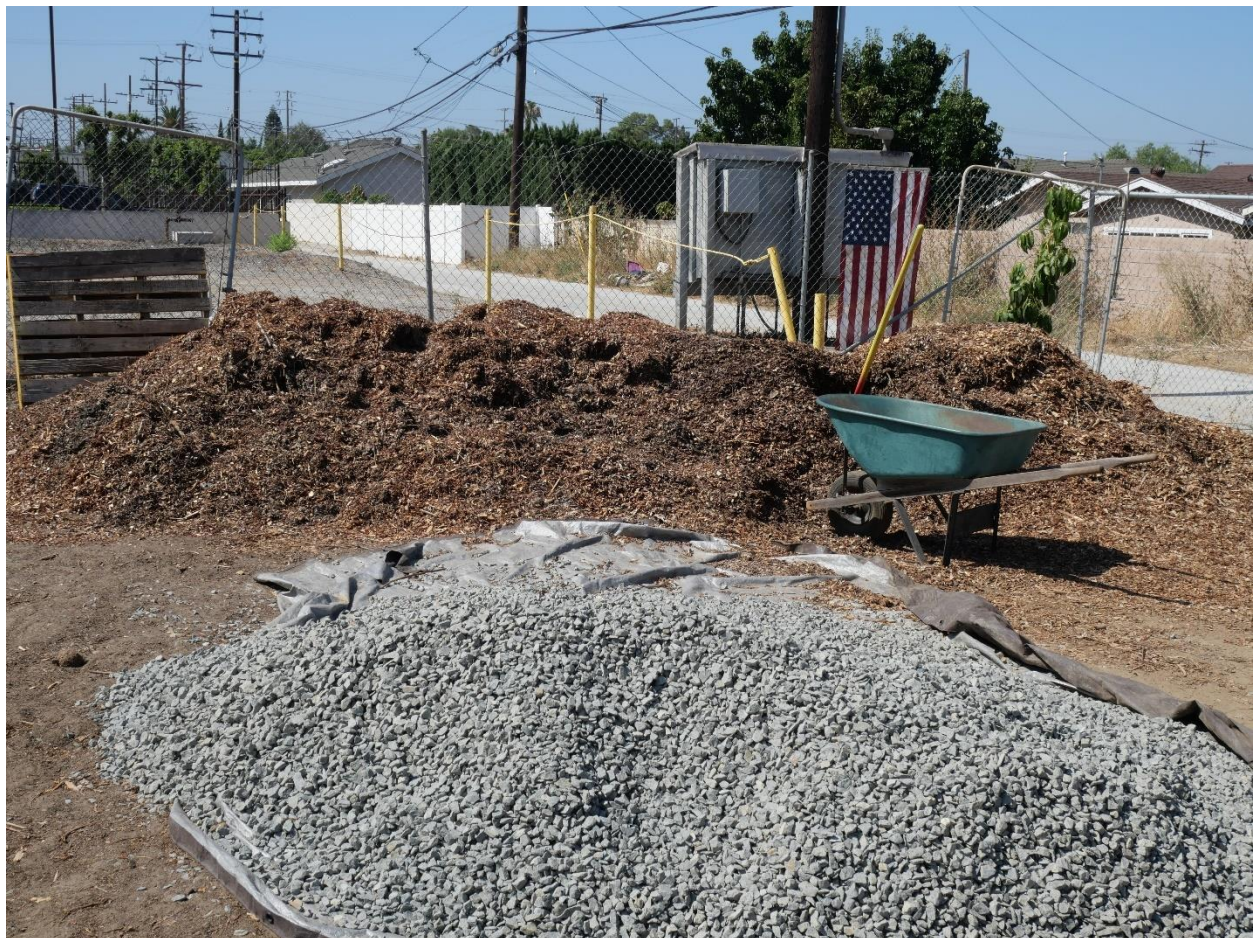
As shown in Table 3, five LBO community gardens are located on city property and four are located on land owned by a private owner (the table shows the most current LBO gardens, and does not account for previous gardens under LBO management, which will be discussed later on in this chapter). The largest LBO garden was Zaferia Junction, which is 1.4 acres, over 20 times larger than Orizaba Park, the smallest garden (0.06 acres). All LBO gardens provided hoses, a communal shed for tools, a compost area, and a picnic arbor for gardeners to sit in the shade and enjoy meals, and most of the gardens are accessible for those with disabilities. A few gardens feature special amenities, such as a hive for beekeeping, portable toilets, fruit trees, and herb beds. Zaferia Junction has a sensory garden and an earth oven for cooking food outdoors.

At the time of writing, 250 of 281 plots were rented. Six of the gardens have a waitlist for renting a garden plot, with the wait time ranging from six months to four years. LBO prioritizes renting plots to low-income families who may otherwise lack access to organic produce, Long Beach residents or those who live near an LBO garden, and those who have no other opportunity to garden. Requirements for plots vary on the property owner. For example, gardens located on land owned by Long Beach's Department of Parks, Recreation & Marine prioritize gardeners who live within walking distance. Gardeners pay a minimum of \$55 per six-month season for plots smaller than 10'x8'. The fee for larger plots is \$0.70 per square foot (LBO, 2024). LBO gardeners are required to sign a rental agreement and waiver of liability, maintain their plot, and complete a minimum of 10 hours of community work per six-month season. Each garden is secured by a locked fence, which gardeners receive the code for when they rent their plot. The gardens are open to

volunteers and community members on Saturday workdays, which involve weeding, construction projects, and maintaining spaces outside the garden plots, such as walkways or areas near the fence. For example, for the Captain Charles Moore Urban Community Garden located on Long Beach Blvd, which began construction in April 2023, volunteers built the shed, arbor, and raised garden beds, as well as a swale to capture rainwater and direct moisture to the garden (Figure 15).

Figure 15

Photograph of Swale at Captain Charles Moore Garden



Gardeners may also complete their volunteer hours on Wednesdays at Zaferia Junction to assist with harvesting, washing, and sorting produce, which is donated to California State University, Long Beach's student pantry (Figure 16).

Figure 16

Photograph of Vegetables Donated by Zaferia Junction Garden



Though most gardeners grew the previously mentioned crops that thrive in Southern California's climate (e.g., cucumber, kale, tomatoes, peppers, squash), there were many notable crops unique to each garden site. For example, one gardener at Zaferia tended to a variety of fruit trees, including peaches, apples, and hybrids like nectaplum (nectarine and plum), pluot (plum and apricot), and bubblegum aprium (apricot and plum). Pacific and 6th had banana, papaya, and loquat trees, as well as perilla (also known as shiso) and other crops planted by Asian gardeners. Gardeners at Grace Park grew longevity

spinach, Malabar spinach, and hoja santa (literally translated from Spanish as “holy leaf”), an herb native to Mexico. Many LBO gardens also had herbs such as cilantro, basil, sage, thyme, and oregano, and grew grapes from their picnic arbor.

Century Villages at Cabrillo

Three small community gardens are managed by Century Villages at Cabrillo, Inc., an independent nonprofit entity affiliated with Century Housing Corporation. Founded in 1997, Century Villages at Cabrillo (CVC) is a 27-acre campus community that aims to provide permanent housing to veterans, families, and individuals to prevent homelessness. CVC is located at 2001 River Avenue Long Beach, CA 90810. The Magic Garden, David’s Garden, and American Indian Changing Spirits Garden at CVC are free for residents, with a “first come, first served” policy. Over 1,797 people reside at CVC, including 669 veterans (CVC, 2023). The Magic Garden, which was formerly known as the CVC Veteran’s Gardening project, was originally built by the late veteran and former Navy SEAL Tony M. in 2013. Due to CVC construction, the garden was moved in 2017, and is available to all residents. The Magic Garden offers 22 raised garden beds, where gardeners planted several edible crops. There is also a common area with papaya and banana trees. The Magic Garden also offers a sensory garden and meditation labyrinth (Figure 17).

Figure 17

Photograph of Meditation Labyrinth at Magic Garden



A CVC Occupational Therapist (OT), who helps residents with disabilities or changes in their physical and mental capabilities, oversees the garden. To recruit volunteers, they partnered with PATH and OT internship programs from University of Southern California and California State University, Dominguez Hill's Occupational.

David's Garden and the American Indian Changing Spirits Garden are adjacent to each other, next to two barbecue grills and five picnic tables with benches. David's Garden, which has four raised garden beds and in-ground plots, is maintained by Sowing Seeds of Change, which operates its own urban farm about three miles away from CVC. Produce from David's Garden supplements CVC's weekly farmstand, which provides fresh, locally

grown produce to residents. American Indian Changing Spirits, an agency which served 132 adults in 2022, provides culturally appropriate alcohol and drug education, counseling, and recreation for American Indian men and women. Their garden supplements social and cultural activities.

Community Gardens Managed by the City of Long Beach

I visited two gardens managed by the City of Long Beach: the health department's Peace Garden and the Michelle Obama Neighborhood Library Learning Garden. Information on the exact size of each garden was unavailable, but they are roughly the size of LBO's smallest gardens (0.06 acres, about 250 square feet). The Peace Garden is inside Martin Luther King Jr. Park at 1950 Lemon Ave, Long Beach, CA 90806. It is adjacent to Long Beach's Black Resource Center and the Central Facilities Center of the Nutrition Services Division WIC Program, which provides public services related to the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC). LBDHHS established the Peace Garden in 2010 as part of the Healthy Active Long Beach Project, to promote healthy eating and physical activity through educational activities. The garden has eight plots, a greenhouse, compost bin, and several fruit trees: plantains, figs, mulberries, and pomegranates. Local community residents can register for a garden plot at no cost. LBDHHS prioritizes households that reside in the 90806 or 90813 ZIP Codes, are eligible for federal nutrition programs (CalFresh or WIC), and/or have children who attend a school served by Healthy Active Long Beach. The garden is open on weekdays from 8:00 AM to 5:00 PM. LBDHHS staff provide free plants and grow produce around the perimeter

of the garden for community members to harvest. For example, Figure 18 shows a table with free cacti and seedlings, next to a patch of squash.

Figure 18

Photograph of Free Plants and Squash at the Peace Garden



The Peace Garden distributes produce through giveaways hosted at the garden.

Additionally, the Peace Garden offers garden tours, community workdays, educational classes and workshops, and a meeting space.

The Michelle Obama Neighborhood Library and its community garden were built in 2016, at 5870 Atlantic Ave, Long Beach, CA 90805. The Learning Garden was designed by

David Hedden and installed in one week. There is no fence, so the garden is always accessible. A welcome sign (Figure 19) reads: “You are welcome to enjoy the harvest. Take only what you need. Leave some for your neighbor.” The garden is located on a grassy space between the library and an auto parts store, which is visible in the background of Figure 19.

Figure 19

Photograph of Learning Garden Sign and Raised Beds



The Learning Garden features 12 raised garden beds with a unique, hexagonal shape intended to look like boats, as a nod to the Port of Long Beach which provided funding (Kittrell, 2017). However, many of the beds appeared to be falling apart. Initially, the Learning Garden was established by Our Foods, a UA and education nonprofit, but they are no longer involved. The garden is currently managed by Long Beach Council District 9.

Santa Fe Community Garden

Santa Fe Community Garden at 2380 Santa Fe, Long Beach, CA 90810 was established in 2020. That year, Jeff Rowe created Project Business Lift to support small businesses during the COVID-19 pandemic. Project Business Lift partnered with volunteers to transform the “trash-filled lot” behind Peruvian restaurant Casa Chaskis into a garden (Naeem, 2021, p. 3). Figure 20 shows a sunflower, passion fruit vines, and other plants growing behind parked cars.

Figure 20

Photograph of Santa Fe Community Garden



Currently, the garden is managed by Master Gardener Lee White and funded by the University of California (UC) Master Gardeners Program, which offers educational workshops, agricultural training, and volunteer services to gardens throughout California (UC Agriculture and Natural Resources, 2024). Santa Fe Community Garden has a rainwater basin and grows crops using a combination of in-ground plots, raised beds, and a vertical tower. There are also chairs and picnic tables placed throughout the garden, under the shade of calamansi, fig, and guava trees. Santa Fe Community Garden provides produce

for both local community members and Casa Chaskis. After the garden was built, the restaurant developed a garden-to-table menu, including a stir-fried kale saltado that incorporates fresh kale from the garden (Naeem, 2021).

Long Beach Unified School District (LBUSD) Gardens by Ground Education

To learn more about UA sites located at schools, I visited gardens built by the nonprofit organization, Ground Education. Ground Education provides gardening curriculum to the LBUSD, which has 47 elementary schools and six K-8 (kindergarten to 8th grade) institutions (Kazenoff, 2022). In 2024, Ground Education operated in 24 LBUSD schools, over half of all schools in the district. The nonprofit intentionally selects schools in areas with less access to green space, and so their gardens are “mostly concentrated in North, Central and West Long Beach” (Kazenoff, 2022, p. 2). Founded by Holland Brown and Karen Taylor in 2008, Ground Education was originally created to revitalize former school gardens that were abandoned or needed maintenance. Originally a two-woman team, Ground Education now employs 29 staff members, including Garden Educators at each school site and a team that builds and maintains school gardens (Ground Education, 2024). Ground Education designs and builds new school learning gardens, teaches monthly outdoor lessons for transitional kindergarten (TK) through 8th grade, develops educational programming for after-school and summer programs, and provides workshops for partner community gardens. All Ground Education gardens feature the following amenities: a portable handwashing sink, rotating compost bin, storage shed, birdfeeder, and benches for students. Figure 21 shows an example.

Figure 21

Photograph of Garden Amenities at Luther Burbank Elementary



The gardens also have a small nature path with tree stumps and native California plants for students to explore. Ground Education’s Garden Educators deliver hands-on educational activities for TK-8 students to plant wheat, peas, lettuce, fava beans, carrots, beets, green onions, and other crops. Each class participates in monthly one-hour lessons during their usual class time. In addition to learning about where food comes from and tasting the food they grow, students hatch chickens in their classrooms, discover the importance of decomposers, and gain skills such as pickling vegetables, making pesto from carrot tops,

milling flour from wheat, and using a solar oven to melt cheese on nachos with heat from the sun. Figure 22 shows Fremont Elementary's main garden, which has 14 raised garden beds.

Figure 22

Photograph of Lettuce at Fremont Elementary



Fremont Elementary School is unique in that it has a main garden located next to the playground, a TK garden with four garden beds, and a “secret garden” behind a locked fence. The secret garden was originally started by the school but became neglected over time. Ground Education renovated the garden and planted herbs, such as rosemary, lavender, and mint. The learning gardens built by Ground Education are often integrated into the school’s playground area, near a field of grass. In the case of Roosevelt Elementary (Figure 23), the garden is built near the school’s narrow strip of grass, between a fence and playground equipment.

Figure 23

Photograph of Playground and Learning Garden at Roosevelt Elementary



Despite having a smaller area, the Roosevelt Learning Garden includes all the typical Ground Education amenities with nine newly constructed beds and four raised garden beds on wheels.

Long Beach Urban Farms

Urban farms are distinct from community gardens, as they are focused on the production and sale of agricultural products rather than communal gardening (van der Hoeven, 2022). The USDA broadly defines farms as any operation with the potential to produce and sell at least \$1,000 worth of agricultural products per year (USDA Economic Research Service, 2023). Table 4 summarizes the Long Beach urban farms that participated in this study.

Table 4

Long Beach Urban Farms

Name	ZIP Code	Year Established	Size (Acres)	Owner
The Growing Experience	90805	2008	7	County
Farm Lot 59	90755	2010	0.6	City
Organic Harvest Gardens	90805	2015	1	Private
Heritage Farm	90804	2022	0.18	Private

Farms were established from 2008 to 2022. The Growing Experience was the largest urban farm, and the second largest UA site after LBCG (8.5 acres). However, other farms were one acre or less. Each farm specialized in growing and selling different items, either directly to community members or to restaurants.

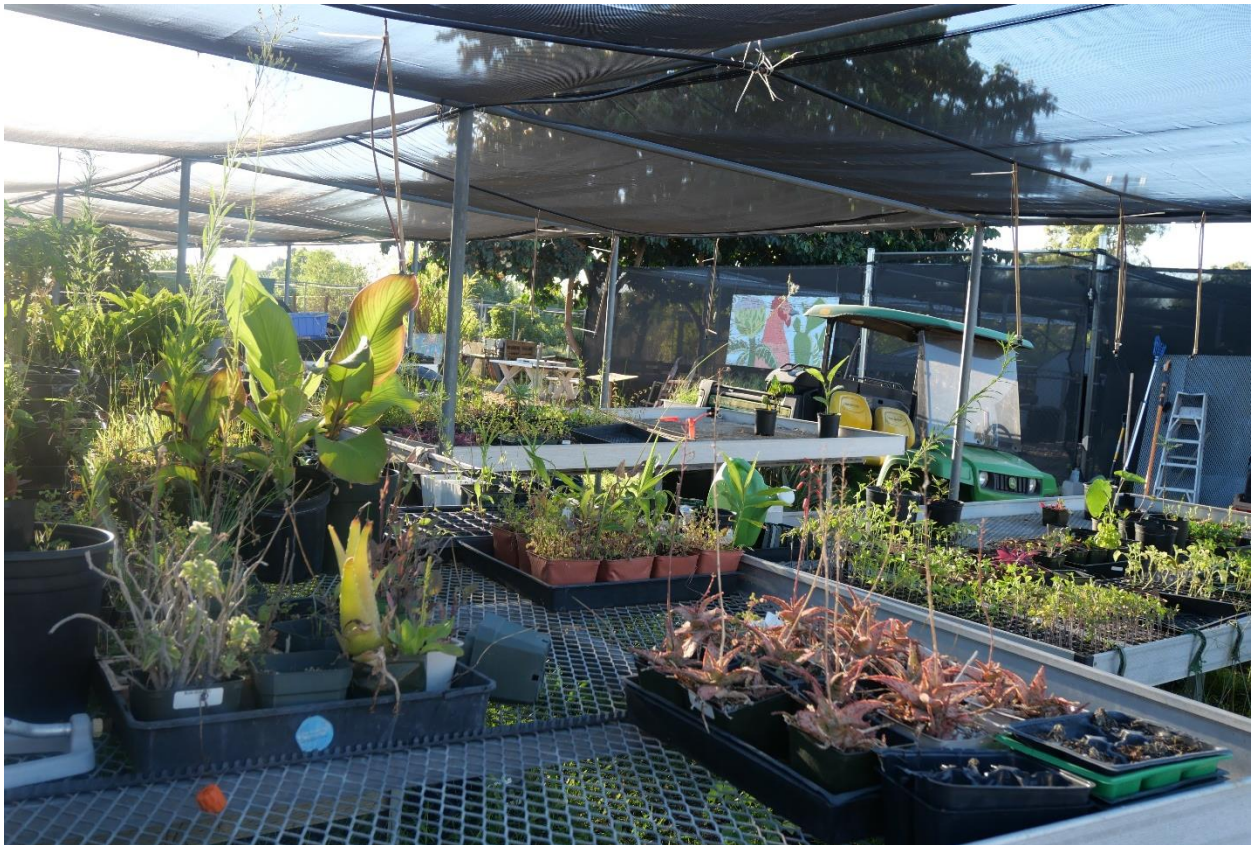
The Growing Experience

As described in Chapter 1, The Growing Experience was established in 2008 to serve the Carmelitos Housing Project community. Four acres of land are used for farming, and

three acres of the land are reserved as a community garden, with 60 raised garden beds for Carmelitos residents. The land is owned by the Los Angeles County Development Authority, and as of 2021, managed by The MAYE Center (which is named after Meditation, Agriculture, Yoga, and Education). There is a large area for seedlings and a variety of succulents (Figure 24).

Figure 24

Photograph of Seedlings at The Growing Experience



The Growing Experience has a chicken coop, aquaponic system prickly pear cactuses, and a tree orchard with 300 trees, including bananas, pomegranates, cherimoyas, and citrus fruits. On average, the farm harvests 200 pounds per day, and donates 400 pounds per week to Carmelitos residents on “Farmstand Saturdays.”

Farm Lot 59

Farm Lot 59 was named after “historic lot number 59” in Central Long Beach, one of 185 twenty-acre farm lots. When the Pacific Electric Railway extended to Long Beach in 1902, most of these farm lots were subdivided into home lots. The 59th farm lot was not developed into a farm or home due to its topography and role in the municipal water infrastructure. However, it became an illegal dumping site. In 2010, Sasha Kanno founded the nonprofit organization Farm Lot 59 to create a space for regenerative agriculture, a farming approach that improves soil health (Farm Lot 59, 2023). With the help of the city, the former dump was converted into a 0.6-acre farm, which now grows fruits, vegetables, and flowers. Farmstand 59 is Farm Lot 59’s flower shop, which sells bouquets, wreaths, dried flowers, and honey (Figure 25).

Figure 25

Photograph of Flower Shop at Farm Lot 59



The farm donates its edible crops to the Food Finders Community Marketplace Food Hub, a refrigerated container located at Admiral Kidd Park (Food Finders, 2023). In addition, Farm Lot 59 offers educational workshops and “Farm School,” an annual experiential learning program that teaches sustainable agriculture techniques.

Organic Harvest Gardens

Organic Harvest Gardens (Figure 26) was founded in 2015 by Chef Rod Dodd, a certified Master Gardener and nutritional/agricultural science teacher.

Figure 26

Photograph of the Entrance of Organic Harvest Gardens



The one-acre property is owned by a private landowner, who previously leased the space to LBO's Top of the Town Community Garden. Organic Harvest Gardens grows produce using a mix of in-ground growing, raised garden beds, and hydroponic towers for vertical gardening. The farm raises goats, sheep, chickens, and has a resident farm cat, Miss Pickles, who deters vermin such as mice and gophers. The farm supplies ingredients for the restaurant of an exclusive members-only club, The Gathering Spot. Organic Harvest Gardens hosts its own farm-to-table events regularly at an outdoor dining and kitchen area with tables, benches, an arbor, fire pit, a barbecue grill, and a chalkboard menu. In

partnership with TTT Veterans Wellness Center, the farm is establishing a Veterans Wellness Garden for veterans to grow fresh produce.

Heritage Farm

Heritage Farm was once Gladys Avenue Urban Farm, previously owned by LBO founder Captain Charles Moore. The 8,000-square-foot parcel of land was sold to the current owner with the stipulation that it would continue to be used for UA. As of June 2022, Heritage Farm is managed by Chef Lauren Pretty, owner of the restaurant, Heritage. The farm supplies Heritage with a variety of herbs, flowers, fruits, and vegetables. Some notable crops included cucamelons, passion fruit, longan, Brazilian cherries, mulberries, “1,500-year-old cave beans” (which are indigenous to the Western U.S.), and cardoons (an artichoke relative). A volunteer cares for the chicken coop, which houses four hens who provide eggs for the restaurant. A cat named Jolene resides at the farm and chases away pests (Figure 27).

Figure 27

Photograph of Farm Cat Jolene and Chicken Coop at Heritage Farm



Heritage Farm also featured long outdoor picnic tables and benches, a wood-fired pizza oven and Santa Maria-style barbecue grill (a type of open frame grill with a turning mechanism), and an indoor industrial kitchen. The space can be rented for events such as weddings and parties for up to 65 seated guests and 80 standing guests.

Overview of Long Beach UA Sites

Through my field observations of 26 active sites, I found that community gardens, school gardens, urban farms had many unique and shared qualities. UA sites ranged in size from 0.06 to 8.5 acres, though exact measurements were not available for some sites (particularly those where UA was added to an existing property). Sites that did not report

an exact size were estimated to be less than one acre. Except for the two largest UA sites, LBCG (8.5 acres) and the Growing Experience (7 acres) most UA sites were smaller than two acres. Nearly all sites were secured by a chain-link fence or gate. In this study, the VA Hospital Patient Garden and the Michelle Obama Neighborhood Library Learning Garden were the only UA sites without a gated front entrance. However, the Patient Garden was protected by video surveillance, locked buildings, and fenced areas. Each site had decorations, reflecting the population using the garden (such as the colorful painted sign at Roosevelt Elementary school's garden). All UA sites offered communal areas for resting, in the form of logs, chairs, or picnic tables and benches. Trees, gazebos, and arbors covered in vine plants provided shade.

UA sites typically implemented policies for membership, etiquette, and growing. LBO's nine community gardens have a \$55 minimum membership fee (dependent on the plot size) per six-month season, while LBCG's membership fee is \$160 per year. Though LBCG members pay more, they complete less service hours: LBCG requires four hours per year, compared to at least 20 hours per year for LBO members. Both organizations prevent gardeners from selling produce for profit. Even UA sites without membership fees enforced certain rules. Most UA sites prohibited the use of tobacco, cannabis, alcohol, or other illegal substances. Ground Education's gardens have signs with a list of rules for students. At the beginning of each class, Garden Educators ask students to respect others and "celebrate nature" by leaving insects alone and only picking plants with permission. Some UA sites enforced rules for the types of products and plants allowed. LBO and the Peace Garden only allow gardeners to use organic fertilizers and insecticides. To avoid plant diseases that

occur in winter, LBCG only allows nightshade family plants (e.g., tomatoes, eggplants, and peppers) from March 1st to November 15th. LBCG also has a common area for herbs, including rosemary and mint, which can quickly spread throughout plots and are difficult to remove. Several UA sites created food donation programs to distribute to community members, local pantries, and organizations. Every week, the LBO Director (assisted by any available interns and volunteers) harvests from Zaferia Junction Community Garden, collects any produce donated by gardeners, washes the produce, then weighs and organizes donation bags.

Connecting to my first research question, many UA sites were built by community members to revitalize vacant spaces and increase food access. For example, Santa Fe Community Garden and Farm Lot 59 were established by community members on littered, empty lots. In some cases, UA sites were intended for a specific population, such as the VA Hospital Patient Garden, which primarily serves veterans receiving long-term care at the hospital. Touching on my second research question, communities created UA by drawing on both agricultural knowledge and leadership skills. Typically, UA sites were built and maintained through community volunteers, who constructed raised beds, dug in-ground plots, weeded, and planted crops. UA sites were managed by an organization, city department, or at least one lead person. The partnership between UA leadership and landowners was critical for creating and maintaining sites. Over half of the active community gardens included in this study established a lease agreement with the City of Long Beach. School gardens were built with the permission of LBUSD. Other sites were built on land owned by individuals or entities such as CVC, VA, and the LA County Housing

Authority. The next section on former sites will discuss the significant influence that landowners hold over UA.

Former Urban Agriculture Sites

In their study on *The Growing Experience*, Ban et al. (2014) listed four gardens that became non-operational, including the original 1976 location for Long Beach Community Garden, which relocated in 1997. I collected additional information on non-operational sites from interviews, phone calls, news articles, websites, and blog posts. In my search for UA sites, I found five sites that were closed then reopened (either under new management or completely rebuilt and renamed, Table 5) and nine UA sites that ceased operations (Table 6).

Table 5

Former UA Sites Under New Management or Rebuilt

Name	Street Address	ZIP Code	Status as of 2023
Gladys Avenue Urban Farm	1336 Gladys Ave	90804	Space is now operated by Heritage Farm
Long Beach Farms	3515 Linden Ave	90807	Space is now managed by Puente Latino Association as a community garden
Three Sisters Community Garden Long Beach	2937 E 14th St	90804	Space renamed Orizaba Park Community Garden, now managed by LBO
Top of the Town	6571 Atlantic Avenue	90805	Space now operated by Organic Harvest Gardens
Wild Oats Community Garden	3709 E 10th St	90804	Space managed by LBO, closed, then rebuilt and renamed Zaferia Junction

The table is organized alphabetically, as there was limited information on when each former site was originally founded. Some websites provided outdated information, and many of the phone numbers listed were no longer in service. Gladys Avenue Urban Farm, originally owned by LBO founder Captain Charles Moore, was sold to another private

landowner with the condition that the land must be used for UA. The site was rented to Heritage Farm in 2022, described previously in this chapter. Another urban farm, Long Beach Farms, is now a community garden managed by Puente Latino Association. Three Sisters community garden, owned by the City of Long Beach and located at Orizaba Park, was managed by a community group, and is now managed by LBO. In 2015, the landowner of former LBO community garden, Top of the Town, began renting the space to Organic Harvest Gardens. That same year, LBO opened Zaferia Junction Community Garden, which was built on the land of Wild Oats Community Garden. Wild Oats, which was constructed on a former Pacific Electric railroad, was closed due to construction of the Termino Avenue Storm Drain Project, a nearly two-mile long storm drain system designed for flood relief (Bradley, 2012). These formerly closed sites demonstrate how UA can change over time due to changes in ownership and management, as well as public construction projects.

Table 6 provides a summary of the nine former UA sites that were not converted into a new garden or farm.

Table 6

Former UA Sites No Longer Operating

Name	Street Address	ZIP Code	Status as of 2023
Civic Center Edible Garden	333 W Ocean Blvd	90802	Under construction
D9 Field Office Farm/Firehouse Community Farm/North Long Beach Victory Garden	6509 Gundry Ave	90805	City did not renew lease, space is used by Council District 9 Field Office
Fifth Street Garden/Agape Community Garden	1051 East 5th St	90802	Empty lot, garden was relocated to Franklin Classical Middle School
Foodscape Garden/Chestnut Lot	729 Chestnut Ave	90813	Empty lot

Hill and Atlantic Garden	2175 Atlantic Ave	90806	Empty lot
New City Urban Farm	225 East 15th Street	90813	Empty lot, space will be used for housing
Spring Street Farm Project/LBCAP Urban Farm Lab	3012 Long Beach Blvd	90807	Space owned by Salvation Army, garden was unable to relocate
Wrigley Garden	1960 Henderson Avenue	90806	City did not renew lease, space used for housing
Wrigley Village Community Garden	2044 Pacific Ave	90806	Empty lot, private owner put land up for sale in 2016

As of 2023, most of former UA sites including Fifth Street Garden, Foodscape Garden, Hill and Atlantic Garden, New City Urban Farm, and Wrigley Village Community Garden, are empty lots. Former UA sites were forced to relocate or close due to the city or private owners choosing to not renew the lease. Figure 28 is a collage of Google Map images of the original Fifth St Garden (also named Agape Community Garden), from 2008 to 2022.

According to a blog written by Jon Rosene, the community garden was nearly 8,000 square feet. In 2009, the landowner offered a lease of up to three years for \$1 a month (Rosene, 2010). After the lease ended, gardeners built a school garden at Franklin Classical Middle School, which is now managed by Ground Education.

Figure 28

Google Street View of Fifth Street Garden from 2008-2022



Note. Adapted from Google Street View images, 2008-2022

(<https://maps.app.goo.gl/wzmcnwQyVQzMBUv19>).

Wrigley Village Community Garden, which was previously managed by LBO, is similar to Fifth Street Garden as the land was privately owned and leased for use as a community garden in 2009. After seven years, the owner sold the property (Morris, 2016). The site remains empty at the time of writing. A few broken garden beds remain, as well as lumber, beer bottles, cigarettes, and litter, as shown in Figure 29.

Figure 29

Litter at Former Wrigley Village Community Garden



On June 10, 2010, New City charter school established an urban farm to educate students. The quarter-acre lot was originally an ostrich farm from 1907 to 1910 (Marykwas, 2011). However, the site closed after the charter school's renewal was denied by LBUSD in 2014 (Smith, 2014). New City Urban Farm is currently vacant, but the Habitat for Humanity of Greater Los Angeles will redevelop the quarter-acre lot into affordable housing in 2024. They plan to build eight two-story townhomes for low-income, first-time homebuyers (Sharp, 2023).

Other former UA sites were repurposed for use by the city and other entities. The Firehouse Community Farm was located at a former fire station, and featured beehives, community gardening classes, and monthly crop swaps. A neighborhood association managed the farm with a right-to-entry permit, but the permit expired in 2019 without the city's renewal. The space is currently used by District 9 council office (Flores, 2023). Another city-owned property, the Civic Center Edible Garden, was removed when the previous civic center, city hall, and library were demolished. The buildings were "seismically deficient" according to a 2015 press release from the City of Long Beach. The Spring Street Farm Project, led by the Long Beach Community Action Partnership (LBCAP), planted an orchard, created an aquaponic system, and raised chickens, ducks, and a goose. The organic urban farm was part of the LBCAP Youth Opportunity Center's Green Jobs program (LocalHarvest, 2013). According to an LBCAP employee, the space was leased from the Salvation Army. The Salvation Army asked LBCAP to relocate due to renovations, but LBCAP was unable to find a new location for its farm.

Overall, it appeared that no matter how successful UA sites were, their longevity was determined by landowners, not the community members using the space. Regardless of the UA site's scale or amenities, they could be demolished due to the construction of a new building or reverted into a vacant lot for sale. As of 2024, four of the nine nonoperational sites identified are still unused. The space that formerly hosted Wrigley Village Community Garden, which was closed in 2016 after a real estate investor sold the property, is covered in litter (Morris, 2016). Nonoperational sites highlight the precarious nature of UA. Without the support of landowners and policies to protect sites, UA benefits

of food access, green space, and neighborhood beautification can be reversed. The next chapter will share insights from UA leaders and provide a deeper analysis of study findings in relation to CCW and SDOH.

CHAPTER 4: HOW URBAN AGRICULTURE CHANGES COMMUNITIES

In the summer of 2023, I had the opportunity to visit Captain Charles Moore Urban Community Garden, which was constructed in April 2023 and officially named on February 18th, 2024. Before the garden received its name, gardeners would call LBO's ninth garden, "the new garden," or simply "3121," from the address, 3121 Long Beach Boulevard. I interviewed a UA leader who rented a plot there, named Nana (pseudonym to protect privacy). Though Nana had just started renting her 10' x 10' in-ground plot at the new garden, she had decades of experience, as she had been growing plants since the age of six. With a smile, Nana reminisced how her grandmother "hailed [her family] into the garden." As the descendant of slaves, her grandmother wanted to "pass along the skills of growing your own food." Out of 11 grandchildren, Nana is the only one who continues to garden. She estimated that she grows 80% of the food she eats.

Growing food was essential for Nana to take control of her own health after being diagnosed with cervical cancer. She used to take 27 different medications per day. At that time, Nana felt that she was "a zombie [who] woke up to sleep." Growing her own food and medicinal plants empowered Nana to take control of her diet and improve her physical and mental health. She explained that if she has a bad day she goes into the garden. Nana said, "It just brings me so much happiness to grow." With pride, she described her recent crops: watermelon, winter squash, onions, chives, fava beans, stringless string beans, snow peas, black-eyed peas, moringa, borage, chamomile, and mint. Watermelons were her biggest success. Nana grew multiple watermelons per year in different varieties, like Klondike (which has stripes), moon and stars watermelon (with "yellow spots all over"), and a sweet

variety from Louisiana. She also loves mint tea because it soothes stomach aches and helps with her liver issues. As Nana showed me around her garden plot, she expressed her joy at seeing new life come from the seeds she planted, “like a mother birthing a child.” Following in her grandmother’s footsteps, Nana hopes to pass down her gardening skills and knowledge to her kids. She said that growing food was her grandmother’s “longevity”: a lasting contribution to her family.

Nana’s story demonstrates how UA provides not only a space for growing food, but for community members to enhance their overall health and environment. Through interviews with UA leaders and field observations of gardeners, school garden educators, students, interns, and volunteers, I learned that UA allows people to connect with others, transform their neighborhoods, and share knowledge. Building on the previous chapter, which provided context for the UA sites, Chapter 4 will discuss recurring themes from interviews and field observations. While Chapter 3 provided a broad overview of how community members create, maintain, and engage in UA, this chapter will focus on the specific forms of skills and knowledge fostered by UA, and how UA addresses health. I analyzed transcripts and field notes by using ATLAS.ti to identify phrases and words that were emphasized by participants or related to CCW and SDOH. Following the primary-cycle and secondary-cycle coding procedure described by Tracy (2013), I developed a codebook (Table 7) to organize qualitative findings.

Table 7*Codebook for Qualitative Data*

Code	Definition	Keywords	Sample quote
Community	Examples of how people were united through UA by growing food, community events, and other collective activities	connect, come together	"People meet their neighbors for the first time."
Environment	Examples of physical changes in the environment by building and maintaining spaces for UA	build, create	"The eucalyptus trees provide oxygen and give a park-like feel."
Health	Examples of improved physical and mental health through UA, such as eating healthier, exercising, feeling less stressed	active, therapeutic	"I noticed my step meter is way higher when I spend an afternoon in the garden, right."
Learning/Teaching	Examples of how people gained and shared skills and knowledge from UA	passing along skills, teach	"I'm trying to get my kids to learn."
Challenges	Examples of how challenges related to UA, such as funding, safety, and working with the city	threaten, crisis	"I think it all boils down to sort of money really."

Chapter 4 is organized around five recurring themes: 1) Uniting Community, 2) Transforming the Environment, 3) Improving Health, 4) Learning and Teaching, and 5) Navigating Challenges. Linking back to my research questions and conceptual framework, the chapter will conclude with an analysis of how these themes connected to forms of CCW capital (aspirational, linguistic, familial, social, navigational, and resistant) and SDOH domains (social and community context, economic stability, education access and quality, neighborhood and built environment, and health care access and quality).

Uniting Community

UA brought Long Beach community members together through the collective experience of being involved in a garden or farm, often by volunteering and sharing food. One UA leader explained that they were interested in creating "more venues for more classes [and] more activities." They remarked, "It's not just about people growing stuff

anymore. There's more community involvement or community building.” Another described a “sense of social connectedness” by getting to meet community members at volunteer days. These are examples of social capital, described by Yosso (2005) as social networks and community resources. At LBO’s nine gardens and LBCG, gardeners socialized during Saturday “work parties.” Gardeners completed community service by weeding and cleaning common areas, but also mingled with one another, swapped crops, and enjoyed potlucks together. A garden director recounted the story of volunteers competing for the highest number of service hours. Though LBO only required a minimum of 10 community service hours per six-month season, one person had set a record of 102 hours. Others reached over 90 hours per six-month season. A volunteer (who did not rent a garden plot) had 70 hours completed at the time of writing. He volunteered every week “to beat that 102 record.” In this scenario, community members used social capital to maintain gardens, even if they were not growing food.

By meeting others and forming new relationships, community members also increased their social support, an objective of the social and community context domain (Knapp & Hall, 2018; Singh et al., 2021). When asked to describe their proudest success, one UA leader responded, “seeing friendships form that wouldn't have happened otherwise.” They believed that the garden was a space for people to “meet people from different cultures, hear different languages, [and] try different cuisines.” Farmers described several types of outdoor community events, such as “Farm Friday,” for people to “have a drink and hang out during the summer.” One gardener said that they “run into good people” at their community garden, and another replied that “garden people are always fun

to talk to.” Acknowledging Long Beach’s diversity, one UA site created promotional materials in English, Spanish, and Khmer, demonstrating linguistic capital, or skills from communicating in more than one language or style (Yosso, 2005). During field visits to community gardens, I observed multiple occasions when people would walk by and ask questions about the garden. Gardeners welcomed outsiders by sharing their harvest and providing information on how to join.

Transforming the Environment

All interviewees described how UA had changed the land in some way. Community members worked together to enhance their neighborhood and built environment, which influences safety, health behaviors, and risk of disease (Knapp & Hall, 2018). The UA sites in this study were built on former oil properties, dumping sites, vacant lots, and in some cases, previous UA sites. Social capital was crucial for building new gardens and farms. UA leaders collaborated with volunteers, the Conservation Corps of Long Beach, local troops from Boy Scouts of America, and the UC Master Gardener Program to construct raised beds, sheds, and other amenities. Ground Education typically constructed raised garden beds and nature paths on existing green space, such as playground fields. In other cases, UA leaders had to build on land that was previously unintended for planting. A garden director shared the following anecdote about gardeners transforming a former oil property into a community garden:

The soil’s extremely compact and lifeless. So we’re adding organic material. What creates soil is gardening, adding organic material. [Right now,] people are having trouble getting more than a few inches into the soil. But over time, that’s going to be

a few feet. Because you know, the plants themselves break up the soil, the bugs break up the soil once they have something to eat. And so we're seeing some growth. This season, we're gonna see better and better growth over time. Also we're really conscious here of absorbing water because of our recent drought. So we built swales. Today they're filling in the gravel. We've built swales, we're encouraging people to use lots of woodchips around the plots. All of this helps absorb water.

This passage illustrates how community members used social capital to collectively build a UA site. The garden director explained that they thoroughly tested the soil to ensure that it was safe, and that the process of organic gardening would further improve the soil over time. Gardeners' determination to turn the former oil property into a green space demonstrates resistant capital, knowledge and skills fostered through oppositional behavior. By repurposing the once "lifeless" soil to grow food, gardeners also demonstrated aspirational capital, the ability to maintain hopes and dreams for the future (Yosso, 2005).

UA leaders emphasized the importance of protecting the environment for future generations, a further example of aspirational capital. Gardeners and farmers conserved water using methods such as drip irrigation and customized sprinkler systems. Though most sites were located near freeways, UA sites planted trees to provide shade and oxygen for fresh air. Trees also served as a noise barrier and gave a "park-like feel" to UA sites. Gardeners and farmers used natural pest control methods (such as neem oil, ladybugs, and parasitic wasps) and practiced composting to repurpose their food waste. One UA leader harvested seaweed from the beach to make kelp extract, which they used as a fertilizer.

These examples of sustainable UA techniques demonstrate how community members made efforts to preserve and improve their neighborhood and built environment.

Improving Health

UA leaders shared how their sites directly benefitted community health by increasing access to fruits and vegetables, promoting physical activity, and supporting mental health. One UA leader was inspired to donate produce to the local university food pantry after reading articles on food insecurity among college students. Gardeners also relied on growing food for their own food security. For example, a gardener who lived alone and did not own a car relied heavily on their community garden plot. They said growing food helped them eat more fruits and vegetables “loaded with fiber.” Another mentioned their grandparents “save some more money” by eating the food their family grows. In this way, UA supported the SDOH domain of economic stability by allowing community members to reduce food expenses. UA leaders believed that “if you grow your own vegetables, you're more likely to eat vegetables” and that food grown from a garden or farm was “fresher,” “tastier,” and more “flavorful” than produce from grocery stores.

During my observations, people at UA sites were consistently engaged in outdoor physical activity, usually with their hands, shovels, hoses, wheelbarrows, and other gardening equipment. When I asked an interviewee if they used any power tools for gardening, they replied, “We like to burn calories, not fossil fuels.” They added that “some of the younger folks really get a workout with the pickaxes and stuff,” while gardening for “older folks” is “slow, gentle exercise that [they] can do for prolonged period.” Others agreed that gardening helped them stay “healthy and active.” A gardener who suffered with

joint pain from fibromyalgia (a disorder that causes muscle and joint pain) said, “[Gardening] gets me out of my pain.” Another gardener had to stop gardening at one UA site because of chronic lower back pain but was able to begin gardening again at a different site with raised beds. He sat on his walker to pull weeds and said the raised beds help with accessibility. Participating in UA helped community members cope with physical discomfort, as well as negative feelings and emotions.

The phrase “mental health” was repeated by multiple interviewees, such as one who stated, “I think that the biggest crisis that we're facing in health care other than nutrition, is mental health.” UA sites provided a space for the community to “de-stress,” “heal,” have “peace of mind,” and “manage depression and anxiety.” One UA leader described their community garden as “therapeutic” and a “safe space” that benefitted their family’s physical health and mental health. Another said, “People told me it's their lifeline... A lot of people told me that they went through a rough time, maybe they lost a spouse, or they had broken up, or they lost their job, and the garden was their focal point.” From my interviews and observations, many others seemed to share this sentiment. During this study, I met three gardeners who had experienced homelessness. They all expressed how gardening helped them stay calm during stressful times. A UA leader who previously lived in their car and struggled with addiction issues said that gardening helped them with sobriety. They said, “The garden is important to me because it gave me purpose.” The act of gardening allowed community members to shift their attention away from negative thoughts and focus on the present moment.

Learning and Teaching

UA presented a multitude of learning and teaching opportunities for people of all ages. Ground Education's lessons throughout the LBUSD are one example that ties directly to the SDOH goal of increasing educational opportunities and helping children and adolescents succeed in school (Healthy People 2030, 2023). In October 2023, I had the opportunity to assist third grade students with an herb-picking activity. A lively group of about 30 students walked from their classroom to the school garden. Since it was also Picture Day, the students wore their best clothing. In their suits and dresses, the third graders cheerfully ran up to the Garden Educator and greeted her with hugs. Once the students took a seat on the outdoor benches, the educator began the lesson with a mindfulness exercise. Students placed a hand on their heart and stomach, so they could feel their body move as they inhaled, held their breath, exhaled, and repeated. After the exercise, the energetic class of third graders appeared calmer. The educator asked the students to name plants that were herbs. Then, she discussed how herbs were used as medicine by native peoples, and how herbs are still used today in teas and topical treatments. The educator used a whiteboard with a diagram of the limbic system to teach students about the olfactory bulb. As the educator explained to students, the olfactory bulb in the brain perceives smells and sends signals to the body, which is why smelling different herbs can make people feel more focused, calm, or alert. After the lecture, I helped distribute sachets (small pouches tied with string) for the students to collect herbs. We walked from the main school garden to a "Secret Garden," where the next part of the lesson would take place.

This elementary school had both a school garden built by Ground Education, and a Secret Garden originally created by teachers. It was “secret” as it was locked behind a gate, unlike the newer school garden, which was near the playground. However, it became neglected over time, so Ground Education converted the space into an herb garden (Figure 30).

Figure 30

Lavender and Mint from Secret Garden



Students explored the garden and collected calendula, lavender, mint, rosemary, and thyme to add to their sachet. Though it was not part of the lesson plan, students also gathered yellow roses, nasturtium, and other flowers, and one student picked up a tiny lizard. After returning to the benches for a closing discussion, students walked back to their classroom. However, the garden was not empty for long. Many returned during recess to water the plants, or simply enjoy the space while sitting, eating, and chatting with others.

This lesson was unique because it focused on biology and the medicinal qualities of herbs. Other lessons I observed related to nutrition and tasting fruits and vegetables, connecting to the previous themes of “Improving Health.” Students also learned about food supply chains, the structure of plants, and using fractions to plant seeds in a garden bed evenly. School garden lessons are examples of organized educational curriculum at UA sites. A few sites offered youth education programs, such as LBO’s Gateway to Gardening program taught by a horticultural therapist. The Martin Luther King Jr. Peace Garden offered garden-based education classes. There were also informal opportunities for teaching and learning through hands-on experience.

It is likely that students may share their garden experiences at home with their parents and siblings. Many adult gardeners and farmers had learned agricultural skills from their families. This is an example of familial capital, cultural knowledge nurtured among kin (Yosso, 2005). A UA leader admitted that when they started, they “literally knew nothing about gardening” but now “[are] trying to learn as much as they can” while gardening with their family. During field visits, I saw that gardeners were often working together with children, parents, grandparents, and siblings. UA leaders recalled learning

how to grow food with their family or a significant other. One UA leader, who had learned agricultural techniques from their mother, felt it was important for their children to learn that “the growing experience is normal and natural.” They believed that if “kids are more attuned to things growing and dying, and then going into the compost, and then creating life again, it makes the idea of death, less onerous.” For this interviewee and others, educating children was crucial for preserving UA skills and knowledge.

Navigating Challenges

UA leaders identified conflicts with landowners, lack of funding, engaging local community members, and language barriers as major challenges of maintaining gardens and farms. In addition to social capital, UA leaders exercised navigational capital, the skill of maneuvering through social institutions (Yosso, 2005), to use land owned by the city or private owners. An interviewee said that ideally, this was a “win-win situation” because “[landowners] don't have to take care of these odd properties and they save money and time, and [community members] get a garden.” However, there was often “red tape” obtaining permits from the city, which delayed UA leaders from starting construction. Even after UA sites were constructed, their operation was not guaranteed. The City of Long Beach could temporarily lease land to UA leaders, then choose to not renew the lease in the future. Private landowners had the power to reclaim their land or sell it to a buyer. An interviewee reflected, “We’re all on borrowed land.” UA leaders also felt the constant pressure to acquire funding through grants or fundraisers to keep their sites operational. Due to inadequate funding to hire full-time staff, UA leaders were tasked with “doing everything,” from fundraising and coordinating volunteers, to cleaning bathrooms and

dealing with animal pests. Although UA sites generated income from produce sales, community garden memberships, donations, and grants, revenue was unpredictable. Oftentimes, UA sites were spearheaded by one main person, with either a few staff, volunteers, and/or interns. Ground Education was the exception to this, with a team of over 20 employees; however, the two co-founders worked for seven years without pay to grow their nonprofit organization. They gained financial support through the LBUSD, parent teacher associations, and Long Beach Gives, a citywide fundraiser.

A common challenge that community garden leaders identified was “a lack of people who can consistently come and maintain the garden.” They would repeatedly contact gardeners who neglected their plots, despite policies requiring regular upkeep. Schools similarly struggled to maintain their gardens, which was why Ground Education was founded. Before they had the resources to construct new gardens, Ground Education cared for existing school gardens that were untended during the summer or completely abandoned. Although UA leaders desired to engage more community members, there were restrictions on who could enter UA sites. Most UA sites were only open to a specific population (e.g., gardeners with a paid membership, people authorized to enter a school) or established hours of operation and procedures for visitors. Gardens and farms had several security measures, such as locked fences, remote-controlled gates, and surveillance cameras. UA leaders expressed unease that these existing security measures were not enough to deter unauthorized people and animals (such as tree-climbing coyotes) from entering sites. There was also a notable tension between those involved in UA and the Long Beach’s unhoused population. One garden specified that any guests or volunteers without a

plot-tenant agreement on file must be authorized by staff before visiting. However, unhoused individuals would frequently “jump the fence” to use their garden’s greenhouse for shelter. Garden staff responded by connecting those individuals to Long Beach’s homeless services team. Another garden was intended for residents of a housing community, so it required entering a main gate with a security guard. Yet even with these precautions, gardeners encountered loiterers and unhoused people living in the garden shed, which led to perceived safety concerns. In one instance, a gardener and her boyfriend were “pepper sprayed by a homeless person.” These anecdotes highlight the growing social issue of homelessness in Long Beach, and bring into question whether physical barriers and policies effectively protect UA sites, or simply exclude community members.

UA leaders also struggled with language barriers, which unintentionally excluded or created misunderstandings between community members who were not fluent in English. Some UA leaders had to rely on gardeners’ English-speaking children to act as interpreters. While volunteering at a community garden, I witnessed how language differences made it difficult to communicate important policies. While working with gardeners to weed a pathway, we discovered that the “weeds” were vegetables intentionally planted by a Korean gardener, who appeared very upset. Due to the language barrier, we could not identify the seedlings, nor was the gardener aware of the policy that common areas should not be used for planting. In the end, we replanted the dug-up vegetables, and the gardener shared a plate of fried perilla leaves with us (Figure 31).

Figure 31

Fried Perilla Leaves



These were extremely satisfying to eat after a long day of volunteering. Although we lacked the linguistic capital to communicate with each other, we enjoyed the shared experience of a good meal.

Connections to Community Cultural Wealth and Social Determinants of Health

This section expands on Chapter 3, which partially addressed my research questions on how communities create, maintain, and engage in UA. To further answer questions regarding how UA fosters skills and knowledge and addresses health inequities, I specifically analyzed my findings in the context of the CCW model and SDOH domains.

The six forms of capital from Yosso's (2005) CCW model were represented in several aspects of UA. Aspirational capital allowed community members to envision the possibility of converting vacant lots into gardens and farms. Resistant, navigational, and social capital was integral for actualizing these possibilities into reality. Through resistant capital, UA leaders and community members worked to actively change their neighborhoods despite challenges. LBO's Zaferia Junction Community Garden is an example of this, as it was constructed on land previously used by the Pacific Electric Railway, demolished during the Termino Avenue Drain Project, then rebuilt again (Bradley, 2012). Through navigational capital, UA leaders acquired permits from the city and obtained permission from private landowners to create UA sites. Community members leveraged social capital to build and maintain these sites collectively. In turn, UA sites boosted social capital by creating communal spaces for people to gather and host events. Familial capital was also important for preserving agricultural skills and knowledge through generations of family. UA leaders recognized the linguistic capital of others involved in UA (such as community gardeners speaking Spanish, Khmer, and other languages), but it was the least represented form of capital in this study.

UA also addressed the following SDOH goals developed by the Healthy People 2030 initiative (2023):

1. Increase social and community support.
2. Increase educational opportunities and help children and adolescents do well in school.
3. Help people earn steady incomes that allow them to meet their health needs.

4. Increase access to comprehensive, high-quality health care services.
5. Create neighborhoods and environments that promote health and safety.

UA sites increased social and community support by creating a space for community members to connect, through the experience of growing food, exchanging food at crop swaps and potlucks, and engaging in educational opportunities. In addition to the educational lessons provided by Ground Education's school gardens, community gardens and urban farms offered educational workshops for children, adolescents, and adults. UA also provided informal opportunities for families and community members to share knowledge and skills. Supporting economic stability, UA sites created paid positions (e.g., community garden director, educator, farmer) for community members. Though most sites could only afford to hire one person or a small team of staff, UA yielded career development opportunities for volunteers and interns to gain experience. According to interviewees, UA did not directly increase access to health care services or health insurance. However, UA sites were healthy environments for community members to grow fruits and vegetables, increase their physical activity, and cope with stress. These findings support the use of UA for addressing SDOH, to promote health and potentially prevent disease. The following chapter will summarize the main takeaways of this research and provide recommendations for organizations, researchers, and policymakers.

CHAPTER 5: IMPLICATIONS FOR COMMUNITY, RESEARCH, AND POLICY

In summary, this dissertation provided an overview of urban agriculture (UA) sites in Long Beach and described how communities create, maintain, and engage in UA. Furthermore, this research examined how UA relates to community cultural wealth (CCW) and the social determinants of health (SDOH). These findings supported previous research on the social and environmental benefits of gardening (Audate, et al., 2019; Draper & Freedman, 2010; Lanier et al., 2015; Siewell et al., 2015), and uniquely focused on multiple types of UA sites, including community gardens, school gardens, and urban farms. According to interviews and field observations, UA increased access to healthy food and green spaces, particularly for Long Beach's communities of color, which are disproportionately impacted by health inequities (Addison, 2019; LBDHHS, 2019). This research supports emerging evidence that UA contributes significant value to public health and social systems (Geary et al., 2023). UA provided communities with fresh produce, improved mental health, promoted outdoor activity, enhanced neighborhoods, and created educational opportunities. Interestingly, Long Beach UA sites often began as the vision of one person or a small group of community members. Individuals combined their skills and knowledge by forming volunteer groups, organizations, and businesses. However, as I discovered while researching nonoperational gardens and farms, landowners held the most control over the longevity of UA sites. Public policies that encourage agricultural land use are critical for the long-term success of UA, particularly to protect UA land from being sold. To summarize study findings, I designed Figure 32 based on Lee et al.'s (2017) socio-ecological model of agricultural safety and health interventions.

Figure 32

Socio-Ecological Model of Urban Agriculture



Note. Adapted from “Using the Socio-Ecological Model to Frame Agricultural Safety and Health Interventions” by B. Lee, C. Bendixsen, A. Liebman, and S. Gallagher, 2017, *Journal of Agromedicine*, 22. (<https://doi.org/10.1080/1059924X.2017.1356780>).

This model, which can be applied to various types of UA in different geographical areas and contexts, illustrates the impacts of UA at the individual, interpersonal, organizational, community, and public policy level.

Individuals can engage in UA to enhance their personal health, knowledge, and skills. These benefits can be shared throughout social networks. Interpersonal relationships can form through UA, as individuals meet others and exchange resources.

Organizations allow community members to create formal partnerships with landowners, government officials, and other organizations, which is necessary for the formation and expansion of UA sites. UA can change the community's physical surroundings. For example, Long Beach gardens and farms planted trees that provided shade and acted as a barrier from street pollution and noise. At the public policy level, governments can provide access to land and resources, and develop zoning policies and laws to support UA. The following sections provide recommendations for how community members, researchers, and policymakers can apply findings to increase and improve UA sites.

Recommendations for Community

This research identified several best practices from UA leaders, which can be applied outside of Long Beach. Community members interested in creating or enhancing UA sites should consider the following:

1. Cultivate partnerships to create and expand UA sites
2. Develop programs to address community needs
3. Design UA sites to be inclusive for diverse populations

The UA sites in this study relied heavily on partnerships between community organizations, volunteers, the City of Long Beach, and private landowners. Most community gardens and school gardens were managed by Long Beach Organic (LBO) and Ground Education respectively, which are both nonprofit organizations. Long Beach Community Garden (LBCG), the largest community garden, was managed by the Long Beach Community Garden Association, a not-for-profit organization. Nonprofits qualify as tax-exempt in exchange for providing a public benefit (such as building gardens in underserved

communities). In contrast, not-for-profits can solely operate for the goals of their members, not the public (Heaslip, 2023). Both nonprofit and not-for-profit organizations must use their funding for their mission and operations, rather than the profit of an owner.

Regardless of the type of organization, this research found that it was important for community members to organize formally. Organized groups could mobilize their skills and social capital to advocate for the creation of UA sites, secure funding, hire workers, and coordinate volunteers. Interviewees emphasized that volunteers from the community or organizations were essential for constructing and maintaining UA sites. In particular, UA sites repeatedly described volunteer efforts from the Conservation Corps of Long Beach, Boy Scouts of America, and UC Master Gardener Program.

UA sites can also collaborate with partners (e.g., other UA sites, school districts, city health departments) to develop programming. Long Beach gardeners and farmers created social events, developed educational workshops, and shared their harvest with family, neighbors, and the community. UA leaders advanced food justice, accomplishing Heynen et al.'s (2012) recommendation of using UA to connect food sovereignty and food security. Long Beach UA sites empowered communities to grow food, exchange knowledge, and gain agricultural skills. UA sites increased access to fruits and vegetables for those interested in growing and purchasing food. Additionally, UA sites served local community members and underserved populations (including unhoused individuals, veterans, and abuse survivors) through food donation programs. For example, the Peace Garden distributed produce at monthly events as part of their outreach program. Peace Garden staff members grew food around the perimeter of the garden, which is also open for community members to harvest

on weekdays. Similarly, LBCG and LBO gardens designated areas to grow food for local pantries and organizations. Since 2020, LBO has donated 160,000 pounds of organic produce to California State Long Beach University's student pantry (LBO, 2024.)

UA leaders should consider designing sites to be accessible and inclusive. Many of Long Beach's UA sites accommodated different populations, such as those with disabilities, seniors, and veterans. LBCG was built with paved roads, which allows gardeners with mobility aids to access their plot more easily. LBO designed their gardens with pathways large enough to accommodate wheelchairs, based on standards issued by the Americans with Disabilities Act (ADA). The Veterans Affairs (VA) Patient Garden, which serves veterans staying long-term at the VA Hospital, was accessible to those with wheelchairs and walkers. The Magic Garden was originally founded by veterans. This garden has raised beds, enabling elderly gardeners and gardeners with disabilities to tend their crops without crouching or bending over. In addition to considering the physical accessibility of gardens, UA leaders were interested in increasing language accessibility. For example, the Peace Garden translated informational materials on how to register for garden plots into English, Spanish and Khmer. The Peace Garden was managed by Long Beach's health department. Their staff worked with a public affairs team to distribute outreach materials at community resource fairs and online via social media. By offering outreach materials in multiple languages, UA sites can attract more diverse community members.

Recommendations for Researchers

This study provides the following recommendations for researchers:

1. Directly engage in UA by volunteering and attending community events

2. Evaluate UA as a public health intervention to address food security and environmental concerns
3. Include more diverse perspectives of UA participants and beneficiaries

While recruiting research participants, I found that many UA leaders did not immediately respond to emails and phone calls to schedule an interview. In some cases, even UA leaders who I had met in person and verbally expressed interest in participating, did not respond. This may be explained by a lack of capacity, as UA leaders were typically responsible for multiple duties at their site. Most UA sites were managed by a single person, with occasional assistance from board members, volunteers, and/or interns. Therefore, it was important for me to visit sites, participate in events, and volunteer. Volunteering as part of fieldwork is a participatory research practice that can allow researchers to contribute to a community, instead of passively observing (Abarca & Coutin, 2018; Williams, 2016). Through volunteer work, I earned the trust of UA leaders and was able to work alongside community members.

For future research on UA sites, there is a need for interdisciplinary collaboration between social and environmental scientists, as well as medical professionals who can analyze biometric data. Longitudinal studies could investigate the quantitative impacts of UA on food security and disease risk. Further exploration is needed to understand the relationships between UA participation and obesity, diabetes, asthma, and mental health disorders. Additionally, researchers should study UA's potential to improve air quality by reducing greenhouse gases and producing oxygen (Nowak et al., 2006). UA may also reduce flooding in urban areas, as permeable soil can retain and absorb rainwater (Tran, 2024).

Industrial agriculture has accelerated the loss of soil organic carbon, an indicator of soil health and a key part of climate regulation (Teague, et al. 2016). Scholars should consider implementing the traditional ecological knowledge (TEK) of indigenous people, such as the Tongva. Practices linked to TEK, such as the preservation of oak groves, can be applied today to promote biodiversity, prevent droughts, decrease carbon emissions, and ensure biodiversity (Zappia, 2019).

When designing future studies, researchers should include more diverse perspectives of UA participants and beneficiaries, such as family members and neighbors. A limitation of this research is that study participants did not reflect the demographics of the community at large. Out of 19 interviewees, 68% identified as White, yet over two-thirds of Long Beach's population are people of color (U.S. Census Bureau, 2022a). This may be an indication that more Whites held UA leadership roles, compared to the diversity of gardeners, volunteers, and other participants. The discrepancy in participant demographics could also be explained by distrust, resulting from researchers' historical exploitation of people of color. Examples of this include the Tuskegee study, which led to the preventable deaths of African American men, and a genetic research study of Havasupai tribe members, who donated blood samples for a diabetes study. The tribe members never received results of the study, yet researchers continued to use the blood samples for research (Hicks et al., 2012). To address such concerns, it is imperative for researchers to participate in UA actively, make findings accessible to participants, and/or involve community members in the research process.

Recommendations for Policymakers

UA can provide several social and environmental benefits for cities. To support UA, policymakers can follow these recommendations:

1. Encourage community engagement in UA by sharing up-to-date information on site locations and activities
2. Implement policies that encourage land use for UA, such as pro-agricultural zoning codes and incentive programs
3. Provide resources and funding for the development and long-term operation of UA, especially in areas with the greatest need

Local government officials should promote UA sites and ensure that information on UA is frequently updated. As discussed by Jackson et al. (2013, p. 45), who conducted an inventory of UA in Los Angeles County, online sources like Google Maps may be unreliable due to the “transitory status” of UA sites, which “are subject to sporadic vacancy of land, funding, and active volunteerism.” During this study, I had difficulty determining whether UA sites were still active or not due to the absence of information, outdated websites, or out of service phone numbers. I identified 14 UA sites that were either rebuilt, changed management, or ceased operations. Many of those sites were listed on a map from the City of Long Beach Office of Sustainability (2014). As of April 2024, the city has not yet published an updated map.

To aid the creation of UA sites, cities can incorporate pro-agriculture zoning codes and UA incentive programs. City zoning codes for Long Beach permit agricultural activities and allow UA within multi-family, commercial, and light industrial zones (Long Beach

Office of Climate Action and Sustainability, n.d.; Jackson et al., 2013). Long Beach's Urban Agriculture Incentive Zone (UAIZ) Program offers a property tax reduction to vacant lot owners who allow their property to be used for UA. The UAIZ program connects owners to local farmers and gardeners, who are required to use organic agriculture methods (restricted pesticide and fertilizer use). Landowners are eligible to participate in the UAIZ program if their lot is between 0.10 to 3 acres in size, does not have habitable structures, and is not listed on the Department of Toxic Substance Control's EnviroStor Database (Office of Climate Action and Sustainability, n.d.). However, UA leaders expressed concerns about the uncertainty of leasing land from the city and private owners. The UAIZ Program's lease-term was a minimum of five years. After the term ends, landowners can decide not to renew the lease, forcing UA participants to move. UA leaders were also required to obtain administrative use permits from the city, which can be time-consuming. Cities could offer affordable, expedited permits for UA sites. The City of Escondido's "Adopt-A-Lot" policy encouraged the use of vacant land for community gardens by offering a no-fee permit and waiving normal zoning requirements (Twiss et al., 2003).

Policymakers can foster the success of UA sites, especially those in low-income neighborhoods, through resources and funding. They can demonstrate support by providing in-kind donations, speaking at community events, and promoting UA in press releases and social media coverage. UA sites needed resources for capacity building, such as assistance with grant writing, fundraising, and hiring and training staff. Grants awarded by federal, state, county, and city departments were often UA sites' largest source of funding. The State of California, for example, bolstered Ground Education's ability to

deliver gardening lessons to thousands of students. In 2022, the nonprofit was awarded \$315,000 through the Expanded Learning Opportunities Program, which funds after-school and summer school enrichment programs that serve disadvantaged students (Kazenoff, 2022).

To conclude, the longevity of UA sites is determined by partnerships between multiple entities, including those at the policy-level. Policymakers possess the power to decide whether community members have the right to build and grow their UA sites. Even thriving UA sites are at risk of closure, if the land they exist on can be sold or repurposed at any time. Therefore, UA leaders call for policies and funding opportunities that incentivize the development and sustained operation of urban gardens and farms. Policymakers should consider UA as a long-term investment in their communities' health for future generations.

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APPENDIX A

Sample Field Observation Protocol

Field Observation Goh, 2023	
DATE:	
SITE LOCATION:	
TIME:	
DURATION OF SITE VISIT:	
Neighborhood and Built Environment	Observations
<p>Type of land (e.g., public, private) and size:</p> <p>Amenities (e.g., raised beds, containers, in-ground plots, greenhouse, seating):</p> <p>Crops, plants, vegetation:</p> <p>Agricultural techniques:</p> <p>Animals/insects:</p> <p>Public transportation:</p> <p>Nearby housing, businesses:</p> <p>Security features:</p>	<p>First Impressions, reactions, notes on CCW (aspirational, linguistic, familial, social, navigational, and resistant capital):</p>
Social and Community Context	
<p>Number of people:</p> <p>Visible characteristics (e.g., age, gender, race/ethnicity):</p> <p>Social activities, programs, events:</p> <p>Rules and policies:</p> <p>Relationships:</p> <p>Partnerships:</p>	
Education Access & Quality	

<p>Educational workshops, lessons, activities, and programs:</p>	
<p>Economic Stability</p>	
<p>Employment/volunteer opportunities, job training, and internships:</p>	
<p>Health Care Access & Quality</p>	
<p>Health, fitness, nutrition, and cooking workshops, lessons, activities, and programs:</p>	

APPENDIX B

Interview Guide

Description of Urban Agriculture Site

- 1) Describe your role at [UA site/organization name].
- 2) How would you describe ____?
 - a) Is it part of a larger organization, such as a nonprofit?
 - i) If so, how many spaces are managed by the organization?
 - b) What type of space is it (e.g., community garden, urban farm, growing facility)?
 - c) How large is it (e.g., number of plots, acres)?
- 3) How was ____ created?
 - a) What year was it established?
 - b) Who was involved in its creation?
 - c) Why was this area chosen?
 - d) What types of materials and energy were needed to construct the garden?
- 4) Who is participating in ____?
 - a) How often do they participate?
 - b) How would you describe the people using the site?
 - c) How old are they?
 - d) Do they reflect the local community?
- 5) How many people participate in ____?
 - a) How many people are growing food?
 - b) How many people are managing the space?
 - c) How many staff?
 - d) How many volunteers?
- 6) What does your site grow?
 - a) Are there edible crops, fruit trees, flowers, herbs, and/or medicinal crops?
 - b) What is the yield (or estimated yield)?

7) If you grow your own food at this site, what do you grow for yourself?

- a) How much do you grow?
- b) Do you believe growing your own food reduces food waste?
- c) How did you learn to grow?

8) What types of gardening/agriculture techniques are used?

- a) Does your site use any equipment?
- b) Does your site compost?
- c) What types of energy are used (e.g., electric, solar, water, wind)?

Management

9) How is ____ managed?

- a) Who makes decisions for the UA site?
- b) Is there one leader, an elected group of leaders, or an informal group/committee?

10) How is ____ funded?

- a) Are there membership fees, sales of products, individual donations, fundraisers, grants, loans, or other sources of funding for your site?
- b) What is the annual budget?

Transportation

11) How far away do you live from the site? (optional)

- a) How many miles away?
- b) How long does it take to get to the site?

12) How do you get to your site (e.g., walking, biking, driving a car, taking the bus)?

- a) Is this mode of transportation typical for others who use the site?
- b) If you take a car, where do you park?

13) How far (in miles) is the closest grocery store from your site?

- a) For urban farms: Who are the purchasers and vendors?
- b) For urban farms: How far does food travel before consumption?

14) How many trips do you typically take to the grocery store per week?

- a) Are you replacing grocery store trips with trips to your site?
- b) Are you saving any money by growing your own food?
- c) How much of your meals come from what you grow?

Description of the Community

15) In your own words, how would you describe the community where your site is located?

16) How would you describe the overall health of your community?

- a) How would you describe people's physical health, mental health, financial health, and overall well-being?
- b) What are common health concerns in your community?

17) How would you describe your community's environment?

- a) How would you describe the air, water, access to green space, and access to healthy food?

Community Engagement

18) How do people find your site?

- a) Do they learn through word of mouth, flyers, social media, websites, or other sources?

19) If there are programs at your site, how would you describe them?

- a) Does your site have any programs related to gardening education, language-learning, literacy, youth, parents and families, the elderly, persons with disabilities, health education, fitness, cooking, job training, or mental health?
- b) What languages are programs offered in?
- c) Are there any services related to food access, such as food distributions and SNAP?

20) If there are events at your site, how would you describe them?

- a) Are there public events, gatherings for family/friends/community members, ceremonies (e.g., weddings, graduations, funerals), and/or meetings for organizations, club meetings, small businesses, corporations?
- b) Are there any food-related events such as a farmers market or crop swap?

21) How do community members contribute to the site?

- a) What do they provide in terms of resources?

- b) What do they provide in terms of skills?
- c) What do they provide in terms of knowledge?

22) How do community members benefit from your space?

- a) What skills, knowledge, and resources do they gain by participating at the site?

Relationships and Partnerships

23) Describe your relationship with neighbors and the local community.

- a) Do neighbors and local community members often use the site?
- b) Are they supportive of the site?

24) What are the relationships between volunteers, staff, and leadership at your site like?

25) If any, what partnerships do you have, and how have you partnered?

- a) How and when did those partnerships start?
- b) Are you partnered with the City of Long Beach, any government agencies, local organizations (such as schools, foodbanks, faith-based groups, and neighborhood associations), or specialists (such as agricultural specialists or master gardeners)?
 - i) If so, in what way?

Successes and Challenges

26) What are some of the biggest challenges in sustaining a space for urban agriculture?

- a) Have you experienced any challenges related to funding?
- b) Have you experienced any challenges related to the community itself?
- c) Have you needed to install security features such as fencing or a surveillance system?
- d) Have you experienced any challenges related to the city or state?

27) How have you overcome these challenges in the past?

- a) Did this involve navigating or resisting against another entity?

28) What major successes has your space experienced within the past few years?

- a) What is the one aspect of your space you are most proud of?
- b) How did those successes happen?

29) Have the overall goals of your site/organization changed over time to address issues facing your community? If so, please describe how and why they have changed.

a) Has your site addressed any issues related to health care, what's happening in society and the community, education, economic stability, and/or the physical environment?

b) How would you describe the level of success of your site in addressing these issues?

30) What are your site's/organization's future goals?

31) Is there anything else you would like to share?