MAPPING DISASTER: INDICATORS FOR A RESILIENT FOOD SYSTEM IN NORTH MINNEAPOLIS

by

JOANNA (JO) SCHLEGELMILCH

A THESIS

Presented to the Department of Global Studies
and the Division of Graduate Studies of the University of Oregon
in partial fulfillment of the requirements
for the degree of
Master of Arts

June 2023

THESIS APPROVAL PAGE

Student: Joanna (Jo) Schlegelmilch

Title: Mapping Disaster: Indicators for a Resilient Food System in North Minneapolis

This thesis has been accepted and approved in partial fulfillment of the requirements for the Master of Arts degree in the Department of Global Studies by:

Stephen Wooten	Chairperson
Jo Weaver	Member
David Meek	Member

and

Krista Chronister	Vice Provost for Graduate Studies

Original approval signatures are on file with the University of Oregon Division of Graduate Studies.

Degree awarded June 2023.

THESIS ABSTRACT

Joanna (Jo) Schlegelmilch

Master of Arts

Department of Global Studies

June 2023

Title: Mapping Disaster: Indicators for a Resilient Food System in North Minneapolis

This research examines the complexities within the interdependent global issues of racism and food insecurity and argues for the need to build empirical systems of analysis around the reliability of food systems to advance targeted efforts of disaster planning and response. To explore the barriers to food security that BIPOC communities face in North Minneapolis, Minnesota, I take a local case study approach and direct my focus to community-based organizations that are addressing issues around food security.

Through the exploration of structural barriers that exist within the food systems serving marginalized communities, this project will exemplify a localized case study of a global dynamic and determine the extent that community development approaches to food security are designed to respond effectively, efficiently, and sustainably to crises. Furthermore, this project will seek to understand the ways community-based organizations can provide enhanced community support around the reliability of food systems.

CURRICULUM VITAE

NAME OF AUTHOR: Joanna (Jo) Schlegelmilch

GRADUATE AND UNDERGRADUATE SCHOOLS ATTENDED:

University of Oregon, Eugene
University of Minnesota Duluth
University of Waikato, New Zealand

DEGREES AWARDED:

Master of Arts, Global Studies, 2023, University of Oregon
Graduate Certificate in Nonprofit Management, 2023, University of Oregon
Bachelor of Arts, Anthropology, 2012, University of Minnesota Duluth

AREAS OF SPECIAL INTEREST:

Food Studies Specialization, 2023, University of Oregon
Certification of Nonprofit Management, 2023, University of Oregon
Cultural Studies, 2012, University of Minnesota Duluth

PROFESSIONAL EXPERIENCE:

Graduate Teaching Fellow, University of Oregon, 2021-2023

Covid Community Program Manager for the Black and African American Community, Phyllis Wheatley Community Center, 2020-2022

Food Security Development Liaison, United States Peace Corps, 2019-2020

GRANTS, AWARDS, AND HONORS:

George and Connie Slape Award, University of Oregon, 2022 & 2023

Paul D. Coverdell Fellowship, University of Oregon, 2021-2023

Small Projects Grant, Community Fruit Orchard, USAID, 2020

Segal Education Award, AmeriCorps, 2015-2020

ACKNOWLEDGMENTS

I wish to express sincere appreciation to Professors Stephen Wooten, Jo Weaver, and David Meek for their assistance in the preparation of this thesis and their continued encouragement, support, and guidance in the development of this process. In addition, special thanks are due to Mr. Amondo Dickenson and the Phyllis Wheatley Community Center, whose familiarity with the needs and ideas of the community were immeasurably helpful throughout this undertaking. I also thank the members of the North Minneapolis community-based organizations interviewed for this project and the Homegrown Minneapolis community food policy council for their valuable input and their dedication to food justice for underserved communities. This investigation was supported in part by the Paul D. Coverdell Fellowship and by generous grants received from the George and Connie Slape Professional Development Foundation.

Dedicated to my personal heroes- my loving grandparents, Ralph and Janice Rumble, whose tenacious spirits have instilled me with an inexhaustible well of hope and perseverance.

TABLE OF CONTENTS

LIST OF FIGURES

Figure Page

LIST OF TABLES

Table Page

LIST OF ACRONYMS

ACT – American College Testing

BIPOC – Black Indigenous People of Color

CBOs- Community Based Organizations

CDC - Centers for Disease Control

CRDC - Civil Rights Civil Rights Data Collection

COVID-19 - Coronavirus Disease (SARS-CoV-2)

DHS – Department of Homeland Security

FAO - Food and Agriculture Organization

JHU – Johns Hopkins University

HOLC – Home Owner's Loan Corporation

IFPRI - International Food and Policy Research Institute

MFVP – Minneapolis Food Vision Plan

MUFPP – Milan Urban Food Policy Pact

NSF – National Science Foundation

REM – Ripple Effect Mapping

SNAP – Supplemental Nutrition Assistance Program

SVI – Social Vulnerability Index

UN- United Nations

UNCF – United Negro College Fund

U.S. – United States

WIC- Women, Infants, Children (Supplemental Nutrition Assistance Program)

CHAPTER 1: INTRODUCTION

Disasters occur as a result of natural events and deliberate human activities; however, the extent of disastrous impacts are significantly determined by human design and decision-making (National Research Council, 2006). While natural hazards, exacerbated by human induced climate change continue to intensify, willful events such as social upheaval, wars, and terrorism also pose significant threats. Disastrous events include acute shocks, such as earthquakes or violent storms, and chronic stressors, like droughts or diseases; meanwhile, the effects of either may become compounded by simultaneous events. Regardless of the initial level of impact, these events have primary and secondary effects that may lead to lasting adverse effects on human population, depending on the level of response to facilitate recovery. From a local to a global perspective, the COVID-19 pandemic has highlighted the enormous economic and social impacts of disasters at various systemic levels; however, the indirect ripple effects of disasters remain an understudied field, resulting in a trend that will continue until we broaden our perspective on disaster preparedness and response (National Research Council, 2006). The food system provides a relevant context to examine the impact of these effects on the issue of food security, which is a global problem intertwined with disaster and inequality at both local and global levels.

The field of research around hazards and disasters has become a specialized area of study for various scientific disciplines; however, social science researchers have largely been absent from the field, despite the vital role they offer in examining the complexities around human behavior and the societal responses to hazards and disastrous events (National Research Council, 2006). The integrative, transdisciplinary knowledge

utilized by social science researchers allows for advancements in the way we understand how disastrous events impact vulnerable communities and likewise, the social capital[1] and networks that exist within communities to create and develop resiliency. Furthermore, social science researchers possess specialized expertise in evaluation research that may enhance measures of engagement across stakeholders to improve associated response efforts around disaster recovery and sustainable development; however, due to the changing nature of natural, technological, and willful hazards, and the complexity of social and political dynamics, describing and explaining societal responses to hazards and disasters is both a continuing challenge and a major opportunity for the social sciences (National Research Council, 2006). According to the National Research Council Committee on Disaster Research in the Social Sciences (2006), social science researchers provide three main avenues of support to the fields of science and research around hazards and disasters, including: (i) an understanding of individual and collective action throughout disastrous events; (ii) the establishment of data to improve loss reduction and decision making; and (iii) social science researchers may provide assessments of hazards and disaster-related policies and programs in which researchers may apply innovative theories, methods, and supporting technologies to further science-based decision making by governing bodies. Social science researchers have a major opportunity to contribute to this effort to advance our understanding of the impacts of disastrous events and how to build resiliency in vulnerable communities.

[1] Social Capital: "a broad and emerging concept encompassing the norms and networks facilitating collective action for mutual benefit" (Woolcock 1998) and can be used to "link together civic engagement, interpersonal trust, and effective collective action" (National Research Council, 2006).

With a background in cultural anthropology, I became interested in the role that social scientists could perform in hazards and disasters research amidst the chaos of the COVID-19 pandemic and the simultaneous social justice movements taking place throughout the U.S. in 2020. Having been evacuated from a Peace Corps post in Nepal where I was working on the development of rural community food security initiatives, I returned to Minneapolis, Minnesota shortly before the murder of George Floyd in the spring of 2020 and the subsequent social unrest that gripped the city and the nation in response to systemic racism and police brutality. As public health officials developed a response to the pandemic, I accepted a position as the lead COVID-19 Community Coordination Manager for the Black and African American community in North Minneapolis, due in part on behalf of my background experience in addressing issues regarding food insecurity in underserved communities. My role as a community coordinator brought me to the front lines of the COVID-19 pandemic, where I served as a contracted liaison between public health organizations and a local nonprofit organization to respond to the needs of the Black and African American communities experiencing a compounded public health and public safety crisis. My team and I worked to organize, develop, and manage COVID-19 community testing events, vaccine clinics, and wraparound services to meet the complex needs of the community. Throughout our outreach efforts and while hosting events, I had the unique opportunity to share personal connections with a diverse range of community members throughout North Minneapolis, whose stories and lived experiences left an indelible impression on me.

As I endeavored to address the immediate public health crisis amidst the rapidly evolving conditions of the pandemic, I began to understand the complexity of the

historical and social factors that precluded our response efforts and how these patterns of social inequity translated into preexisting social vulnerabilities, including food insecurity. My understanding of these issues was further informed by the Centers for Disease Control (CDC) Social Vulnerability Index (SVI), which is a national database that was developed to support the work of emergency response planners and public health officials to identify and map social indicators that affect a community's ability to absorb the impacts of hazardous events (CDC, 2022).

Part of my role as a COVID-19 community coordinator included the oversight of a team of trained specialists who operated a local emergency resource hotline for North Minneapolis residents, where callers could receive information and emergency resource assistance tailored to their personal needs. Callers provided optional, depersonalized demographic information, and data was collected on the nature of each call such as the COVID-19-related emergency needs of the caller, as well as any additional challenges and barriers experienced by the caller. I compiled this data for analysis and dissemination via reports to a local research agency which then further processed the data to inform state and federal emergency response efforts. Through my analysis of these reports, I noticed an enduring pattern of food insecurity affecting the communities of North Minneapolis. Alongside an increasingly deteriorating housing crisis, an enduring pattern of food insecurity remained at the forefront of the compounded issues contributing to the exacerbation of the emergency needs in this community.

The following study adopts a social scientist's perspective to explore and analyze the theoretical and conceptual frameworks being formulated by cross-disciplinary scholars and practitioners to capture and comprehend the complex and dynamic features

of a food system. Using the North Minneapolis food system as a lens to understand how social vulnerabilities systematically develop in underserved communities, this research is intended to investigate the dimensional manner in which disasters have disparate impacts on minority communities at the local level, and the critical role that community stakeholders play in addressing these issues through the sustainable development of food systems. The adoption of the Milan Urban Food Policy Pact (MUFPP), a global agreement aimed at creating sustainable food systems within a human rights-based framework, exemplifies how community-based stakeholders can promote resiliency within local food systems. This study concludes with an analysis of the MUFPP's implementation in the Minneapolis food system, underscoring the connection between global policy and local action.

I would be remiss to not acknowledge the central role fulfilled by the nonprofit organization that I worked with, which maintains its distinction as a community center with a century-long tenure advocating for civil rights and serving the needs of the Black and African American communities of North Minneapolis. It was through this organization that I became connected to a wide network of community leaders and mentors who helped to further my connections with additional community groups and organizations where I developed a deeper understanding of the vulnerabilities that exist for the minority communities in North Minneapolis. Alongside the evident vulnerabilities that continued to persist and manifest in the community, I became motivated by the enduring and progressive resiliency evolving throughout the transpiring crises in North Minneapolis. I came to realize that in order to understand what causes a community to become vulnerable or resilient, it is paramount to analyze the historical and sociocultural

makeup of a community in order to address the differential impacts caused by disruptive events and disasters; however, it is of equal importance that I address my personal and professional identity and to consider its impact on this research process.

Positionality

While the interviews conducted for this research were carried out virtually, my previous experience serving as Covid-19 Community Coordinator allowed me to develop an understanding of the North Minneapolis food system as an integral part of my role. Throughout this experience, as well as my background education and professional experiences, I have received dedicated training in the areas of cultural competency and cultural sensitivity. My familiarity with the community, my willingness to learn, and my eagerness to understand the lived experiences of others have led to sustained connections with community members and ultimately facilitated meaningful conversations that have fostered my awareness of how to minimize the effect my biases have upon my interactions and interpretations. Nonetheless, my personal identity and the values attached to it have influenced this research and have shaped my interactions within this community.

I wish to acknowledge how my privilege and identity create a bias in my perceptions of working with minority racial and ethnic populations and how this influences the way I may interpret events or interactions. There are obvious facets to my external identity alongside less salient versions of my identity that have affected my capacity to relate to others and which have compelled me to consciously recognize my positionality throughout this research process. While I have taken careful measures to minimize the conceivable risks to the participants involved in this research, as a white

woman attempting to access the lived realities of others who belong to dissimilar racial and ethnic groups, I must recognize the intrinsic difficulties, ethical dilemmas and practical challenges involved in my work. Furthermore, as a researcher operating in a community that has faced egregious institutional harm, I must also acknowledge the inherent power imbalance and privilege in my position of social identity with the intent to avoid contributing to the dominant narrative.

The purpose of this research is by no means intended to serve as a voice for dis-empowered and disenfranchised groups; rather, it is my hope that this research will serve as an aid for me to utilize my privilege to educate others who occupy similar spaces through the amplification of the work being done in these communities to contribute to the formation of a truly just and equitable society.

Research Questions

In order to develop a nuanced and instructive case study of a vexing global problem, this study will address the following research questions:

1. To what extent are community development approaches to food security designed to respond effectively, efficiently, and sustainably to crises?
2. How are BIPOC-led community-based organizations creating and building networks of resiliency in the local food system of North Minneapolis?
3. What factors are associated with food system organizations' abilities to prepare for, respond to, and recover from disruption and ultimately contribute to resilience and food security?
4. What are the assets and strengths of the North Minneapolis food system?
5. How does food security look for the diverse individuals of this community?
6. Where are there systemic vulnerabilities in the north Minneapolis food system?

7. What policy-level changes must be made to ensure resiliency in local food systems serving diverse racial and ethnic communities?

8. What lessons can be drawn from this case study for global food resilience?

This research aims to examine the systemic vulnerabilities and indicators of systemic resilience in the North Minneapolis food system serving marginalized communities, and to explore how stakeholders can better facilitate sustainable development interventions to meet the needs of these communities. It will offer insights that are relevant for the local setting as well as for understanding the contours of the global challenge of food security.

Thesis Outline

Throughout the progression of this thesis, the themes that have emerged from this research have augmented my understanding of the dimensional complexity of the developmental capacity of the North Minneapolis food system. With this introduction, I have outlined the importance of the broader nature of this research and how this has motivated this research project, as well as the manner in which my positionality has influenced my data collection and analysis. Throughout Chapter 2 I will employ critical race theory to provide historical background on North Minneapolis and outline the current social vulnerabilities that exist within this community as a consequence of systemic/structural racism. These vulnerabilities are a direct result of systemic or structural racism and are central to the perpetuation of persistent food insecurity issues in this locality. Chapter 3 will include excerpts of the research data along with an explanation of the methods used for the research, a description of the research site and its demographics, and an overview of the limitations and ethical considerations associated with the study. A review of the current literature and the contextual definitions of key terms will be provided throughout Chapter 4, followed by an exploration of the

conceptual models being developed to communicate and understand the complex and dynamic qualities of a food system. In Chapter 5 I will employ a food justice lens to analyze and investigate a selection of policies that demonstrate a shift in the priorities and values on behalf of this work before I draw conclusions around indicators of resiliency in the North Minneapolis food system in Chapter 6, including an overview of the current state of affairs and key recommendations for policymakers.

CHAPTER 2: BACKGROUND

> Food security issues are not an isolated problem. It stems from a lot of other social justice issues and there are a lot of different variables when it comes to the prevalence of food insecurity. Everything comes back to economics, so look at the unemployment rate and whether jobs are paying a livable wage; look at the conditions of the homes and how dilapidated they are; look at the community from a mental wellness standpoint. People are in desperate situations having to choose between food resources and things like medications or childcare. Where's the balance? All these resources contribute to the food security of the community (Amondo Dickerson, Phyllis Wheatley Community Center, Interview on 08 July 2022).

Food security is a critical global challenge that persists in many countries and communities around the world. According to estimates reported by the United Nations Food and Agriculture Organization (FAO) in 2021, food insecurity currently affects 690 million people across the globe and an estimated 2 billion people suffer from malnutrition. This dynamic is not limited to the Global South. It is found worldwide. There are differences in all the various settings, but there are patterns as well. My goal is to engage both in this research. To see variation and similarity, as observed.

In this chapter, the concept of food security is defined and outlined, followed by an exploration of contemporary racial disparities in Minneapolis that reveal the deep-seated establishment of structural racism. Subsequently, a detailed history of North Minneapolis is presented, with a focus on the role of structural racism in shaping the local food system. This will highlight the specific barriers that exist for racially and ethnically marginalized communities in achieving food security and contextualize the presence of social vulnerabilities that threaten the resiliency of these communities to absorb shocks. Furthermore, these social factors play a critical role in the complex dynamics that must

be considered in the development of food system maps for emergency planning operations, which will be discussed in Chapter 5.

In light of the content of this chapter, is important to note that the historical experiences and the contemporary impacts caused by the legacy of slavery, colonialism, and discrimination in the U.S. differs across the lines of diverse racial and ethnic groups, who do not all face equal levels of injustice. The use of the term 'BIPOC' in this study stands for Black, Indigenous, and People of Color, and is not intended to diminish the unique individual histories of these groups, but to highlight their unique relationships to whiteness. However, the distinct history of North Minneapolis requires the centering of racial oppression against Black and African American communities. Furthermore, while this study focuses on the manifestation of structural racism on a local level, these injustices may be reproduced and similarly observed across racial and ethnic populations throughout the globe, especially in regions with a history of European colonization.

Pillars of Food Security

In a 2013 report on "*The State of Food Insecurity in the World*," the United Nations Food and Agriculture Organization (FAO) stated, "Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life." This definition of food security is contingent upon the availability and access to enough food to meet the dietary needs of individuals and households, as well as their ability to acquire it in a culturally acceptable and sustainable manner. The concept of food security is composed around the critical pillars of availability, accessibility, and acceptability, and

the implied level of stability to these components serves to establish a foundation for the burgeoning fourth pillar of resiliency (Chodur et al., 2018). This conventional definition of food security also suggests the need for a multidimensional framework to assess and implement policies in variable contexts and as such, the concept of food security and correlated policies must continually develop and be redefined to meet the demands of our shifting and evolving food systems. Each of these pillars serves an important role in how food systems are mapped, how their functionalities are measured, and how these concepts are implemented in the governing policies around food systems.

Availability

Food system availability refers to the number locations providing food in an area (Chodur et al., 2018). Food provisioning points may include grocery stores, restaurants, markets, convenience stores, schools, religious institutions, community centers, food shelves, and pantries. These food provisioning locations must provide food in a sufficient and consistent manner to meet the needs of the consumer population. Food that is available includes food that is produced locally, food that is imported, and food that is provided through aid; however, "while some people get food from gardens, these are rarely primary, consistent food sources for urban residents, and so are not included as key provisioning points" in the food system framework explored in this study (Chodur et al., 2018).

The availability of food within a food system is shaped by both the natural environment and the cultural environment of a region. The extent to which regional climate conditions support agricultural practices, as well as the historical and cultural

makeup of a region, each influence the measure of foods available in a local food system (Chodur et al., 2018). This is evident throughout the U.S. in rural regions that produce commodity crops such as corn, wheat, soy, and potatoes, and typically reflect the cultural background of that area. Similarly, urban areas often contain food districts and specialized markets that reflect the distinct cultural background of diverse communities.

Local production of food goods can help decrease dependencies within a food system and can involve a range of strategies that may include developing infrastructure to support local food production, establishing community gardens and farmers markets, and encouraging local restaurants and institutions to source their food locally. It can also involve educating consumers about the benefits of eating locally and supporting local food systems. In addition, facilitating trade and market access can bolster food availability by creating new markets for food producers and expanding the range of food products available to consumers.

Accessibility

Accessibility within a food system is a key component of food security that includes the physical and economic ability of individuals and communities to obtain sufficient, safe, and nutritious food (Chodur et al., 2018). Food provisioning points must be accessible for individuals to acquire by way of transportation or other means, and individuals must be able to purchase food goods at an affordable cost. In other words, it is the ability of individuals to access food in terms of availability, affordability, and proximity.

Ensuring that food is accessible is an important factor of food security because even if food is available, it may not be accessible for some individuals due to various reasons including financial constraints, physical barriers, or lack of information (Chodur et al., 2018). For example, individuals living in poverty or low-income communities may struggle to obtain the financial resources necessary to purchase adequate amounts of food. In addition, if these individuals lack access to transportation or rely on public transportation, they may be limited in their ability to secure an adequate amount of food in a consistent and reliable manner. Likewise, those living in rural areas may also face physical barriers to accessing food markets due to transportation issues.

Improving accessibility involves addressing these barriers and ensuring that everyone has access to sufficient, safe, and nutritious food. This can be achieved through a range of measures such as providing subsidies or financial assistance to low-income individuals, developing transportation infrastructure to connect remote areas to food markets, promoting local food production, and educating people about healthy eating habits and food choices.

Acceptability

The pillar of acceptability within a food system is contingent upon the extent to which food meets the cultural standards and the dietary needs of individuals (Chodur et al., 2018). Acceptability is an important factor in food security as it influences food consumption patterns. Even if food is available and accessible, if it is not culturally appropriate or does not meet the dietary needs of individuals, it may not be consumed, leading to inadequate diets and malnutrition. To be considered acceptable, food must be

of adequate quality and provide sufficient nutrients to support the health and well-being of individuals. In addition, the cultural diversity within a community must be considered in the efforts to promote food security in the local food system. Achieving acceptability within a food system may involve promoting traditional foods in markets, providing culturally relevant nutrition education, and supporting a diverse range of local food production activities that reflect the cultural standards and the dietary needs of the resident community.

Stability

There is growing recognition that stability is becoming an increasingly important pillar of food security, particularly in light of the increasing frequency and intensity of climate-related disasters and other shocks that can disrupt food production and distribution systems (Chodur et al., 2018). This has led to increased efforts to build more resilient food systems that can withstand and recover from shocks, and to reduce the risk of food insecurity in vulnerable communities.

Stability refers to the ability of a food system to maintain production, distribution, and access to food over time, even in the face of shocks or disruptions such as natural disasters, economic downturns, or conflicts (Chodur et al., 2018). A stable food system can help ensure that food is available and accessible to people and can contribute to reducing hunger and malnutrition; therefore, food security requires stable access to food over time at a predictable level in terms of food availability, access, and utilization. This includes protection against shocks and stressors, such as droughts, floods, conflict, or economic instability that can disrupt the food system and affect food security. Stability

has become an increasingly important aspect of food security, alongside the other pillars of availability, access, and utilization, and efforts are underway to strengthen this aspect of food systems in order to ensure that everyone has access to adequate and nutritious food, even in challenging circumstances.

Individual and community food security is destabilized when disruptions to food systems occur. Disruptions can occur as a direct or indirect result of conflict, natural disasters, disturbances to the labor force, and climate change, and are especially harmful in developing countries and among socially marginalized communities such as North Minneapolis, where the COVID-19 pandemic represents a disruptive event that has exacerbated rates of food insecurity for BIPOC communities. The pandemic is a leading example of how disasters result in differential impacts for specific social groups and elucidates the complex consequences of structural racism on various social systems for BIPOC communities. In 2020, Black and African American residents in North Minneapolis experienced disproportionately higher rates of COVID-19 infections and hospitalizations than white populations, which contributed to a nationwide average that revealed the hospitalization and mortality rates in Black Americans were 9 times greater than those of White Americans- a disparate outcome that is heavily attributed to the inter-relationship between structural racism and the social determinants of health inequities (Abdul-Mutakabbir et al., 2021; Quinn and Andrasik, 2021).

Beyond exceeding the limits of national and international healthcare systems, the myriad of disruptions caused by the pandemic also demonstrated the fragility of local and global food systems (Bene, 2020). Throughout the first wave of the COVID-19 pandemic in 2020, BIPOC Minnesotans reported food insecurity at more than double the rate of

White residents, as illustrated in Figure 2.2 (Hane, 2020). Disruptions to food supply chains restricted transportation and the supply of goods which resulted in shortages and volatile prices for certain food products. Economic disruptions as a result of government-imposed safety restrictions led to the closure of many food industry establishments and subsequent labor shortages. Rapid inflation caused major increases in food, housing, and energy prices, generating real challenges for people in meeting their basic food (City of Minneapolis, 2023). The extended closures of schools, learning institutions, and childcare centers made it difficult for many low-income families to access nutritious meals that school lunch programs provide as an important safety net, offering free or reduced-price meals to students who might not otherwise have access to healthy food. In North Minneapolis, these impacts were exacerbated due to pre-existing social vulnerabilities and compounded by the events around the murder of George Floyd. These compounded adverse impacts have affected the overall health and well-being of these communities and the broader social stability and economic development of that locality.

The Case Study Setting: Minneapolis

> Minneapolis in particular can really be the epicenter to see the change we're trying to experience throughout this country. We have the worst disparities, yes, but we have really wealthy, well-intentioned, fairly liberal people that want to see a better community, and in that same breath, we also have all these companies that made their billions in the food space here (Ethan Neal, Pillsbury United, Interview on 20 July 2022).

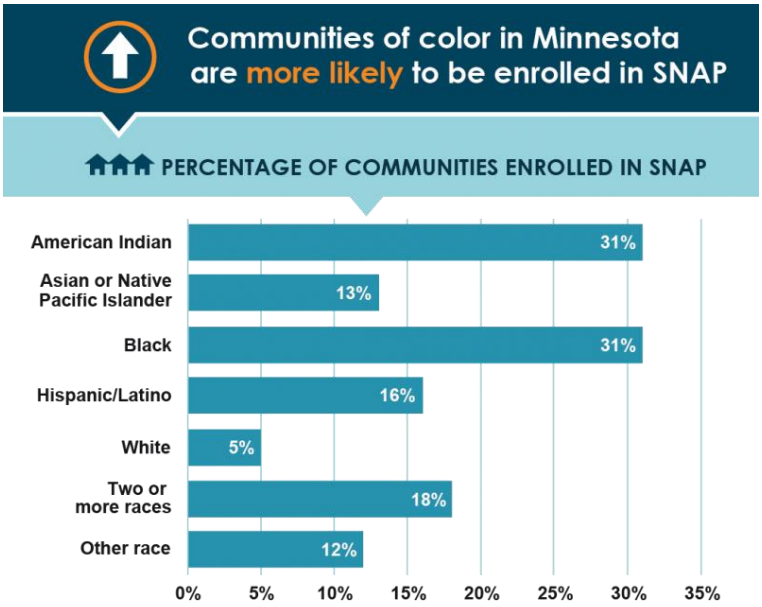
With a population of approximately 430,000 people, Minneapolis is the most populated city in the midwestern state of Minnesota (US Census, 2021). It sits as a sprawling, bustling metropolis amidst the rolling hills of farmland that surround it. Demographically, in 2020 the majority of Minneapolis residents identified solely as

Caucasian or White (63.1%), followed by a growing minority of BIPOC populations (36.9%) (US Census, 2020). The city of Minneapolis ranks among the highest in the nation for its natural landscapes, parks, bike paths, arts and culture, economic opportunities, and overall quality of life; however, inequality remains a rampant and subversive issue affecting a disparate number of underserved, BIPOC communities throughout the city. An exemplar of this is Minnesota's overall educational achievement gap, which ranks as the worst in the nation, alongside one of the largest racial wealth gaps in the country (Shockman, 2019; US Census, 2021). These inequalities are racially stratified and reproduced throughout additional social systems (Ainsworth, 2015) beyond the local, state, and national education and economic systems.

Structural racism refers to the systemic and institutional barriers that prevent certain racial and ethnic groups from equal access to opportunities, resources, and power in society (Gosset, 2014). Beyond the U.S. economic and education systems, the existence of structural racism is demonstrated across the justice system, medical system, and the food system (See Figure 2.1).

Figure 2.1

Percentage of Communities Enrolled in SNAP



Adapted from: "New Food Insecurity Data Highlight Minnesota's Continuing Disparities and the Need for Multi-Sector Solutions" by A. Hane, 2020, Amherst H. Wilder Foundation (Wilder Research Foundation). Data comes from the U.S. Census Bureau Food Stamps/Supplemental Assistance.

Critical Race Theory posits that these disparities and their consequential social vulnerabilities are preserved by design in institutional legal, cultural, and political processes (Britannica, 2022; Delgado et al., 2017), and that the inherent conditions of structural racism have resulted in the significant marginalization of BIPOC communities throughout the United States. Consciously and unconsciously, these discriminatory practices pervade governmental and institutional policies and conserve social and political structures that are disadvantageous to BIPOC communities. These practices result in a cumulative and long-standing impact on the well-being of BIPOC communities and the perpetuation of racial inequities (Alkon, 2011). The North Minneapolis food system is a reflection of this issue.

North Minneapolis

Woven into the multicultural fabric of Minneapolis lies the area that is geographically and colloquially referred to as ‘North Minneapolis,’ or ‘Northside;’ a historically significant Black and African American community with a diverse arts scene and various local events and attractions. This section of the broader Minneapolis metropolis is comprised of 14 residential neighborhoods, including schools, small businesses, parks, gardens, and community organizations. According to the 2021 United States census report, 60% of residents in North Minneapolis identified as Black or African American, followed by a 25% Hispanic population, and an 8% Hmong population. The remaining population identified among a diverse list of other racial and ethnic groups, including White, Native American, and Asian American communities (US Census, 2021). While North Minneapolis is known locally as a vibrant cultural district for its distinct history and identity, it is also known for its challenging socio-economic conditions around poverty and crime.

George Floyd

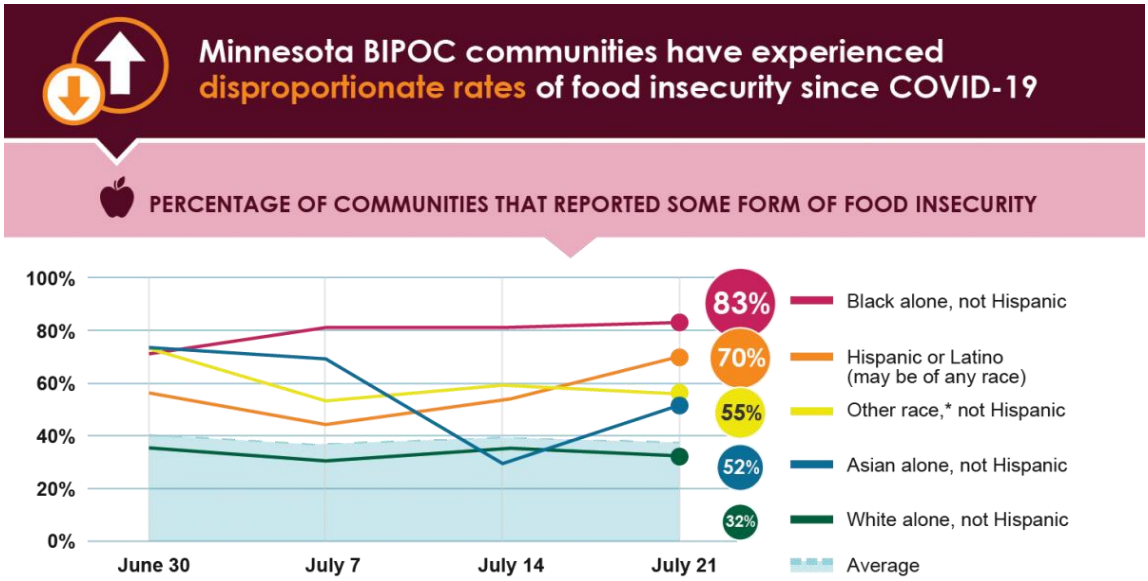
In late May of 2020, amidst statewide government restrictions imposed to mitigate the spread of the COVID-19 virus, George Floyd, a 46-year-old Black resident of Minneapolis died beneath the knee of a Minneapolis police officer. The public footage of the murder gave way to an upheaval of nationwide outrage against systemic racism and police brutality and led to an immediate call for police reform in Minneapolis. The civil unrest throughout Minneapolis included peaceful protests and demonstrations, as well as violent and destructive riots which resulted in additional deaths, extensive arson, looting, and damage to local homes and businesses, immediately prompting city-wide curfews and even stricter lockdowns. While much of the damage occurred along the

streets near the epicenter of George Floyd's murder in south Minneapolis, around 1,500 properties throughout the city were damaged or lost in the chaos, including a local police precinct and one of the main grocery stores in North Minneapolis. As a historical hub for the Black and African American community, North Minneapolis quickly became a community at the center of the Black Lives Matter movement in the U.S. while these events served to galvanize residents to push towards a more equitable future by targeting systems of racial oppression.

However, in wake of these events, the struggle continues for the North Minneapolis community after it was left with the burden to rebuild amidst a worsening pandemic and tenuous relations between the community and local police institutions. These events led to increased health disparities and heightened rates of food insecurity among BIPOC communities in North Minneapolis, where they continue to reveal the deeply structured systemic barriers that persist as a result of racial inequalities. The disproportionate social vulnerabilities that exist by proxy on account of race for BIPOC communities can be seen as a factor that increases the risks of the threats of hazards and disasters. Despite these challenges, the North Minneapolis community has continued to mobilize to support one another and to advocate for change in the governing social and political systems.

Figure 2.2

MN Community Food Insecurity in 2020



Adapted from: "New Food Insecurity Data Highlight Minnesota's Continuing Disparities and the Need for Multi-Sector Solutions" by A. Hane, 2020, Amherst H. Wilder Foundation. Wilder Foundation

Note: Data comes from the 2021 U.S. Census Survey. 'Other race' included people who are American Indian, Native Hawaiian, or Pacific Islander, people of two or more races, and people who identify as a race other than the six that the U.S. Census Bureau uses. The Census paused data collection after July 21 to refine the questions being asked. A second phase of data began at the end of August.

Systemic Barriers to Food Security in North Minneapolis

> The US food system issue is not a production issue. It's not that we're not creating enough, it's that we're not distributing it to the people in need, right? (Ethan Neal, Pillsbury United, Interview on 20 July 2022).

Efforts to address food insecurity and improve food systems are a priority for many governments, international organizations, and non-governmental organizations; however, these organizations lack the availability of the resources necessary to ensure that food systems are considered a critical component of disaster preparedness and resilience planning (Chodur et al., 2018; Tendall et al., 2015). Alongside unaddressed historical and contemporary traumas, disruptions to the North Minneapolis food system

have produced additional strain on these communities, further perpetuating social vulnerabilities and destabilizing the community resiliency necessary to absorb shocks.

The inherited disparities imparted by racial oppression in North Minneapolis have led to the consequential degradation in food security among its BIPOC communities and have manifested in the local food system in a multitude of complex ways. The following sections will serve to elucidate the role that these historical injustices have had in the establishment of the contemporary systemic barriers that exist for BIPOC communities to achieve food security in North Minneapolis. As noted previously, North Minneapolis is currently home to a range of diverse communities; however, the major historical underpinnings outlined will focus on the oppression of Black and African American communities. The examples of the foundational systemic barriers to be examined in North Minneapolis include discriminatory housing practices, disparities in the education system, and economic oppression.

Discriminatory Housing Practices

> Historically speaking, food insecurity exists pretty prominently in North Minneapolis, considering how North Minneapolis came to be the community that it is today. You look at the map and I think a big indicator of that is the levels of homeownership, and you know, the ability to get loans and being able to afford a home. Prior to the 2008 collapse, you know, with predatory lending, there were a lot of people that got caught up in there and there were more people foreclosing on homes per capita in North Minneapolis than anywhere else in the state (Amondo Dickerson, Phyllis Wheatley Community Center, Interview on 08 July 2022).

The settlement patterns of a demographic population provide historical insights into how land use patterns reflect societal changes. The geographic location of the BIPOC population in North Minneapolis exists by design in which the differential vulnerabilities present in this community have been shaped by a long history of systemic

racism, which continues to play a role in housing segregation and inequality in Minneapolis, as well as many diverse cities across the country.

In 2016, the Mapping Prejudice Project[2] at the University of Minnesota launched to expose the deep history of discriminatory racial housing covenants in Minneapolis and explicate the downstream effects these prejudicial practices have had on current housing patterns and segregation throughout the city. These racial housing covenants served as legal agreements that restricted the sale, rent, or occupation of real estate property to people based on their race or ethnicity and were exploited to specifically prevent Black and African American people from owning or occupying homes in White neighborhoods throughout Minneapolis during the early-mid 20th century (Delegard et al., 2017; Sood et. al, 2019). Typically contained within real estate deeds, these racial housing covenants were enforced by local governments and upheld by the U.S. Supreme Court's decision in the 1917 case of Buchanan v. Warley[3], which held that such restrictions did not violate the Equal Protection Clause of the Fourteenth Amendment (Delegard et al., 2017; James, 2018; Sood et. al, 2019). As a result, Black and African American populations were segregated into the industrial zones of the city, where they were often forced to live in overcrowded, substandard housing that lacked many of the basic amenities and was subject to environmental hazards (Mapping Prejudice Project). This led to the concentration of poverty and systemic inequality in Black and African American

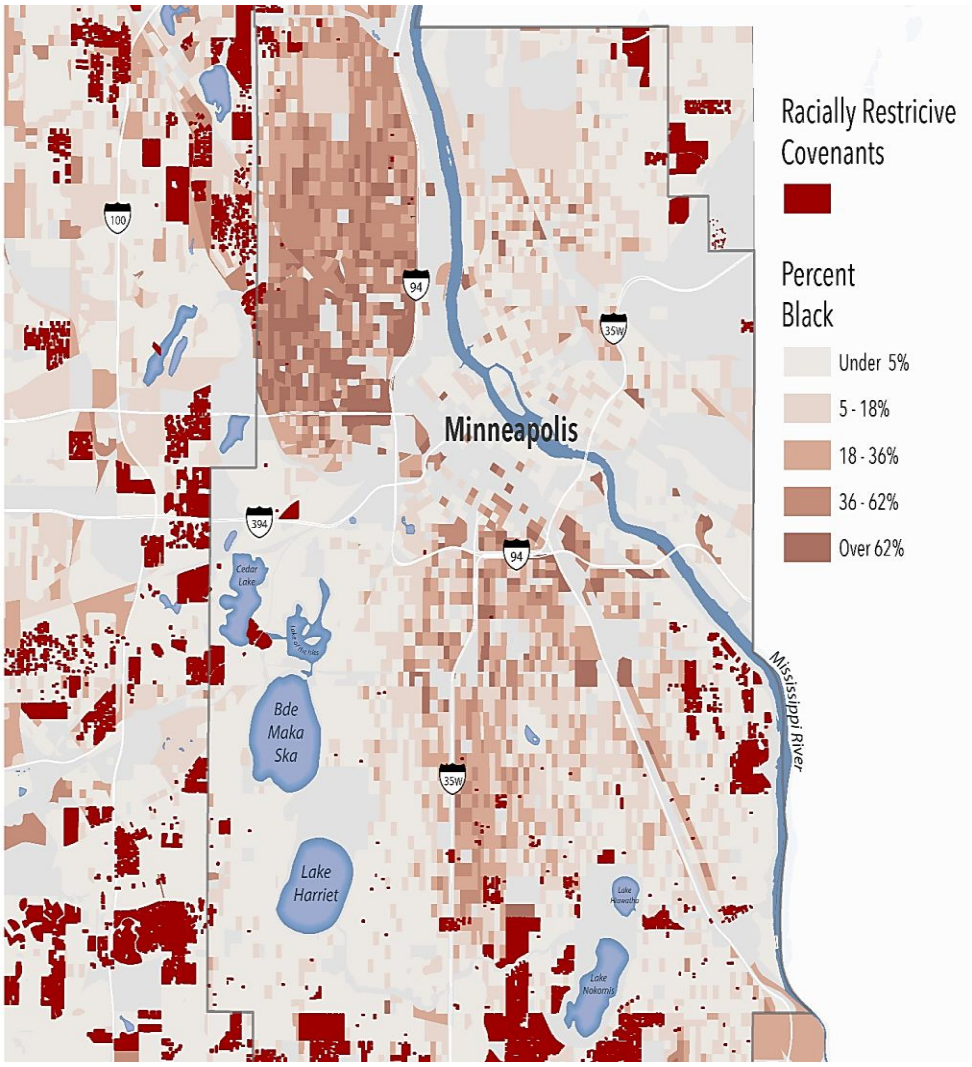
[2] The Mapping Prejudice Project is a newly constructed data set using the original sale of deeds of all property sales that occurred between 1910 and 1955. Approximately 14,634 present-day houses out of 30,000 property deeds contained racial covenants in Hennepin County. See their website for more details: https://www.mappingprejudice.org

[3] Buchanan v. Warley was a 1917 U.S. Supreme Court case that challenged the constitutionality of racial zoning laws in Louisville, Kentucky. The case was brought to the court by a Black homeowner, Robert Buchanan, who challenged the city's ordinance that required homes to be sold to people of the same race as the majority of residents in the block (James, 2018).

neighborhoods in Minneapolis, as well as other cities across the United States (See Fig. 2.3).

Figure 2.3

2010 Minneapolis Area Black Population and Racial Covenants



Source: The Mapping Prejudice Project: [2010 Minneapolis Area Black Population & Racial Covenants (umn.edu)]

Note: This map shows concentrations of Black populations in the Minneapolis area as of the 2010 Census alongside historically racially restricted properties. The African American population data is displayed at the block level. North Minneapolis lies in the shaded area to the left of the I-94 interstate marker.

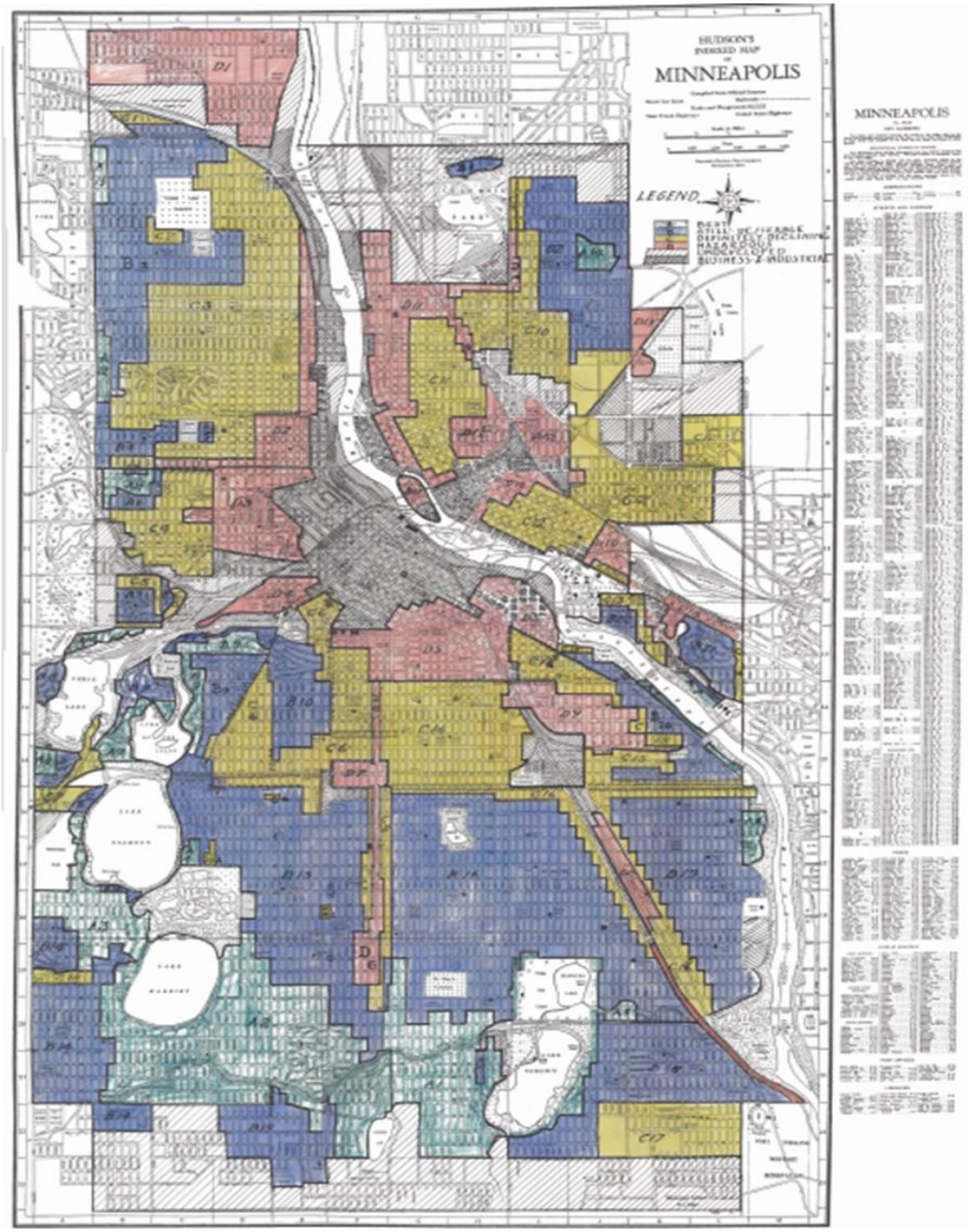
In the 1948 case of Shelley v. Kraemer[4], the U.S. Supreme Court ruled that the enforcement of racial covenants through the state court system was a violation of the Equal Protection Clause of the Fourteenth Amendment, making such covenants unenforceable case (Mapping Prejudice). This landmark decision became a significant step towards ending the use of racial covenants in the United States; however, it did not outlaw the racially discriminatory practices used in the housing markets, which continued to operate via the avenues of racial steering and redlining.

As Minneapolis communities developed, real estate agents practiced an act known as racial steering to direct Black families toward certain neighborhoods and away from others. The discriminatory practice of redlining contributed to this, with the U.S. Government sponsoring the Home Owners' Loan Corporation (HOLC) to categorize major American cities into four color-coded categories based on their mortgage security risk, with the majority of Black and African American neighborhoods coded in red. The red category signified hazardous areas that were the worst areas to live in, yellow indicated areas in decline, blue was reserved for still-desirable areas, and green represented the city's best areas to live in (Mapping Prejudice). Located in close proximity to the city's industrial zones, North Minneapolis was shaded in areas coded red and yellow (See Fig. 2.4).

[4] The case of Shelley v. Kraemer was brought to the United States Supreme Court by an African American family in St. Louis who had purchased a home in a neighborhood with a covenant that restricted the sale of the property to people of the "Caucasian race."

Figure 2.4

1930s Minneapolis redlining map developed by HOLC.

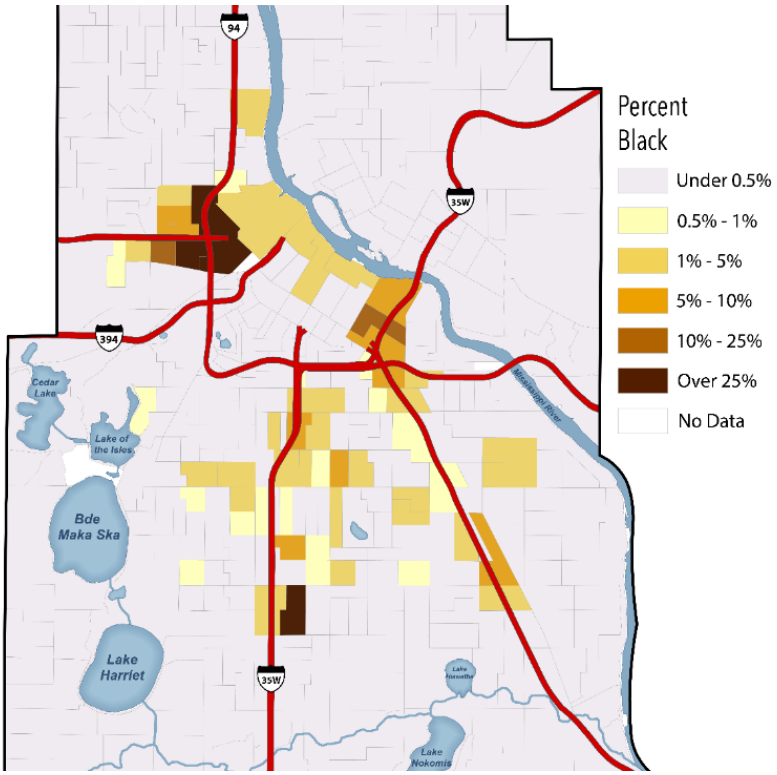


Adapted from an article featured on the website, Streets.mn. [The Lee House: Preserving a Relic of Racism]

The 55411 zip-code area of North Minneapolis is situated in the corner of the I-394 and the I-94 Interstate highway and is still mostly surrounded on three sides by industrial zones today (See Figure 2.5, below). Exposure to toxins and environmental pollution in this area poses the threat of increased risks to adverse health effects on the North Minneapolis community. In addition, these hazardous areas contribute to food insecurity by making it more difficult to grow fresh, healthy produce as access to available land that is suitable for growing produce is restricted.

Figure 2.5

African American Population 1940 and Contemporary Highway Location



Source: The Mapping Prejudice Project Freeways Minneapolis Black Population

Note: This map shows the location of historic Black and African American communities in Minneapolis based on the enumeration districts used in the 1940 federal census. Contemporary freeways and interstates are shown in red. North Minneapolis is the large maroon area in the upper left portion of the map.

The result of racial housing covenants intentionally segregating Black and African American populations into the city's hazardous zones led to these communities being disproportionately outlined in red on the maps. This indicated to banks, insurance companies, and lending institutions that these areas were considered "risky" for investment and became the basis upon which to deny services. The practice of redlining was widespread in the United States from the 1930s to the 1960s, and it had a profound impact on the ability of people of color and low-income families to access credit and acquire wealth (Mapping Prejudice). This reality is reflected today in the disparate rates of homeownership in Minneapolis, where 75% of the White population own their homes in comparison to 25% of the Black population, making it the largest percentage gap in the country (Mapping Prejudice).

After decades of ongoing activism, in 1968 the Fair Housing Act was codified into federal law and made it illegal for housing providers to discriminate in the sale, rental, or financing of housing based on a person's physical characteristics, religion, sex, family status, and national origin (Britannica, 2022). Despite this, the historical damage caused by discriminatory housing practices has established the foundation for the current demographic makeup of North Minneapolis today. Institutional disinvestment in these neighborhoods continues to have an adverse impact on the socioeconomic conditions of the BIPOC communities, perpetuating the cycles of poverty, unemployment, and reduced opportunities.

Disparities in the Education System

Structural racism operates within local food systems by perpetuating disparities and injustices for communities of color. In conjunction with the impacts that

discriminatory housing practices have had upon acquiring property and building wealth, structural racism has contributed to wealth and income disparities in Minneapolis by way of factors that create barriers to quality education and limit access to economic opportunities. Structural racism contributes to systemic disadvantages in obtaining access to quality education through disparities in funding for school programs and educators, discriminatory disciplinary policies, and bias in standardized testing.

Schools in BIPOC communities are often underfunded and lack the financial resources necessary to sustain experienced teachers and programs, leading to fewer opportunities and a lower quality of education for students of color. On average, U.S. schools with 90% or more enrollment with students of color spend $733 less per student annually than schools with the same enrollment percentage of white students (Spatig-Amerikaner, 2012). In addition, zero-tolerance disciplinary policies that exist in predominantly non-white schools have led to high rates of suspension and expulsion for students of color, creating additional barriers to accessing a quality education. A 2015 collaborative report by the American College Testing (ACT) organization and the United Negro College Fund (UNCF) found that Black students were 3.8 times as likely to receive one or more out-of-school suspensions and were 2.3 times as likely to receive a referral to law enforcement or be subject to a school-related arrest in comparison to White students.

Disparate outcomes in standardized tests align with racial and socioeconomic patterns in the U.S. academic achievement gap. These tests are designed to serve as predictors for a student's intellectual success; however, they have been found to be biased against students of color, thereby limiting their chances for placement in higher-level

courses and opportunities for academic and career advancement. According to the U.S. Department of Education Office for Civil Rights Civil Rights Data Collection (CRDC), a quarter of high schools in the country with the highest percentage of BIPOC students do not provide the critical core courses offered in the typical U.S. high school math and science education curricula that is necessary for these students to graduate and prepare for college and careers (2014). These opportunity gaps are amplified for students with disabilities and English learners (CRDC, 2014). These factors contribute to the range of systemic disadvantages for BIPOC students that create institutional barriers of access to a quality education that could afford them the opportunity for achieving upward socioeconomic mobility.

Economic Oppression

> The latest statistics by Second Harvest showed that 65% of food shelf users work full time. We want to dispel the myth that the only people using food shelves are folks who are unhoused or don't have a job or anything. There are a lot of people working really hard that are still food insecure (Ethan Neal, Pillsbury United, Interview on 20 July 2022).

While the U.S. Equal Employment Opportunity Commission has established laws against employment bias and discrimination based on a person's protected identities, these laws have not eradicated discriminatory behavior and practices that pervade individual and organizational hiring processes. These practices limit economic opportunities and lead to wage disparities among BIPOC individuals (Quillian et al., 2017), as evidenced by Minneapolis's rank exhibiting one of the most disparate racial wealth gaps in the United States (Shockman, 2019; US Census, 2021). In addition to pay gaps, racial prejudices manifest throughout institutional workspace systems in various ways including employment gaps, racial profiling, and microaggressions; however, the

often subtle and covert nature of implicit racial biases that exist consciously and unconsciously on the individual level means that revealing direct measures of hiring discrimination can be challenging for researchers (Pager and Western, 2012).

Stereotypes and racial prejudices around diverse sociocultural customs, beliefs, values, behaviors, and traditions may cause BIPOC individuals to be perceived as less qualified or competent based on their racial or ethnic identity. To demonstrate this, a study by Marian Betrand and Sendhill Mullainathan (2004) measured hiring discrimination across various industries using fabricated resumes to yield results that indicated that the perception of names believed to belong to a White person were 50% more likely to receive preferential correspondence from employers, in comparison to the equally qualified applicants with names perceived to belong to a Black person (Pager and Western, 2012). A similar study utilizing physical applicants in various cities revealed a significant consistency in racial hiring discrimination and led researchers to conclude that despite the different dynamics among the study sites and labor markets, the practice of racial hiring discrimination existed as a "generalized phenomenon" (Pager and Western, 2012).

Furthermore, structural racism in the criminal justice system can lead to increased rates of incarceration, adding to the difficulties to find stable employment and build economic security for individuals who belong to minority racial and ethnic communities. These factors contribute to a disproportionate number of people of color working in low-wage jobs with few benefits, such as in fast food restaurants or supermarkets, where workers often do not earn a living wage and have limited access to health insurance and

other benefits, thereby making it difficult for them to secure adequate and nutritious food for themselves and their families (Bene, 2020; National Research Council, 2006).

Addressing the complex web of challenges imparted by structural racism requires a multi-faceted approach that includes investment in the community, advocacy for policy changes, and the creation of new models for food access and distribution. These examples demonstrate how structural racism limits academic and economic opportunities that thereby limit access to healthy and affordable food options in low-income[5] communities like North Minneapolis.

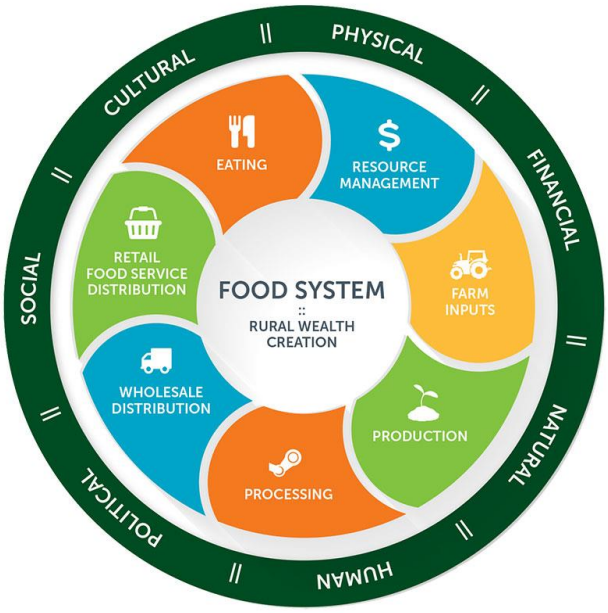
The North Minneapolis Food System

The status of food security is inherently linked to the food system, which "encompass all the elements (environment, people, inputs, processes, infrastructures, institutions, etc.) and activities that relate to the production, processing, distribution, preparation consumption [and waste management] of food, and the output of these activities, including socioeconomic and environmental outcomes" (Bene, 2020).

Figure 2.6

Food System Diagram

[5] The median household income in the 55411-zip code of North Minneapolis is $44,096 in comparison to $69,397, which is the median household income in Minneapolis (US Census, 2021).



Source: Colorado State University

From farm to table, the food system encompasses the entire food supply chain and includes all the actors involved in the production, processing, distribution, and consumption of food, such as farmers, processors, distributors, retailers, and consumers (Bene, 2020). The interdependent relationship between a community and its food system is a dynamic reflection of the sociocultural environment. By examining this relationship, we can gain insights into the cultural, social, and economic dynamics of a community and the manner in which the food system is functioning to meet the food security needs of the community.

The food system has a significant impact on individual and community food security because it determines the availability, access, and utilization of food by individuals and communities. In addition to the role that climate has upon the agricultural production of certain goods, cultural and historical factors also heavily influence the type of foods available within the environment of a food system. Factors such as food

production levels, food prices, transportation infrastructure, food processing and preservation methods, food distribution systems, and consumer preferences all contribute to the overall functioning of the food system and, in turn, shape food security (Bene, 2020; Chodur et al., 2018; Prosperi, 2016). Examples such as the presence of food deserts and food swamps can serve as indicators of a failing food system.

Food Deserts and Food Swamps

Food systems are shaped by the overarching physical and socioeconomic environment; therefore, low-income communities often become areas in which there is a proliferation of foods that are high in calories, and low in cost and essential nutrients. The landscapes of the food systems in low-income communities are often referred to as food deserts and food swamps, both of which have significant implications for the health and well-being of residents. Addressing food deserts and food swamps and the impacts they have upon individuals and communities is an important step in analyzing whether a local food system is functioning to meet the needs of the population it serves.

'Food deserts' are defined as "residential areas with limited access to affordable and nutritious foods" (Cooksey-Stowers, Kristen et al., 2017), often as a result of issues stemming from urban planning, poverty, and transportation. This term is often used alongside the term 'food swamps,' which are areas defined by "a high-density of establishments selling high-calorie fast food and junk food, relative to healthier food options" (Cooksey-Stowers, Kristen et al., 2017). These areas are marked by the overabundance of fast-food restaurants and convenience stores that lack healthy or culturally acceptable food options.

Conclusions

The formation of food deserts and food swamps in communities can be attributed to complex and interrelated socioeconomic, geographic, and historical factors. In North Minneapolis, the presence of these areas is rooted in the foundations of structural racism, which has limited access for individuals and the community to obtain the resources necessary to achieve food security. Furthermore, the social vulnerabilities contributing to food insecurity in this community are exacerbated when disruptions to the food system occur from acute shocks or are compounded with ongoing stressors. These disadvantages disproportionately affect the BIPOC communities that reside in North Minneapolis, where food justice research[6] and movements are needed to address individual and community food insecurity and build community resiliency by ensuring resiliency in the local food system. The resulting byproducts of unresolved structural racism have created and shaped the local food system for the minority communities of North Minneapolis.

In the pursuit of food justice in the Black and African American community of North Minneapolis, it is essential to recognize the intersectionality of race, space, and access to food. The concept of the social production of space, as explored in literature by Hoover (2013), Howerton and Trauger (2017), Pudup (2008), Slocum (2011), and Taylor and Ard (2015), helps shed light on how historical and ongoing racialized practices have shaped the spatial organization of the food system and perpetuated unequal food access and social inequalities.

[6] "Food Justice Research explores how racial and economic inequalities manifest in the production, distribution, and consumption of food, and the ways that communities and social movements shape and are shaped by these inequalities" (Alkon, 2020).

The articles by Slocum (2011), Hoover (2013), Pudup (2008), Howerton and Trauger (2017), and Taylor and Ard (2015) have shed light on the concept of the social production of space and its direct relevance to the work of community-based organizations addressing food security issues in BIPOC communities in North Minneapolis. These organizations, driven by a deep understanding of the historical and ongoing racialized practices that have perpetuated unequal food access and social inequalities, actively engage in activities that challenge and transform the social production of space within the food system. For instance, inspired by the concept of "white spaces" explored by Hoover (2013), community-based organizations in North Minneapolis have been reclaiming and revitalizing vacant lots and unused spaces through urban agriculture initiatives. By transforming these spaces into community gardens and urban farms, they not only increase access to fresh, locally grown produce but also challenge the dominant power dynamics that have historically marginalized BIPOC communities in terms of land use and resource allocation.

Additionally, Pudup's research on organized garden projects (2008) highlights how community-based organizations cultivate citizen-subjects by creating spaces for empowerment and collective action. Through their involvement in these projects, community members are encouraged to actively participate in decision-making processes, learn about sustainable gardening practices, and reclaim agency over their food production and access. These efforts redefine the social production of space by promoting inclusivity, equity, and self-determination within the food system. Moreover, the insights from Howerton and Trauger's study on the social construction of food access in food deserts (2017) underscore the importance of community-based organizations in

addressing systemic barriers. These organizations work tirelessly to improve food access through initiatives such as mobile markets, community food cooperatives, and advocacy for policy changes. By actively engaging with local residents, these organizations challenge the spatial inequalities perpetuated by food deserts and work towards creating more equitable and just food systems.

Overall, the concept of the social production of space is intricately connected to the activities and initiatives of community-based organizations in North Minneapolis. These organizations recognize the importance of challenging power dynamics, advocating for equitable access to resources, and fostering inclusive practices within the food system. By doing so, they not only address immediate food security issues but also contribute to reshaping the spatial organization of the food system and dismantling the historical racialized practices that have perpetuated unequal access to food. These studies demonstrate that the geographic and social location of BIPOC communities in North Minneapolis reflects the interplay between race and space, revealing how power dynamics and racialized practices have influenced the distribution of resources and opportunities within the food system. Understanding the social production of space within this context emphasizes the socially constructed nature of the food system, highlighting how race influences the spatial disparities experienced by the community and underscoring the need for systemic changes to achieve food justice.

CHAPTER 3: METHODS

Description of Research Site

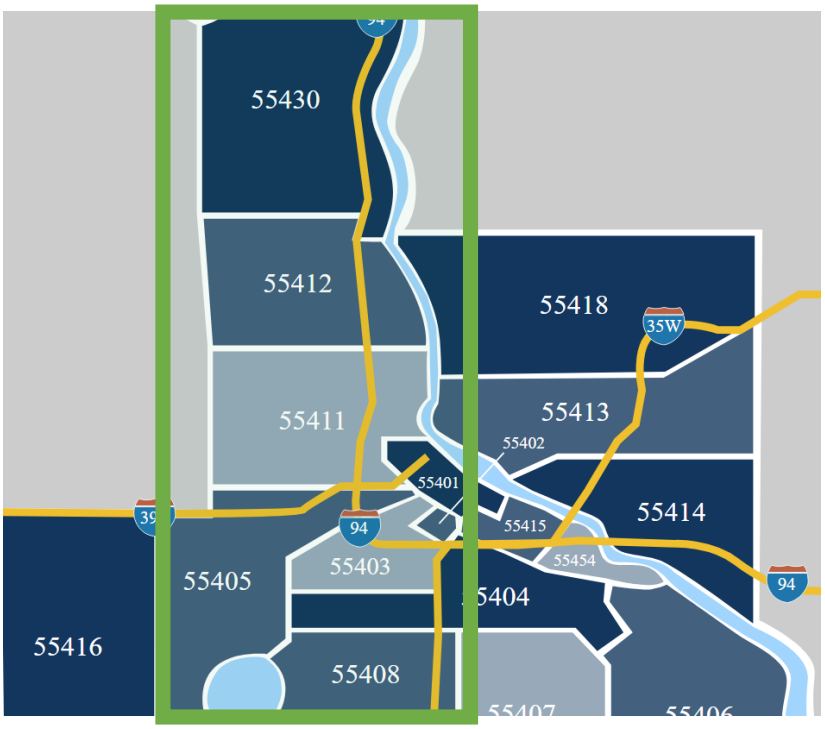
During the summer and fall of 2022, I conducted remote interviews with community-based organizations (CBOs) that operate within North Minneapolis' 55411-zip code area. These CBOs are non-profit organizations that address food security as part of their programs, missions, or services aiming to support the North Minneapolis community in areas where systemic gaps exist in the public and private sectors. They maintain a close relationship with members of the community and continue to foster a rich awareness of the challenges that exist and the resources available in these communities. The purpose of these interviews was to collect qualitative research data to gain a deeper understanding of the complexities surrounding the persistence of food insecurity in BIPOC communities in this area. Although I initially planned to collect data from 12 organizations, I decided to concentrate primarily on organizations that are predominantly involved in the geographic and demographic area of interest. The data gathered from the initial interviews revealed common patterns that corresponded with publicly available information provided by many of the remaining key stakeholders identified. These stakeholders served a broader demographic population across Minneapolis and had less direct involvement in targeted food security initiatives in the 55411 BIPOC community. Nonetheless, the interviews conducted have provided critical insight into the state of food security at both the community and household level for BIPOC populations and individuals in North Minneapolis.

While the geographic area of the 55411-zip code of North Minneapolis encompasses only 4 square miles within the broader area designated as North

Minneapolis, it contains a high population density of 27,428 people (US Census, 2022) and provides a representative sample of a community food system affected by the structural inequalities that produce vulnerabilities to food insecurity. The 55411- zip code includes the urban neighborhoods Jordan, Hawthorne, Near-North, and Willard Hay; however, the total area of North Minneapolis is roughly 5 times the size of the area of focus in this study, which spans across adjacent zip codes and neighborhoods as displayed below in Figure 3.1.

Figure 3.1

Reference Map: North Minneapolis Neighborhoods



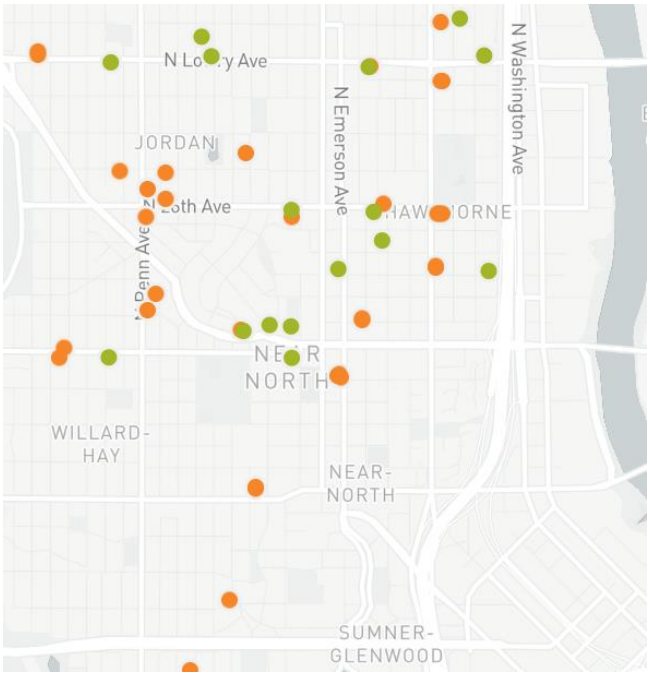
Adapted from: USA Map Guide Minneapolis Zip Code Map

Note: North Minneapolis is roughly outlined in green and includes the main zip codes, 55411, 55412, and 55430; however, parts of North Minneapolis also encompass zip codes 55401, 55405, 55413, and 55418, depending on the exact location within these areas.

There are a total of 38 community garden plots within the 55411- zip code, which are illustrated in Figure 3.2, as well as 17 food shelf provisioning points, 14 grocery stores, and 23 schools. Of the majority of houses in 55411, nearly half (48%) are rented and were built in 1939 or earlier, mostly as a haven for the city's marginalized racial and ethnic communities (US Zip Codes, Mapping Prejudice).

Figure 3.2

City of Minneapolis Community Garden Plots in 55411



Adapted from Minneapolismn.gov: *Community Gardens*

Note: The 55411- zip code is framed north of Sumner-Glenwood Avenue, west of N. Washington Avenue, and south of N. Lowry Avenue. Unavailable lots are shown in orange and available lots are shown in green. The size of these plots is unknown.

According to the U.S. Census (2022), racial and ethnic demographics show that 81.6% of the population in the 55411 area identify as a race other than Caucasian,

including Black or African American (54.5%), American Indian or Alaskan Native (1.6%), Asian (14.7%), other (4.4%), or two or more races (6.3%). The average household size is 3 people with 26% of family households managed by more than one parent or guardian in the 47% of households in this area that included children (US Census, 2022). Table 3.1 displays the poverty thresholds according to the 2022 US Census Bureau.

Table 3.3

2022 Poverty Thresholds

Size of family unit	Related children under 18 years					
	None	One	Two	Three	Four	Five
One person						
Under 65 years.....	15,225					
65 years and over.....	14,036					
Two people:						
Householders under 65 years	19,597	20,172				
Householders 65 years +	17,689	20,095				
Three people	22,892	23,556	23,578			
Four people	30,186	30,679	29,678	29,782		
Five people	36,402	36,932	35,801	34,926	34,391	
Six people	41,869	42,035	41,169	40,339	39,104	38,373
Seven people	48,176	48,477	47,440	46,717	45,371	43,800
Eight people	53,881	54,357	53,378	52,521	51,304	49,760
Nine people or more	64,815	65,129	64,263	63,536	62,342	60,699

Adapted from the U.S. Census Bureau, 2023 (Poverty in the United States)

According to the US Census in 2022, the median household income in the 5541-zip code is $29,355, which is less than half of the state's 2018 median household income of $70,300 (Minnesota State Demographic Center). The poverty rate for residents in the 55411-zip code was reported to be 35.3% in 2018 by the Minnesota State Demographic

Center, with some areas experiencing rates as high as 59%, in contrast to the state's overall poverty rate of 10%. These reports revealed that BIPOC populations across Minnesota experienced the highest rates of poverty among populations that identified as American Indian (34%), Black and African American (27%), and Hispanic (19%); these levels were three to four times greater than the rates of Non-Hispanic White Minnesotans (7%).

Data Collection

The University of Oregon's Internal Review Board pre-approved all study procedures involving human participants (STUDY00000546). Qualitative data was obtained through remote, semi-structured interviews with representatives of CBOs that operate in the 55411-zip code. These interviews, which lasted approximately 1 hour each, were conducted using the online meeting platform, Zoom. Prior to each interview, participants were presented with a digital form outlining the informed consent process, and a verbal reminder was given to them regarding their voluntary participation in the study. No participants declined to be interviewed or withdrew from the study prematurely.

The study also gathered supplementary qualitative data by administering a virtual survey to residents residing in the 55411-zip code, which was distributed through established networks of community-based organizations. Google Forms was used to conduct online surveys, and participants were screened for demographic qualifications before being included in the study. Prior to accessing the survey, participants were

presented with an informed consent form and informed of their voluntary participation in the study, which they were required to acknowledge before accessing the survey.

In addition, a significant amount of data for this study was gathered for systematic review through policy document analysis and grey literature. This enabled the retrieval of current information on ongoing studies and events that provided necessary background information to gain a better understanding of the research problem. Primary and secondary data were included in the policy document analysis and grey literature, which were obtained through published literature on the research problem, government documents and reports, public databases, maps, working papers, evaluations, and published interviews with additional community stakeholders concerning the scope of this study. Table 3.3 outlines the various sources of data collected and examined to inform this study.

Table 3.4

Sources of Data Collection

Source	Number of Sources	Purpose
Interviews with CBOs	4	Community-level Food Security/ Social Capital Assessment
Published Interviews with CBOs	8	Community-level Food Security/ Social Capital Assessment
Online Surveys	32	Household-level Food Security
Policy document analyses	4	Social Capital Assessment

The aim of employing qualitative research methods was to generate a set of variables that could provide a reliable means of assessing the impacts, changes, and developments resulting from various interventions. This would allow for a more transparent representation of the outcomes to be presented to relevant stakeholders, who could then make evidence-based decisions. I decided to review and conduct analyses of policies that I believed to be the most germane in their influence on the issues explored in this study. In doing so, I am placing primary importance on participatory action on behalf of the governing bodies that have influenced the historical creation and preservation of food insecurity in North Minneapolis. This is not to say that a solutions-oriented approach is shaped from the top-down, but rather informed and guided in conjunction with input from community stakeholders.

Recruitment and Sampling

I recruited participants from community-based organizations (CBOs) in the 55411-zip code area for the community engagement portion of my research. I used a purposive convenience sampling method to select four different organizations for the study, and conducted a total of six interviews. Each of the four CBOs participated in one interview, while two of them were interviewed twice. The selection of CBOs was based on my prior familiarity and experience working with these organizations. To be eligible for participation in the study, CBOs had to meet specific inclusion criteria, including being physically located in the 55411-zip code area and providing services that specifically targeted food insecurity in the BIPOC community in that region. These same

criteria were applied to CBOs examined for this study. While the sample size for this portion of the research is small, these CBOs represent a critical case study of the diverse communities residing in the area of interest, and representatives displayed a deep understanding of the larger BIPOC populations emphasized in this study. In the initial phase of this portion of the research, I determined that the relevant expertise of participants and the quality of the data provided through these interviews were reflective of a broader pattern that could be applied to similar cases. The data collected from these interviews provided insights on the current state of food security at the community level in North Minneapolis.

Participants who completed the online surveys were recruited via their relationship with the CBOs, either as employees or as community members receiving services from these organizations. However, no personally identifiable information was collected during this recruitment process. To participate in the online surveys, participants had to meet certain demographic criteria, which were used as screening measures. A total of 32 participants completed the surveys and provided valuable ethnographic data on the current state of household food security in the 55411 area of North Minneapolis.

Conducting Remote, Semi-Structured Interviews

Community-based organizations were interviewed remotely through semi-structured interviews during the summer and fall of 2022. Remote interviews were deemed necessary due to the ongoing precarious nature of the COVID-19 pandemic and the travel involved in conducting this research. Prior to the interviews, participants were

contacted via email and provided with details about the study, a set of interview questions, and an informed consent form. Recordings of each interview were captured in audio formats and participants were given the option to receive a copy of any footage in which they participated.

In regard to the extent to which individuals may have experienced harm or discomfort in association with participation in this study, no more than minimal risk was anticipated for psychological or emotional distress; however, the significance of this study pertains to disruptive events that held the potential to elicit stressful emotions around the recounting of painful or traumatic experiences. Care and consideration were extended to participants to minimize any discomfort by providing participants with the interview questions beforehand, notifying participants of their right to refuse to respond to questions, and offering participants information on culturally relevant resources for support following each interview.

In both the semi-structured interviews and online surveys, personal data of research participants were depersonalized to ensure anonymity. Pseudonyms were assigned to participants in this research study when referring to them directly. No form of compensation or reimbursement was provided to participants for their voluntary involvement. All stakeholders involved in the research will be granted digital access to research publications through the University of Oregon database.

Data Analysis

The interviews were transcribed using the transcription feature available in Microsoft Word. The audio files were uploaded into this software as .wav files and then

imported into a Word text file, where they were edited for transcription errors, coding, and analysis. Given the ethnographic nature of the understudied phenomena explored in this study, a flexible grounded theory approach was employed to develop an explanatory theory that conceptualized the structure of the relationships, processes, and social patterns around the substantive fields of inquiry.

After the initial review of each transcript, an inductive open coding approach was used to identify primary connections between categories and develop themes. Secondary reviews were conducted to populate sub-themes and codes that further classified the data for analysis. As new information became available through developments in ongoing research being conducted pertaining to this study, the codes and themes were streamlined and updated for analysis. A total of 8 parent codes and 16 child codes were generated, relating to food security, experiences with systemic or structural challenges, relationships among stakeholders, and community actions and recommendations. The codebook developed in this analysis can be found in Table 3.2 below, which outlines the concepts explored through this study.

As the sole researcher in this study, I employed a hybrid approach for coding procedures, utilizing both NVivo Data Analysis Software and manual coding techniques to identify text related to the conceptualizations of community resilience in local food systems. To minimize personal bias, I sought feedback from research participants to ensure that my interpretations accurately reflected their views. Thereafter I triangulated my data with relevant published sources to support my interpretations and to consider alternative explanations before seeking support from peer reviews to identify possible gaps in my arguments or ambiguity in my logic.

Qualitative interviews served to validate food security issues by providing ground truthing for the study; however, the primary focus in the research process was on policy document analysis, which took a prominent role. I first utilized a deductive coding approach to the transcripts of the qualitative interviews with CBOs to develop themes that were then applied to the systematic review of pertinent policy documents, approaching them from a qualitative perspective aligned with stakeholder perspectives and experiences. Through the coding process, new interpretations emerged, and additional thematic analysis was developed. This analysis aimed to identify the policy's strengths and weaknesses, as well as areas where improvements could be made.

Table 3.5

Codebook Outlining 8 Parent Codes and 16 Child Codes

Number	Parent Code	Child Code	Description
1	Accessibility	Economical	High food prices Insufficient income
		Physical	Food purveyors are not accessible. Unable to leave home
2	Availability	Supply chain failure/disruption	Hazardous events (weather, COVID-19, contamination) Production failure Processing is disrupted. Wholesale is disrupted. Distribution is disrupted. Retail is disrupted

Table 3.5, continued

Number	Parent Code	Child Code	Description
		Donation failure	Food bank donation failure Food assistance organization donation failure Supply chain failure
3	Acceptability	Medical	Food is medically contraindicated
		Nutrition	Food is not nutritionally adequate
		Religious/Cultural	Food in not religiously/culturally appropriate
4	Stable	Resiliency	Community assets Social Capital Policy/governance
5	Policy/Support	Policy Failure	Structural barrier to food security
		Policy Recommendation	Developmental Goal Best Practices
6	Mindset/Agency	Controlled	In control of actions and emotions

Table 3.5, continued

Number	Parent Code	Child Code	Description
		Challenged	Difficulties influenced by food system
7	Food Justice Research	Collective Action	Environmental Justice Labor Rights Advocacy
		Intersectional Identities	Race/class
8	Response to Disruption	Local Community	Bottom-up efforts Resources Partnerships Processes
		Government	Policy/ Top-down efforts Resources Partnerships Processes

The themes that emerged throughout this research illuminated indicators of the strategies used by CBOs to develop resilient networks in the local food system through collective action and structured programs. Examples include community gardens, permanent and mobile food shelves, meal programs, and more; however, analyses also revealed systemic and relational challenges that hindered the CBOs from achieving

success in their efforts to enhance food security. The community challenges identified by CBOs were echoed in online survey results, which indicated economic and structural barriers as the main impediments to food security and reflected the household-level concerns that contribute to the broader food security issues in the North Minneapolis food system. The following figures: 3.4, 3.5, and 3.6 present samples of the data collected through online surveys. Although this data indicates specific challenges faced by BIPOC individuals in North Minneapolis on an individual level, it does not offer further insights into the participants' experiences in overcoming these challenges in relation to their racial or ethnic identity; however, this data serves as a supplementary source to the data collected through interviews and policy document analysis, and it contributes to a more comprehensive understanding of the major issues at hand.

Table 3.6

Household Food Security

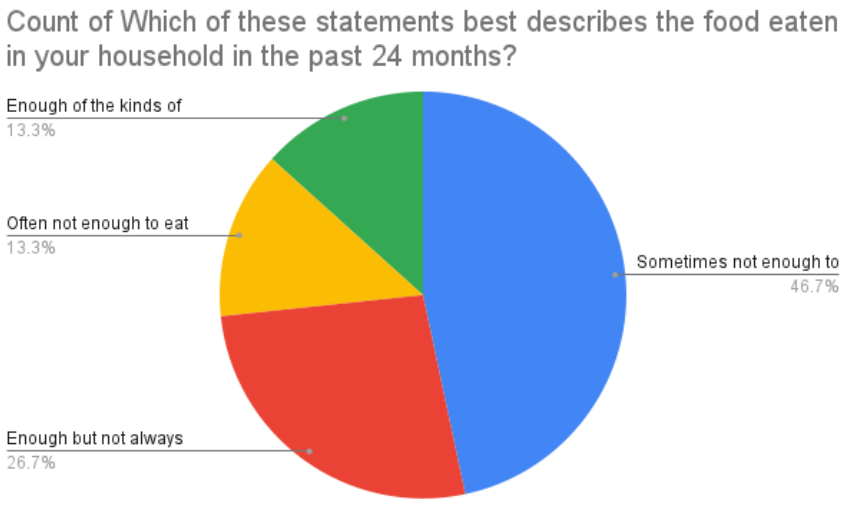
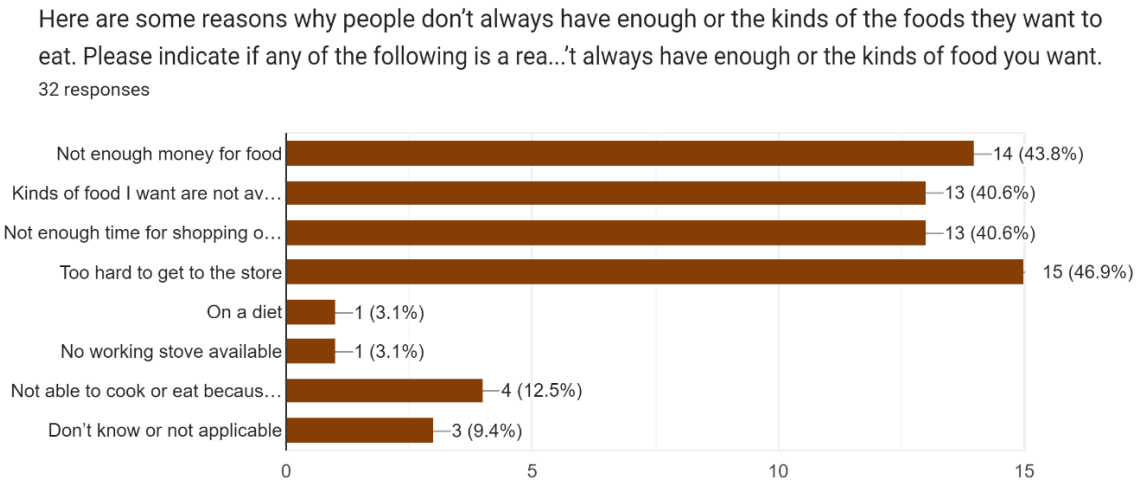


Table 3.7

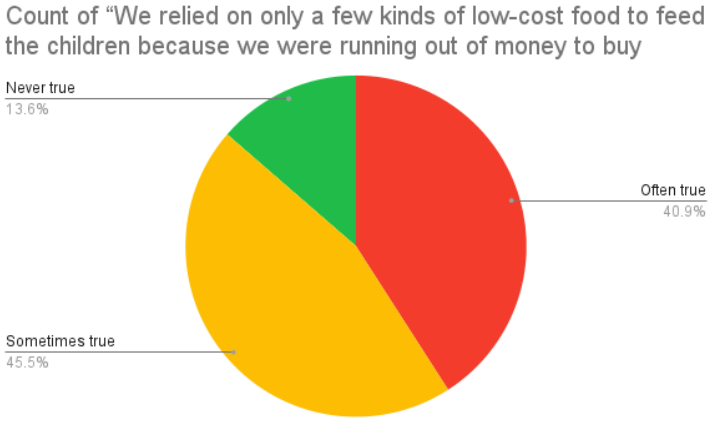
Household-level Challenges to Food Security



Note: These responses reflect themes associated with the pillars of food security.

Table 3.8

Household-level Child Nutrition Security



The primary research methods used in this study revealed various social vulnerabilities prevalent in the North Minneapolis BIPOC community. Stakeholder interviews provided valuable insights into the role of CBOs as liaisons between community members and other stakeholders, but also highlighted the challenges these organizations face in implementing programs to address the complex needs of the community. Additionally, interviews exposed weaknesses in the relationships between CBOs and other organizations, including government stakeholders. While all organizations are working towards positive outcomes, competition for resources appears to alter the relationships and power dynamics between stakeholders. Government stakeholders may play a key role in managing these relationships by bridging the social capital networks available through local CBOs and encouraging organizations to take on specialized roles or markets to facilitate proactive community resilience building. By forming trusted connections and prioritizing collaborative efforts, organizations can better serve community needs through targeted interventions and develop new norms that determine collective response to systemic disruptions in alignment with the communities they represent.

Limitations and Ethical Considerations

The chief limitation of this study can be attributed to the ongoing COVID pandemic. The precarious social quality of COVID created a host of challenges and ethical considerations in the design and implementation of this study throughout the spring and summer months of 2022. Throughout this time, new variants of the COVID-19 virus continued to emerge with mutations that triggered breakthrough cases across vaccinated populations and prompted inconsistent and unstable levels of social

restrictions across the nation. I chose to carry out all interviews remotely to reduce the possibility of exposure to illness among vulnerable populations as I continued to serve as a COVID-19 Community Coordinator in North Minneapolis.

The combined pressures of a compacted schedule and limited financial resources created circumstances that impacted my ability to personally connect with community-based organizations and potential research participants for a larger purposive sampling size. As a result, the qualitative aspect of this study focused on a critical case sample of organizations that indicate a broader pattern of the contextual issues being studied in related research. Nonetheless, it is important to note the limited sample size, circumstances, and distinct socio-cultural environment in the exactitude of this research before drawing generalized conclusions across comparable populations.

The grey literature utilized in this study provided supplementary data that was not located or available within the peer-reviewed literature on the topic as a result of a lack of published material. While the intentional use of grey literature in this study provided data that may have reduced publication biases and provided information on current events, the lack of academic peer reviews means this information could also potentially contain biases on behalf of organizations who have published this information with a specific agenda or discounted key details or perspectives that contribute to the full picture of the subject or issue. Despite these limitations, grey literature proved to be a valuable source in many circumstances throughout this study as it often provided more up-to-date and specific information on the topic and offered unique perspectives and insights that were not located in the traditional academic literature. Therefore, I determined the benefits to

outweigh the costs of using grey literature in this study according to my research needs and objectives.

Additional considerations to note include the broad generalizations I have made throughout this study in reference to BIPOC populations. While I have provided census data that outlines the demographic makeup of the core population examined in this study, I did not distinguish differences based on gender and racial or ethnic group, albeit these differences impact the variables that exist in the relationships explored in this research. Despite this, I chose to remain peripherally aware of the overarching societal challenges imposed on minority racial and ethnic groups and to deliberately emphasize the historical and ongoing relationships being negotiated among the Black and African American population residing in North Minneapolis.

Furthermore, it is imperative that I am transparent in regard to the disclosure of my affiliation as a government-sponsored, privately contracted consultant in which I provided services to one of the community-based organizations that informed this study. My dual roles as a consultant and as a researcher overlapped throughout a portion of this study; however, there were no conflicting or competing interests. While this study was inspired by my experiences as a consultant in North Minneapolis and allowed me to participate in meaningful professional relationships, no data or information collected in my role as a consultant was utilized for the purpose of this study. I believe the partnerships in both of my roles as a consultant and as a researcher was established for mutually beneficial reasons with the intent to produce knowledge and information for analogous societal needs. As a result, the ethical considerations in my research have been affected by my past and current positionality as a researcher representing various

institutions while operating in this community. My positionality has influenced both the perceptions of community members and my interpretations of this study.

CHAPTER 4: THEORETICAL UNDERPINNINGS OF RESILIENCY

> When people are stuck in an emergency mindset, it's hard to plan for tomorrow, or for a month, or a year ahead. I've always been told you're never planting for this year. What is the plan for three years or for five years down the line? I think that mentality is something I want to bring more to into the emergency food system to be more resilient (Ethan Neal, Pillsbury United, Interview on 20 July 2022).

Disasters do not impact individuals, communities, and societies equally. The extent of the primary, secondary, and indirect effects of disasters is largely determined by the societal processes that have created existing vulnerabilities among different social groups across temporal dimensions (National Research Council, 2006). From a local context to the global perspective, the impact ratio of a disaster and the absorptive capacities of a specific social group will change in relation to the systemic level that is being considered (National Research Council, 2006). To effectively assess the impact of disasters on human populations, disaster metrics must account for the scale and extent of the physical damage and social disruptions at the community, regional, or societal level, as well as the social significance attached to these effects, which encompasses not only the tangible effects such as death, structural damage, and economic impacts, but also the intangible impacts, including the psychological and emotional impact on affected communities based on their past experiences and future expectations (National Research Council, 2006). The complexity of the factors contributing to social vulnerabilities among disparate populations, as well as the lack of integration across the breadth of stakeholders throughout various professional sectors and academic disciplines, has led the National Research Council to determine the expanding need for research and collaboration involving the natural and social sciences to develop empirical tools that

allow for the conceptualization of these relationships and their causal processes for the purpose of developing appropriate interventions (2006).

The racial and ethnic disparities that exist in North Minneapolis represent significant social factors that result in differential impacts from disasters for underserved communities around the world. The lessons gleaned from the ongoing COVID-19 pandemic and its intensifying effects on existing social vulnerabilities have starkly revealed weaknesses throughout local and global food systems. As the world adapts to these threats, a growing body of literature around the concept of *food system resiliency* has ushered in empirical research on the interventions necessary to strengthen the abilities of actors throughout the food system (Bene, 2020, Chodur et al., 2015; Huff et al., 2015; Prosperi, 2016; Tendall et al., 2015). The complexity of the causal relationships that encompass a food system demands a transdisciplinary framework that has compelled researchers to produce visual maps and models to aid in the collaboration and integration of data across multiple sectors and disciplines.

Using one of these iterative maps that have been developed and applied to model the environment of local food systems in communities across the U.S., the objective of this review is to apply elements of these mapping tools to explore the concept of *food system resiliency* at the local level in North Minneapolis. Currently, these maps and models are relatively experimental and conceptual in nature; however, they will serve as a basis for my analysis of the local food system in North Minneapolis, where I will attempt to identify patterns that are emerging to advance our understanding of food system resilience and its relationship to food security in the context of disruptive events (Bene, 2020). This chapter will first distill a definition of the concept of ‘food system

resiliency' within the literature before elucidating how this concept is considered in the development of maps and their potential to illustrate the complex and dynamic nature of the food system, as well as the possible limitations to these tools and the interventions that are necessary to facilitate their use.

Defining Concepts: Food System Resiliency and Sustainability

Food system resilience planning is often highly focused on the sustainability of production outputs for markets but fails to ensure adequate and equitable distribution and access, especially as it applies to the realm of emergency disaster preparedness. A contributing factor to this gap is that the literature exploring the concept of resiliency lies predominantly in other fields such as psychology, ecology, and engineering, but outside of agricultural crop resistance, falls short of applying the concept to food systems (National Research Council, 2006; Tendall et al., 2015). The concept of 'food system resiliency' has yet to become clearly defined throughout the literature on the topic, where challenges lay in the ability of researchers to anticipate the impacts of disastrous events, especially as they relate to the food system, and as a result, the field yet to coalesce around established indicators that allow us to measure food system resilience (Chodur et al., 2015; Huff et al., 2015; Prosperi, 2016; Tendall et al., 2015).

While extensive literature exists on the matter of food security and the importance of cultivating sustainable food systems and related policies, further research is needed in the field of food studies which investigates the *resiliency* of a food system (Chodur et al., 2018; National Research Council, 2006). Resiliency doesn't have a lot of deep significance in food system planning as sustainability takes precedence; however, a food system may be sustainable but not resilient. This may occur when the system implements

sustainability measures that allow it to operate over time but fails to account for incidences caused by acute disruptions. The COVID-19 pandemic caused numerous disruptions throughout food system supply chains, including sustainable food operations that resulted in million of pounds of produce, eggs, and gallons of milk gone to waste. Prosperi states that "in relation to sustainability, which has been broadly defined as the capacity to achieve today's goals without compromising the future capacity to achieve them, resilience can be broadly defined as the dynamic capacity to continue to achieve goals despite disturbances and shocks; however, resilience implies the capacity to continue providing a function over time despite disturbances, and thus forms an essential part of what enables sustainability is the measure of system performance, whereas resilience can be seen as a means to achieve it during times of disturbance" (Prosperi, 2016). Likewise, a resilient food system may not be sustainable as the factors that contribute to its resiliency may be short-term solutions to prevent overall system failure, such as an emergency response food aid effort that is implemented to mitigate a crisis during a disruptive event but may lack the infrastructure or resources necessary to carry out operations over a prolonged period.

Nonetheless, both sustainability and resiliency embody dynamic concepts that represent a paradigm within the context of food systems and require conceptual definitions specific to the context of food systems that are separate from the ambiguous use of the terms among various other disciplines before these concepts can be operationalized in the field of research on food systems (Huff, 2015; Prosperi, 2016; Tendall et al., 2015). As sustainability and food security become increasingly more principle in system assessments, the concepts of vulnerability and resilience will be

among the principles that will drive the reformulation of research, as well as policies (Chodur et. al, 2015; Prosperi, 2016); however, the design and implementation of effective policy and management interventions require an understanding of these complex interactions and their implications, thus, such interventions cannot be treated as isolated changes in one part of the food system and therefore a whole system perspective is required (Tendall et al., 2015). An important factor in accounting for a whole system perspective is to understand that a dynamic system calls for a dynamic perspective in which the methods and metrics produced are not final outcomes but should rather be interpreted within the causal framework of the system in which it is possible to model the interplay between different variables (Chodur et. al, 2018; Prosperi, 2016, Tendall et al., 2015). "A dynamic systems approach begins with defining problems dynamically, proceeds through modeling stages, then builds confidence in the model and its policy implications" (Prosperi, 2016).

To better understand the concept of resiliency in food systems, it is necessary to collect empirical data through both qualitative and quantitative assessments to capture the complexity of the causal indicators that affect the functioning of a given food system. Empirical assessments must be iterative and developed through trial-and-error processes to account for the ever-changing nature of food systems (National Research Council, 2006; Tendall et al., 2015). To do this, a transdisciplinary framework is necessary to not only accurately capture the experiences of stakeholders across space and time but to also capture the temporal and spatial structural mechanisms that evolve to drive the decision-making factors of various stakeholders (Chodur et al., 2018; National Research Council, 2006; Tendall et al., 2015).

Mapping the Food System

The development of models and maps have aided in visualizations of the interrelated and causal networks that exist within a food system and have become a critical component in the field of food studies research. The utilization of food system maps have opened an avenue of collaboration for the integration of food system data across multiple sectors and disciplines. As a familiar frame of reference, maps allow us to orient ourselves within the food system and embody an effective communication tool that can facilitate connections among diverse stakeholders throughout the food system, as these visualizations may display layers of information that can be customized to provide targeted assessments according to the user's preferences (Food Policy Networks.org, 2021). Stakeholder input and the sophistication of the technology and software used to generate a food system map influences the degree of potential values and assets that these maps can provide as quality assessment tools.

Assets and Values of Food System Maps

Functionalities of a food system map may be developed to include the systematic display of data that can benefit a broad range of stakeholders, including the public, researchers, nonprofit organizations, and other public and private sector organizations. Food system maps may allow stakeholders to see where partnerships exist throughout the food system and where potential entry points may provide opportunities for enhanced networking as these visual tools allow stakeholders to better understand how their work fits into the larger system. This can facilitate collaboration and partnerships between organizations that may improve the efficiency and sustainability of the food system.

In addition, a food system map may illustrate underutilized community assets that exist within a geographic area that could provide potential economic development opportunities or encourage innovation by allowing users to identify gaps and opportunities in the food system in areas such as production, distribution, and waste reduction. For example, a map could display information that allows farmers to connect with regional wholesalers and aid in access to niche markets, or it could serve to eliminate food waste by connecting restaurants to local composters (Food Policy Networks.org, 2021). Community members and organizations may utilize the map as a form of 'digital foraging' to locate certain food items that are locally available in their area, thereby stimulating the local economy and reducing costs associated with external supply chains.

Furthermore, these maps may serve to provide a richer depth of data and context on the functionality of the food system outside of the broad overview provided by federal and state databases (Food Policy Networks.org, 2021). The development of data inputs from various stakeholders, including self-reports from the public, offers an upward spiral of potential for these maps to serve as educational tools and social resources in which users could have the potential to receive information to additional resources, such as which retailers in an area accept federal food support funds such as SNAP or WIC[7] (Food Policy Networks.org, 2021). Similarly, these maps can be used to identify gaps within the food system to identify areas in which there are inadequate supplies or services.

[7] The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) provides federal grants to states for supplemental foods, health care referrals, and nutrition education for low-income pregnant, breastfeeding, and non-breastfeeding, and non-breastfeeding postpartum women, and to infants and children up to age 5 who are found to be at nutritional risk (USDA.gov).

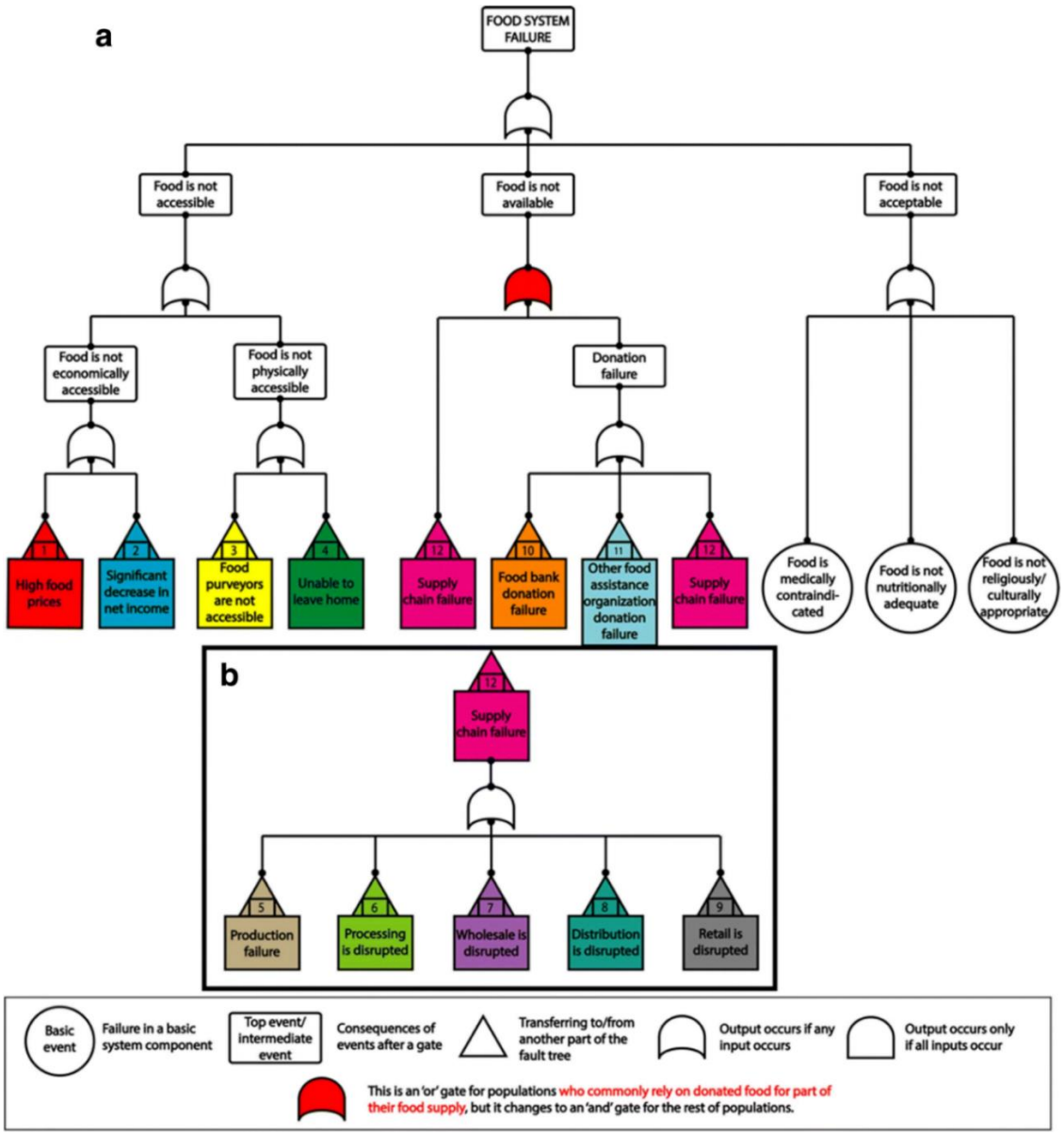
A food system map can help build resilience by identifying potential risks and vulnerabilities in the food system and develop strategies to address them; however, while various models exist illustrating the complex dynamics of food systems, few tools exist to specifically measure the resilience of a food system (Chodur et. al, 2018). This provides an important avenue for nonprofits and CBOs who may also use food system maps to self-report. These organizations embody an intimate understanding of the communities they serve and can provide contextual data that can be used to inform decision makers and potentially influence public policies by providing a visual representation of the impacts various decisions may have on the food system as a whole. By making the food system more visible and accessible, a food system map can help raise awareness about the complexity of the system and the importance of sustainable and equitable food production and distribution. Overall, a food system map can provide a comprehensive and holistic understanding of the food system, helping stakeholders make informed decisions and work towards a more sustainable, equitable, and resilient food system.

The Fault Tree Analysis (Johns Hopkins University)

The concept of mapping specific indicators of resiliency in the food system was inspired in large part by the food systems mapping project at The Johns Hopkins University (JHU). In 2018, a cross-disciplinary team of public health professionals and engineers at JHU employed an established risk analysis tool commonly used in the fields of engineering, known as a Fault Tree Analysis (FTA), and applied this tool as a means to incorporate food security into disaster planning efforts for the city of Baltimore, Maryland (Chodur et. al, 2018).

The FTA model acts as a decision tree that resembles a flowchart-like structure which illustrates the relationship between various components and their influence towards different outcomes; however, the JHU Food System FTA operates as a deductive model in which there is a single outcome listed at the top and the components trailing down from this this outcome represent the factors that have contributed to this end result. Using a 'food system failure' as the final outcome in their FTA, the team derived a basis for a well-functioning food system based off of the FAO definition of food security- availability, accessibility, acceptability, and stability (See Figure 4.1), and used these as the main components contributing to a food system failure (Chodur et al., 2018).

Figure 4.1



The Fault Tree Analysis Model (Johns Hopkins University)

Source: *BMC Public Health* BMC Public Health

In order to test the ability of the FTA to provide accurate assessments of food security resiliency at the community level, the JHU determined quantitative thresholds around disastrous events using case studies involving both an acute short-term event and a chronic long-term event (Chodur et al., 2018). Local stakeholder interviews provided

supplemental information on the developmental structure of the model. While conceptual in nature, the results of these tests demonstrated that the logic of the FTA model was not only capable of providing accurate assessments of food system resiliency but could also be successfully applied to various levels of system-wide failures to capture the impact ratios of both acute and/or long-term disasters for specific populations (Chodur et al., 2018).

The FTA model identifies potential social vulnerabilities that impact community food security to explore networks of resiliency throughout the food system and serves as an adaptable tool to communicate the breadth of these vulnerabilities to governments, urban planners, and policymakers; however, the level of detail that may be captured in the model is both one of its strengths and greatest limitations (Chodur et al., 2018).

Limitations to Maps

Food system functioning is measured via the ability of the system to meet the needs of consumers; however, the dynamic complexity in the causal networks between different components and their impacts upon the system can quickly result in a complicated visual diagram. The JHU FTA model was capable of providing assessments of the overall functionality of the food system, including clear paths that linked the relationships between specific root causes and their direct contributions to the system-wide failure; however, these components proved difficult to isolate apart from their relationship to other components within the model and often repeated themselves as factors related to other components (Chodur et al., 2018). Aspects such as this may limit the range of users based on their aptitude to effectively use this model as form of communication as these indicators can become confusing for those outside of a

specialized background related to the fields of GIS and/or engineering. Therefore, it is imperative that user and primary audiences be considered in the development of food system maps with features capable of adapting the level of information provided via the use of filters. Potential costs associated with using mapping tools created by external organizations.

Additional limitations identified within the FTA model included its limited capacity to only measure population-wide impacts, meaning it could not be utilized to assess household or individual resiliency to food system failures and furthermore, it was not able to capture the severity to which ongoing system failures could impact populations that are already in precarious social situations (Chodur et al., 2018). For this reason, it is best that food system maps are first developed for small areas like counties and then connected to a larger web of systems. Maps that are reliant on data sets alone may fail to provide up-to-date information that could provide critical depth and context to issues surrounding food security for certain populations. For example, food system maps could become misleading if there appears to be a lot of food access in an area, so context is key when determining whether the food available is culturally appropriate or economically feasible for certain communities (Food Policy Networks.org, 2021). Self-reported input for households and individuals can supplement data reliant maps and provide necessary secondary data that is easily available and updated regularly (Food Policy Networks.org, 2021).

To address the limitations identified in the FTA, the JHU team of researchers have proposed additional iterations of this model be developed and employed with refined thresholds for specific indicators such as income, to clarify the explicit role these

components have upon the overall food system failure (Chodur et al., 2018). Nonetheless, the food system FTA developed at JHU has pioneered the concept of exploring indicators of resiliency throughout the food system. The limitations of the FTA model have continued to shape additional studies and inspire ongoing research around the concept of food system resiliency.

Where is the Field Going?

While the field of food system mapping is in its infancy, the need for iterative processes requires further transdisciplinary research to implement new data integration tools. A participatory approach to create, collect and share data throughout various fields and academic disciplines could provide the means for profoundly sophisticated analyses for researchers invested in advancing the field of food studies. These analyses could have the potential to enact more direct change by allowing researchers to home in on certain thresholds within the food system that detail how policies may inadequately address issues impacting food security for certain populations, such as outdated zoning codes that curtail local agricultural practices (Food Policy Networks.org, 2021).

There is an apparent need to further the development of these searchable web-based data systems, but how these systems should be constructed and stored, how demands for information from multiple audiences should be met, and how data priority maintenance is implemented are all aspects to consider in the development of a food system map (Food Policy Networks.org, 2021). The development of sophisticated technological advances in artificial intelligence may provide an efficient means to facilitate the necessary oversight and user-friendly access capabilities in the utility of

food system maps. These advancements could attract new stakeholder interests that may support funding needs to carry out developments or maintain operations.

Conclusions

The most recent edition of the FAO report on 'The State of Food Security and Nutrition in the World' has explicitly advocated building resiliency into half of its six recommendations for food systems transformations. In addition, the International Food and Policy Research Institute (IFPRI) dedicated a conference specifically to "building resilience for food and nutrition security," which focused on the links between resilience, food security, humanitarian aid and development aid (Tendall et al., 2015). In response to vulnerabilities exposed by disruptive events including civil unrest and extreme climate events, the reviewed literature suggests that food system resiliency measurements represent a growing body of research that requires a transdisciplinary lens to encourage the incorporation of food systems in broader policy-based efforts for comprehensive resilience planning. A major limitation in this literature is that previous food system resiliency assessments require iterative processes to refine the complexity of these models before they can be readily employed and replicated according to scale within a designated food system. If future assessments utilize a more standardized model, results can be more easily compared and strengthened. To do this, more structured and iterative studies with smaller populations should be performed to refine the results of the assessments before increasing the scale of subsequential assessments. Current research supports the successful use and integration of food systems maps and models such as the FTA; however, a continuation of current research with consistent and strengthened methodologies will help justify its use and application.

CHAPTER 5: A DATA DRIVEN PORTRAIT OF FOOD JUSTICE IN MINNEAPOLIS

> I believe that when we consider broad demographic trends and data points, it often fails to truly capture the reality of food security or food insecurity unless we delve into the specific details because numbers don't always tell the full story. For example, we need to examine factors like how far people must travel to access a full-service grocery store, which can be up to 4 urban miles around here. Food insecurity is a significant issue in the Northside, even in the emergency food sector, especially when we compare it to areas like Cedar Riverside or the South side, where there are noticeably more food shelves and free food operations. This represents a huge service gap within the nonprofit sector (Ethan Neal, Pillsbury United, Interview on 20 July 2022).

In this chapter I employ a food justice perspective to examine a selection of local policies to illustrate a shift in the priorities and values governing food systems work in Minneapolis. The effects of unsustainable food systems policies and practices, along with the exacerbating effects disruptions to these systems, have the greatest impact on the growing populations of marginalized communities across the world who may have limited access to resources outside of their current dependencies. From a food system perspective and its provision of equitable, nutritious food, this is arguably an issue - impoverished communities are adversely affected by a variety of social and environmental justice issues, including food and environmental poverty (Jensen & Orfila, 2021). In response, food justice movements have given rise to the scholarship around food justice research that "explores how racial and economic inequalities manifest in the production, distribution, and consumption of food, and the ways that communities and social movements shape and are shaped by these inequalities" (Alkon, 2020). A key approach in food justice scholarship is to illustrate the ways in which people understand their identities, such as gender and race to understand how this identity is shaped and impacted by systems of power, while a second set of food justice research approaches

include “historical studies that investigate the political and economic circumstances that create the lack of access” (Alkon, 2020).

Food justice scholarship can be employed to conduct and analyze intersectional research that serves to show the relationship between identities within social categories and how these categories may overlap to determine the manner in which they are impacted by political, economic, and social systems of power. Chapter two of this study employed a food justice lens that served as a theoretical methodology in analyses of the inequalities that exist in food systems to examine social vulnerability indicators including the “racialization of food systems from an institutional perspective, tracing the ways that racial and economic inequalities are built into the zoning ordinances, mortgage policies, and other institutions and policies that determine how industries, human communities, and goods and services come to exist in particular places, all of which affect the question of food access” (Alkon, 2020). As problems within the food system occur in parallel at the local and global level, solutions may also be adopted and adapted within the respective matrixes of social, political, environmental, ecological, and economic contexts to address these issues (Alkon, 2011). Alkon highlights the importance of employing an intersectional framework within *future* food justice research to study “the dynamic interplays between race, class, and geography that might better help us to tease out the various factors that can produce food insecurity, as well as the ways that our multiple social locations influence the various food environments we occupy” (Alkon, 2020).

Food justice research and scholarship builds upon the activism of the food justice movement but moves beyond the creation of alternative food systems in its methodological approaches to also create change through alternative policy systems that

impact food systems (Alkon, 2020). The theoretical approach to food justice scholarship is demonstrated in the form of transdisciplinary applications. Assessing local stakeholder activities and policies related to food security in North Minneapolis through the lens of a food system map creates a framework for policy analyses that reveal indicators for successful interventions that have the greatest potential to aid in the stability and resiliency of the local food system. The CBOs serving the North Minneapolis BIPOC have remained dedicated to transforming the inequities that exist within the foundations of the overarching socio-political environment; however, further developmental resources in tools such as food systems maps can aid in the momentum to advance these efforts more efficiently.

Governance and Social Capital

> Jo: So, in your opinion, to what extent are community development approaches to food security designed to respond effectively, efficiently, and sustainably to a crisis?
>
> Ethan Neal: Are we, though? I don't think so. I feel like COVID really sort of shook that up for us and made us take on a new perspective about how prepared we are. I think that we're working toward that. I'm one of the backbones and leaders in what's called 'The Minnesota Food Justice Network,' and it's had so many iterations of food-based nonprofits backed by all the big funders—the University of Minnesota, Blue Cross Blue Shield, Cargill foundations—they were all at the table. And even with that working group of industry leaders, it's failed, like three or four times in my tenure of a decade. So, what I mean by that is we can't even get it together as leaders in this space to work efficiently together, and I say that with the utmost love as a participant in those pieces of chaos. We all want to work together, but do we all have the capacity?

Interviews with stakeholder CBOs revealed that the arena of policy-based decision making is both an area where vulnerabilities originate, and opportunities potentiate. The degree to which stakeholders interviewed for this study were familiar with the policies governing the North Minneapolis food system was dependent on the

specific role of the participant representing each CBO. This is to be expected as the CBOs interviewed for this study classify as nonprofit organizations that serve the North Minneapolis community with a wide range of programs to address an equally wide range of systemic gaps. While some CBOs had leadership roles designated for addressing policy-based issues and development, this information was not always well integrated into broader program support, especially as a divide remains in how issues throughout the local food system pertain to the many of the issues being addressed in various programs. Nonetheless, there is a growing awareness among CBOs regarding the interconnected and interdependent quality of the issues at the root of many social vulnerabilities. The following case studies in this chapter illustrate policy-based efforts that have contributed to a shift in the values and priorities of policy makers as a result of collaborative and integrated efforts among food system stakeholders in North Minneapolis. For each case study, I will utilize general elements of a social capital construct to assess the value of the relationships between CBOs and governing institutions in North Minneapolis to reveal how the nature of these relationships affects collective community action and impacts the effectiveness of community food security development interventions.

Strong social capital can indicate community resilience as it encompasses citizen engagement, interpersonal trust, and collective action, which can be observed through both vertical and horizontal integration (See Figure 5.1); vertical integration is evident when a community has an active civic engagement program that fosters tightly-knit social networks among citizens and local organizations, while horizontal integration is demonstrated by a relatively high number of connections with larger political, social, and economic institutions, all of which enable the community to better respond to challenges

and recover from disasters by providing mutual support (National Research Council, 2006). Fostering social capital in under-resourced communities is a crucial aspect of enhancing local resources that promote equity, particularly the cultivation of bridging capital through strengthening connections between neighborhood stakeholders with differing interests to establish a shared vision, and forging stronger links to external sources of political and economic resources necessary for neighborhood development, which planners can help facilitate but is currently not emphasized enough in planning and public policy education (Putnam et al., 2004). Ethan Neal from the nonprofit organization, Pillsbury United highlighted this disconnect in North Minneapolis, stating:

> Often times, we're used as megaphones for the community, but in other ways, we're also used as interpreters and we're only listening to the people that are speaking our own language, so we're just living in our own little bubbles, but the northside community needs more urban action. It needs more redemptive action from its nonprofit leaders. I just wish we did a better job at formalizing what a human-centered design process looks like to truly allow community voice. Sometimes I think we're doing this really well and then you talk to another organization and you're like, 'Oh wow! Y'all aren't doing this at all!' We need to have more community voice in the planning process.

According to the National Research Council (2006), in a community with high horizontal integration, there is evidence of active civic engagement that fosters tightly knit social networks among citizens and local organizations to provide opportunities that build trust and further interactions among individuals and organizations to act collectively to define and communicate local needs, resolve disagreements, and participate in local decision-making processes. Conversely, a community with low horizontal integration has limited civic engagement, weak social networks, and low interaction and personal trust among government agencies and social subgroups, leading

to weak alignment between aid delivery programs and community needs (National Research Council, 2006; Putnam et al., 2004).

Figure 5.1

Measures of Social Capital at the Community Level

Engagement

Horizontal

- Neighbor interaction (amount and quality)
- Volunteer activity in the neighborhood
- Participation in neighborhood-based organizations
- Use of neighborhood facilities

Vertical

- Informal interaction outside the neighborhood
- Volunteer activity outside the neighborhood
- Participation in organizations outside the neighborhood
- Use of facilities outside the neighborhood

Social Networks

- Network size (How many people?)
- Network diversity (How diverse in income, race, ethnicity, age, social context?)
- Network location (Do network members reside inside or outside the neighborhood?)
- Network closeness (How close are their ties?)
- Network use (What do they use their networks for?)

Trust

- Trust in other residents
- Trust in neighborhood organizations
- Trust in nonprofit organizations
- Trust in city agencies

Organizational Infrastructure

- Number, type, and size of organizations
- Membership size
- Participation rate
- Membership diversity
- Perceived effectiveness of institutions
- Perceived status of organizations outside the neighborhood

Source: Adapted from Putnam et al. (2004).

Vertical integration is often characterized by power differentials and inequality and is evident in high degrees in communities that exhibit strong ties to larger political, social, and economic institutions, leading to expanded networks, enhanced trust between local people and larger institutions, and helps to expand resources such as funds, expertise, and influence needs (National Research Council, 2006). The effectiveness of vertical integration is heavily dependent on the strength of horizontal relationships; when horizontal integration is weak, outside aid organizations can work to build local networks and trust, whereas when horizontal integration is strong, tension may arise as communities seek to control external interventions that do not align with local needs (National Research Council, 2006).

Minneapolis Staple Foods Ordinance

The Minneapolis Staple Foods Ordinance was first implemented by the Minnesota Department of Health (MDH) in 2008 as policy-based effort designed to address nutrition insecurity resulting from limited access to healthy foods and thereby contributing to a reliance on convenience stores, corner markets, and gas stations. The ordinance stipulated licensed grocery store holders to stock a minimum amount of specified staple food items from 6 categories based off of federal WIC dietary guidelines including, dairy/dairy alternatives, meat and vegetable proteins, fruits and vegetables, 100% juice, whole grains, and legumes (Laska et al., 2018). While the ordinance represents a uniquely innovative legislative effort to address inequities in food access, it was amended in 2014 after evaluation studies conducted by a research team from the University of Minnesota revealed the policy to be ineffective on account of vague and confusing language, minimal education and training for store owners, too many exemptions and loopholes,

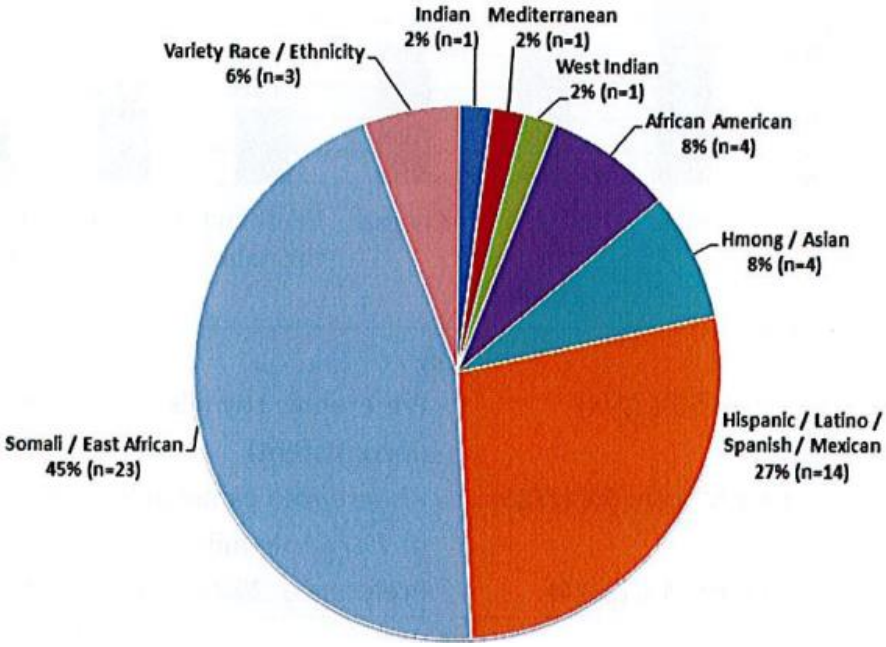
and a lack of capacity to rigorously enforce the policy (Klingler, 2015). As a result of both low horizontal and low vertical integration, the ordinance implementation process resulted in low levels of compliance and appeared to be damaging for some local store owners who faced financial challenges in compliance with the ordinance requirements. A University of Minnesota research team analyzed the impacts of the ordinance and found that:

> The scale of that distribution model does not work for small stores, whose owners typically end up buying produce from other retail stores (and thus at retail prices) and then marking it up for sale to their customers. As a result, fruits and vegetables are often not affordable and may simply sit on the shelf (Laska et al., 2019).

Additional evaluations further revealed incompatibilities with cultural dietary preferences as a contributing factor to the financial feasibilities and the ineffective impacts of the ordinance (Laska et al., 2019). Of the 242 'nonexempt' grocery stores in Minneapolis, 69 stores were classified as ethnic grocery stores based off Minneapolis Health Department observations (Laska et. al., 2018). Figure 5.1 displays the diversity of the racial/ethnic makeup of the standard customer base for these ethnic grocery stores, as reported from interviews with ethnic grocery store owners in Minneapolis. These interviews revealed that 51% of these stores reported difficulties in meeting the ordinance stocking requirements, with many store owners citing a difference in cultural dietary preferences as key factor in these challenges (Laska et al., 2018).

Figure 5.2

Racial/ethnic Grocery Store Customer Base Distribution



Adapted from: The STORE Study Data Brief (Minneapolismn.gov).

In an interview regarding the policy implementation issues, Minneapolis City Council, Councilmember Cam Gordon noted these cultural inequities, stating:

> We were requiring some stores to carry dairy, and particularly carry cheese, when it seemed like it wasn't really necessary… it felt like the ordinance was targeting maybe particularly more culturally focused stores from what they were selling, and we were actually taking the mainstream, euro-American food industry standard, which was generated mostly from the federal government" (Healthfoodpolicyproject.org).

The issues that arose from the ordinance implementation process led local stakeholders to create additional programs and organizations to address these challenges through enhanced horizontal and vertical integration measures. A group of local researchers, city staff members, and local youth teamed up to create a nonprofit organization focused on providing a sustainable produce market for small shop owners struggling to comply with

the financial burdens of the ordinance stocking requirements. This development created a bridge to link social capital networks in which local shop owners had increased access to produce, produce consumption increased, local youth were provided economic benefits, and a network of community connections were established in the process, indicating enhanced horizontal integration (Laska et al., 2019). In addition, the Minnesota Department of Health began expanding efforts to increase stakeholder awareness and feedback as they sought to mitigate oversights in the policy.

While the Minneapolis Staple Foods Ordinance marked a new level of progressive legislative response, the lessons learned from its implementation process illustrate how "current policy research in the field tends to focus heavily on health outcomes evaluation, with limited evaluation of policy processes and implementation" (Laska et al., 2019). Even after the 2014 amendments to the ordinance, shop owners continued to face challenges or express frustrations with the policy and used loopholes to avoid compliance, such as ceasing to accept SNAP benefits (Golden, 2016). As a result of continually poor outcomes, a research team from the University of Minnesota conducted a four-year study on the effects of the ordinance on heathy food purchasing; however, the ordinance was amended a second time in 2018 before the results of the study were published in 2019 (Laska et al., 2019). Nonetheless, the 2018 amendments placed significant emphasis on vertical integration activities through stakeholder engagement including, education, training, routine compliance checks, and ongoing multi-year evaluations (Klingler, 2015). These evaluations have been vital to the establishment and development of critical community networks that serve to enhance the ordinance's implementation and the resiliency of local communities; however there are

no current updates on the status of the ordinance beyond the most recent reports released in 2019 that cited low levels of compliance as a factor in the policy's failure to impact the purchasing of healthy foods in small and non-traditional stores in Minneapolis (Laska et al., 2019).

The City of Minneapolis has since created a resource webpage for storeowners and consumers where storeowners can locate compliance guides and resources, and consumers can find a link to an interactive map of the stores that stock staple foods. The map lists the name, address, and the compliance rating of each location; however, no additional layers are available in the map that could provide further details or information. According to this map, there are 8 locations in the 55411-zip code that stock staple foods as displayed in Figure 5.2, including one of the only two full-service grocery stores in North Minneapolis. It's worth noting that one of these full-service locations was severely damaged in the unrest following the murder of George Floyd in 2020 and has since reopened in 2021; albeit another one of these locations providing staple foods in the 55411-zip code has since closed in 2023.

Figure 5.3

Staple Foods Stores in 55411- Zip Code

Adapted from: https://cityoflakes.maps.arcgis.com/apps/View/

As the City of Minneapolis continues to monitor and revise the Minneapolis Staple Foods Ordinance policy, it will need to do so with further consideration for equity from multiple standpoints to improve both horizontal and vertical integration measures. Dr. Laska at the University of Minnesota School of Public Health states that "future work should explore other aspects of policy impact including potential neighborhood disparities in impact on policy implementation, retailers' perceptions of the policy and its challenges, and factors related to pricing (2019). Furthermore, there is sufficient opportunity to expand efforts to improve the health outcomes of the policy by working with retailers to enhance their marketing techniques to encourage healthy, culturally appropriate food purchases and developing the mapping resources available for consumers to include additional layers of information such as the type of staple foods available at each food provisioning location, when these foods may be the most accessible, and educational resources on the benefits of developing healthy eating habits.

Amidst the developmental challenges that arose throughout the implementation of the Minneapolis Staple Foods Ordinance, the City of Minneapolis established the Homegrown Minneapolis Food Council in 2011, which consists of representatives from

various human service sectors including: Health; Community Planning and Economic Development; Environmental Services, Sustainability; the Mayor's Office; and City Council Members or staff, who serve as a collaborative body tasked with providing support for Minneapolis food system related efforts (City of Minneapolis, 2023). The formation of the Homegrown Minneapolis Food Council has become an essential factor in the vertical integration practices necessary for the improvement and efficacy of food system-based policy development and implementation in Minneapolis.

North Minneapolis Promise Zone

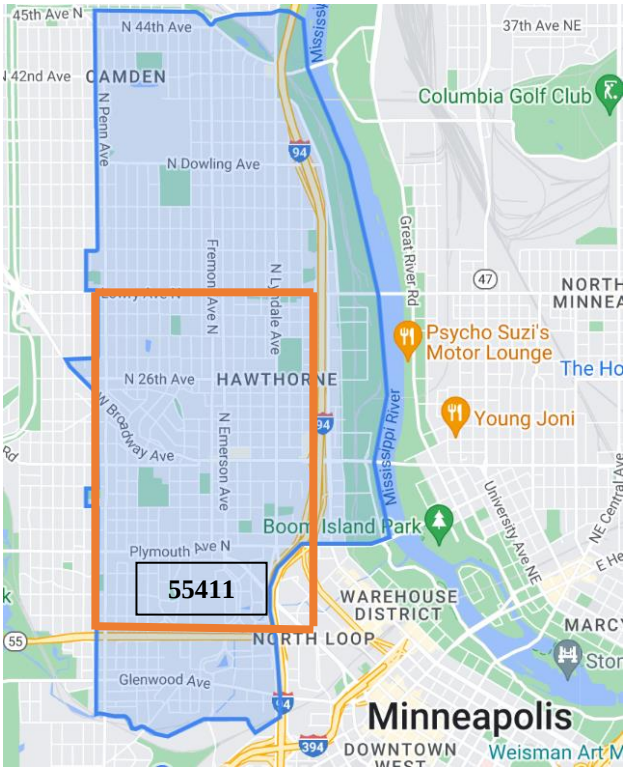
> When we did community development work around a grocery store, the main question that was posed to us and other stakeholders at the meeting was, 'Why were 55411 and 55412 receiving all these benefits, but they have one of the lowest usage rates?' It was this big conundrum that the government couldn't figure out, and it was the fact that there wasn't enough access to begin with, so we decided to start a grocery store, and that really came from community organizing (Ethan Neal, Pillsbury United, Interview on 20 July 2022).

In 2015, North Minneapolis was designated as 1 of 22 federally recognized 'Promise Zones' in the U.S., which are areas that consist of communities experiencing high rates of poverty and receive a 10 year priority preference for federal assistance funds to support CBOs engaged in activities that promote economic opportunities, address the housing crises, and "leverage private investment through a racial equity framework" (Minneapolismn.gov, 2023). Through this program, the North Minneapolis Promise Zone has received $38.8 million in federal grants which has helped to facilitate an economic development working group and supported the creation of a community-based SVI that uses seven indicators to gauge community resiliency to various stressors (Minneapolismn.gov, 2023). This

While the City of Minneapolis webpage does not explicitly outline the seven SVI indicators specific to North Minneapolis, it does provide a target framework of six goals focused on issues around racial inequities, public safety/violent crime, the racial achievement gap, housing, and transportation. As displayed below in Figure 5.2, nearly all of the communities within the 5411-zip code lie within the boundaries of the North Minneapolis Promise Zone. This federal program is an indicator of a top-down, vertical integration approach in which the success of the program depends on the degree of horizontal integration present among CBO stakeholders in North Minneapolis. There are 2 CBOs, Appetite for Change and Pillsbury United Communities, who are included as stakeholders in this study and receive support as members of the 21 engaged partners with the North Minneapolis Promise Zone.

Figure 5.4

North Minneapolis Promise Zone Map



Adapted from: [Boundaries - City of Minneapolis (minneapolismn.gov)]

Appetite For Change

Using the food system to address complex social issues, the nonprofit organization, Appetite for Change conducts activities centered on a mission with 3 key initiatives around health, wealth, and social change. The organization's website states:

> We believe food is the key ingredient to nourishing wellbeing. Systemic barriers make accessing fresh food in North Minneapolis a challenge for many. Through youth and workforce development programs, social enterprises, and policy initiatives, we build community capacity to engage with the food system in a fresh and sustainable way (Anonymous, Appetiteforchangemn.org, 2023).

Appetite for Change has developed a number of horizontal integration programs and coalitions that address food insecurity issues throughout North Minneapolis including: an urban agriculture program that operates out of the organization's 7 community farm plots across North Minneapolis; direct service community meal programs that have served

over 700,000 meals since 2020; and various training programs and employment opportunities through which participants develop skills in leadership, urban farming, the culinary arts, advocacy & organizing, and job readiness skills (Appetiteforchangemn.org, 2023).

These programs serve to build interpersonal trust among North Minneapolis residents and CBOs as a necessary foundation to implement the vertical integration efforts imparted by the Minneapolis Promise Zone program. Food justice serves as an organizational framework for the organization's initiatives, including a strong emphasis on the importance of establishing and strengthening community relationships, collaborations, and networks. Their 'Northside Fresh' program is a coalition of over 60 community members, organizations, and businesses that are explicitly engaged in food justice activities.

> [The] coalition specifically has played a good role in highlighting the Northside interest in food justice, community organizing, actually acting out what racial equity means. People across other communities are asking how to expand youth programs. The Northside has become hub and spot for people to come and learn and ask questions of [the organization] and other coalition members (Anonymous, "Appetite for Change: *Reflections on Achievements and Impacts*," 2018).

In 2017, a local Minnesota research institute facilitated a group discussion among Northside Fresh coalition members and additional community stakeholders to discuss Appetite for Change's work in food justice. During this discussion, stakeholders participated in a visual mapping activity known as 'Ripple Effect Mapping[8]' (REM),

[8] Ripple Effect Mapping is a participatory method that requires direct input from stakeholders and can help illustrate the relationships between CBO program activities and their impacts in the community (Thakur, 2018).

which serves as “an evaluation tool used to better understand the intended and unintended impacts of a project” (Appetite for Change, 2018).

The REM activity highlighted the positive impacts Appetite for Change has facilitated through food justice initiatives, including raising awareness about the impacts of local food system policies and youth engagement in policy change efforts.

> “A broader movement on food justice has created this opportunity. We built on the momentum that is happening at the state, city level. There are resources we can tap into that already exist. Over the last three to four years the number of policy changes we have been involved in leading or participating in have included urban lots, urban access fund, going to city council about food cart ordinances not being allowed outside downtown” (Anonymous, “Appetite for Change: Reflections on Achievements and Impacts,” 2018).

The intentional awareness around the power of partnerships has allowed Appetite for Change to expand its impact and its capacity to implement measures that contribute to resiliency within the North Minneapolis food system; however, the organization wrestles with the ongoing challenges of meaningfully and sustainably engaging community members who are struggling to have their basic needs met and continue to harbor a level of institutional distrust. This is a challenge that was repeated by each stakeholder involved in this study and a predominant theme in online survey participant responses, indicating significant degree of weak vertical integration in North Minneapolis. In response to this prevailing issue, Pillsbury United Communities has implemented a program centered on the belief that food access is a critical component of comprehensive healthcare.

Pillsbury United Communities

As another CBO stakeholder receiving support as a partner with the North Minneapolis Promise Zone, Pillsbury United Communities utilizes its nonprofit status

alongside a variety of social enterprises to carry out its mission through social justice activities designed to build resiliency throughout the marginalized communities in North Minneapolis. The organization boasts its own policy and advocacy department and is host to a range of programs that address the multitude of systemic social issues that exist for North Minneapolis residents, including a number of food security programs and initiatives that are designed to enhance community food access through urban farming activities and community garden projects, as well as the establishment of an innovative grocery market that combines elements of nutrition, health care, and wellness.

As of 2023, North Market is one of two full-service grocery stores in North Minneapolis and is situated north of the 55411-zip code area in the neighboring 55412-zip code area. The North Market provides affordable food alongside programs and classes designed to help residents navigate their personal health and wellness, including a resident community health worker who serves to connect community members to various resources that provide necessary social service support. This aspect of personalized care helps to build trust for participants and indicates that serves to fortify horizontal integration efforts. Through the North Market, Pillsbury United Communities carries out many of its food justice activities by establishing programs that enhance vertical integration efforts to meet the critical needs of community members while developing sustainable solutions to social issues through direct policy and advocacy efforts. The organization has listed a range of 2023 policy priorities around health and human services that include food system priorities from the local to a global level.

In an effort to provide health interventions in BIPOC community that lacks trust in the medical system as a result of egregious historical misconduct, Pillsbury United

Communities has established partnerships with other organizations to develop an innovative program called ‘Food as Medicine’ that builds upon existing research and evidence linking food insecurity to poor health outcomes, both physical and mental (Downer et al., 2022). While the role dietary practices play in overall health and wellbeing is not a new concept, the Food as Medicine program is currently being piloted in various locations across the U.S. by experts at the Food & Society at the Aspen Institute and the Harvard Law School Center for Health Law and Policy Innovation. As a result, this program currently serves only 30 residents in the North Minneapolis community who receive health care interventions through medically tailored meals or groceries; food assistance, such as vouchers for produce; and access to health care treatments that include personally tailored produce prescriptions (Downer et al., 2022). Nonetheless, the program has so far demonstrated that all three interventions are associated with reduced food insecurity, improved dietary intake, and improved participant mental health (Downer et al., 2022). In an interview with partner stakeholder North Memorial Health, President and CEO of Pillsbury United Communities, Adair Mosley reflected on the positive impacts of the Food as Medicine program:

> This pilot uniquely meets the needs of North Minneapolis residents and addresses a long, systemic issue of food insecurity. Food as Medicine squarely addresses the social determinant of health related to quality food access which we know has significant downstream impacts. Individuals and families have shared with us their desire to eat healthy but are prohibited due to access and cost. This program squarely addresses the barrier, and if scaled, can lower healthcare costs, and have positive health impacts (Adair Mosley, “*Food as Medicine Program Delivering Greater Food Security and Access in North Minneapolis*," par. 6, 2020).

The fallout of the ongoing COVID-19 pandemic has emphasized food insecurity issues as an integral part of a broader systemic problem in which CBOs like Pillsbury United Communities have been leading progressive food justice initiatives to engage

multi-sector stakeholders in creative policy-based solutions like the Food as Medicine program. Through both horizontal and vertical integration efforts, this program represents a multi-faceted approach to addressing systemic inequities within the North Minneapolis food system, with compelling evidence that will have significant implications for policymaking and reform and benefit the expansion of the program to serve larger communities in North Minneapolis and beyond. The lessons learned throughout the development of policies and policy-based initiatives such as the Minneapolis Staple Foods Ordinance, the North Minneapolis Promise Zone, and the Food as Medicine program have influenced the Minneapolis Homegrown Food Policy Council to cast a unanimous vote to sign onto the Milan Urban Food Policy Pact in 2017, signifying a landmark agreement to join a strategic global effort with a growing body of 260 cities across the globe (See Figure 5.3) in efforts to develop sustainable and resilient global food system through the interconnected networks of local food systems (City of Minneapolis, 2023; Milan Urban Food Policy Pact, 2020).

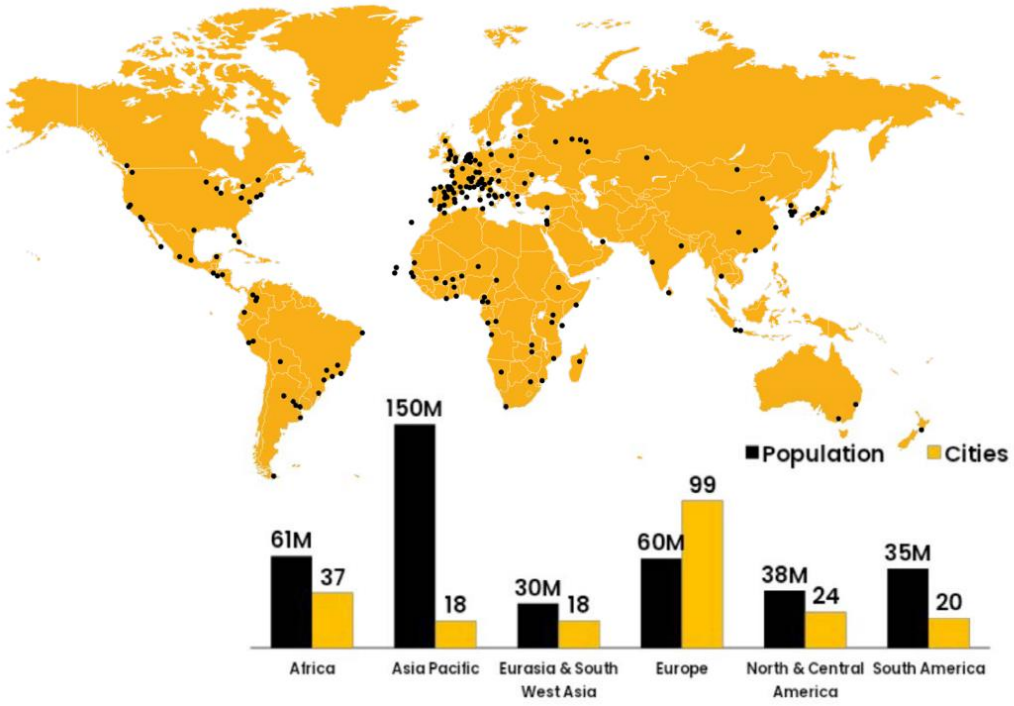
Milan Urban Food Policy Pact and the Minneapolis Food Vision Plan

The Milan Urban Food Policy Pact (MUFPP) is an international agreement "to develop sustainable food systems that are inclusive, resilient, safe and diverse, that provide healthy and affordable food to all people in a human rights-based framework, that minimize waste and conserve biodiversity while adapting to and mitigating impacts of climate change" (Milan Urban Food Policy Pact, 2020). More than just an agreement, the MUFPP is a structured 'Framework for Action' organized into 6 categories: governance, sustainable diets and nutrition, social and economic equity, food production, food supply and distribution, and food waste (Milan Urban Food Policy Pact, 2020). Each

of the 6 MUFPP categories includes several recommended actions with corresponding indicators that total 37 activities overall. The MUFPP represents a community development framework that serves to form and guide collaboration among vertical and horizontal integration efforts in the local food system.

Figure 5.5

Milan Urban Food Policy Pact Global Agreements



Adapted from: www.milanurbanfoodpolicypact.org

The objective of the Minneapolis Food Vision Plan (formerly titled the 'Minneapolis Food Action Plan') is to create a comprehensive strategy for Minneapolis food systems action, with a focus on achieving established goals set for 2033. The Minneapolis Food Vision Plan (MFVP) will build on past initiatives and plans, conform to the Milan Urban Food Policy Pact, and integrate feedback from the community and relevant data. In addition, the MFVP will be included as an addendum to the City's 2013

Climate Action Plan, while also operating as an autonomous framework that outlines recommended goals, strategies, tactics, and measurable indicators for both City of Minneapolis policy and investment, as well as Food Council action; however, when the City of Minneapolis first signed onto the MUFPP in 2017, it had only one community indicator that was related to healthy food access and currently lacks consistent metrics and indicators to measure its progress towards achieving its goals of enhancing the community's capacity to produce, process, distribute, consume, and compost healthy, sustainable, and locally sourced food (City of Minneapolis, 2023).

The Minneapolis Homegrown Food Policy Council deliberately adopted a food justice framework to align its policy implementation and facilitation practices with community-based values and priorities. This shift enabled the council to guide its activities in a manner that supports food justice principles and through community-led discussions, the Council identified seven key principles related to food justice that will serve as a guide for implementing strategies outlined in the plan and assessing progress and impact. The seven food justice principles outlined in the plan include: (1) addressing the social determinants of health by establishing social and institutional equity; (2) promoting inclusion, leadership, and decision-making that reflects the diversity in the perspectives of those most impacted by injustice; (3) acknowledging the need for recognition, reparations, and respect; (4) recognizing the interconnections between various systems that intersect with the food system; (5) enhancing food access with an understanding of the four pillars food security; (6) improving food production and processing by supporting regional markets and underserved communities; and (7)

promoting food skills in a culturally relevant and environmentally sustainable manner (City of Minneapolis, 2023).

The foundational food justice framework helped inform the Council's efforts to involve community-based organizations (CBOs) and local residents in identifying the most critical aspects of the city's food system. The stakeholders prioritized 'local food supply' as the most important factor (See Figure 5.4), followed by urban agriculture, local food businesses, promoting healthy food skills and access, reducing food waste, and conducting research and outreach related to the food system (City of Minneapolis, 2023). Stakeholders and members of the Homegrown Minneapolis Food Council proposed, evaluated, vetted, and prioritized the 6 priorities and corresponding 29 strategies outlined in this plan through multiple cycles of engagement, review, and deliberation, while considering factors such as equity, feasibility, success rate, and potential benefits to reduce greenhouse gas emissions, improve community health, and strengthen local food supply (City of Minneapolis, 2023).

Figure 5.6

MFVP Strategies Summary

Priority	Goal	Strategies	Food Justice Principles
Local Food Supply	*We grow opportunity and provide needed support to locally owned food enterprises and workers in food and farm enterprises in our city.*	Improve opportunities for food system workers and small business owners, including fostering collaborative business models and other actions Improve economic opportunities for growing food in the city Improve protections and support for food system workers and small business owners, with special attention to traditionally underserved people Enhance workforce development, including job skills training and support for the food system workforce Provide support for local food businesses that offer culturally relevant food options	Social Determinants of Health Inclusion, Leadership, and Decision-making Recognition, Reparations, and Respect Food Production and Processing Food Access Interconnections Between Systems
Urban Agriculture	*We have the skills, resources, infrastructure, and ecological health needed to produce food within our city.*	Increase, maintain, and improve land access for growers within the city for growers and year-round growing Increase access to materials, equipment, water, lighting, and other resources for growing food using sustainable production methods within the city Strengthen food skills to grow, prepare, and preserve healthy, culturally relevant foods for all people, with a focus on underserved communities Protect and improve pollinator habitats and water resources	Social Determinants of Health Inclusion, Leadership, and Decision-making Recognition, Reparations, and Respect Food Production and Processing Interconnections Between Systems Food Skills
Local Food Businesses	*More food grown and made by nearby food and farm entrepreneurs will be available across the city.*	Provide financing mechanisms and business development support to facilitate connection between local production and local consumption	Recognition, Reparations, and Respect Food Production and Processing

Priority	Goal	Strategies	Food Justice Principles
		Increase purchasing of locally and sustainably grown foods by institutions and businesses within the city Improve accessibility to and increase the number of places selling locally grown and made products Increase support by local and state agencies for local growers Decrease regulatory and logistical barriers to selling local food	Food Access Interconnections Between Systems
Healthy Food Access and Healthy Food Skills	*Our food system offers a widely available, diverse, and affordable array of nourishing foods that meet peoples' cultural and dietary where people work, live, learn, and play. There are ample opportunities to strengthen one's food skills, regardless of who you are or where you live in the city.*	Improve accessibility to and availability of nutritious, culturally relevant, sustainably grown foods at places such as schools and universities, hospitals, care facilities, childcare providers, correctional facilities, hunger relief programs, and worksites and any places where food is sold Offer opportunities for all ages to gain skills to grow and prepare nutritious foods and learn about healthy eating and the health-promoting benefits of food, with a strong emphasis on creating food skills learning opportunities we promise to create opportunities for children and youth Improve affordability of nutritious and culturally relevant foods Encourage greater consumption of a well-rounded, nutritious, plant-rich diet and reduce consumption of unhealthy foods and foods with a high environmental impact. Place greater emphasis on nutritious eating in mainstream healthcare practices	Social Determinants of Health Inclusion, Leadership, and Decision-making Food Access Food Skills Social Determinants of Health Inclusion, Leadership, and Decision-making

Wasted Food	*Our food system offers a widely available, diverse, and affordable array of nourishing foods that meet peoples' cultural and dietary where people work, live, learn, and play. There are ample opportunities to strengthen one's food skills, regardless of who you are or where you live in the city.*	Establish policies including financial incentives to manage food at its highest and best use and prevent food loss (waste reduction, food to people, and food to animals before composting or anaerobic digestion) Create and maintain food waste management systems that are widely accessible, sustainable, and contribute additional benefits to our food system (such as compost) Introduce policy changes to improve connections between excess food and those in need Provide support for farmers, food establishments, and other parties to better enable them to donate edible food	Food Access Food Production and Processing Interconnections Between Systems
Food Systems Research and Outreach	*Food systems advocates across the city will use collaborative and participatory research methods as a tool to advance a just and sustainable food system, undertaking numerous research efforts to better understand key issues, best practices, and effective solutions. We will foster outreach and educational efforts to enhance understanding of food systems issues and food skills.*	Pursue research and collaborations with organizations that work across the food system Raise awareness of food system activities and research findings in multiple languages across the city by strengthening networks, collaboration, and partnerships Continue studying ways to best achieve health, environmental, economic, equity, and justice outcomes Conduct research to better understand the relationship between access to healthy food and consumer demand Expand availability of data and data analysis around wasted food to inform actions Develop nutrition education that is catered to community-specific and health-specific needs	Social Determinants of Health Inclusion, Leadership, and Decision-making Recognition, Reparations, and Respect Interconnections Between Systems Food Access Food Production and Processing Food Skills

Adapted from the Minneapolis Food Vision Plan Draft: Minneapolis-Food-Plan-draft.pdf

The 2023 implementation of MFVP's strategies will be a collaborative effort among various parties, including elected officials, city staff, and members of the Homegrown Minneapolis Food Council, as well as local food system leaders and diverse organizations, who will work together to identify priorities and available resources.

During the implementation phase, the Homegrown Minneapolis Food Council will partner with City staff, community partners, and researchers to determine progress and impact of the strategies outlined in the plan, using proposed metrics that will be refined and measured through data collection by the city and other partners.

> Food is the one thing that connects us all. I look forward to the Minneapolis Food Plan providing guidelines around a healthy, regenerative, and equitable food system. This Plan connects us all across geographic and socio-economic lines, including urban and rural productions/producers. (Marcus Kar, Program Director, Youth Farm and Co-Chair, Homegrown Minneapolis Food Council).

Full implementation of the strategies outlined in the Minneapolis Food Vision Plan, which involves the participation of many partners, will require substantial investment from diverse public and private sources for numerous organizations and initiatives, and the Homegrown Minneapolis Food Council will need to work with relevant city decision-makers to determine where funding is needed or available to support the plan implementation. Robust and ongoing funding for Homegrown Minneapolis-related staffing and programs provided through the city's annual budget is crucial, and additional requests for support to implement specific strategies should be developed and submitted by Homegrown Minneapolis staff and seriously considered and supported by the city government during the annual budget process, as successful implementation of these strategies will require careful planning, coordination, cooperation, management, and adequate resources from foundation, local, state, or federal grant and bonding sources, as well as potential new public funding sources and private investment capital, to achieve a resilient, climate-friendly, and just local food system (City of Minneapolis, 2023).

Minneapolis has a strong foundation and legacy of exemplary food system work championed by community leaders and a longstanding commitment from the city government. As a companion document to the Milan Urban Food Policy Pact, the Minneapolis Food Vision Plan provides a well-defined, tangible blueprint for sustaining a just, thriving, and resilient food system through practical, proven strategies (City of Minneapolis, 2023). The MFVP reflects the evolving needs, concerns, priorities, ideas, and voices of a diverse range of community stakeholders, who must all be present at the table in efforts to create a just and thriving local food system.

Conclusions

The various policies explored in this chapter demonstrate how varying degrees of horizontal and vertical integration influence intervention outcomes and exemplify the changing nature around the values and priorities attributed to the local food system in Minneapolis. By collaborating with community-based organizations, activists, researchers, and other policymakers, the food justice principles outlined in the current release of the Minneapolis Food Vision Plan offers a transdisciplinary approach to explore the impacts of policies on different groups and to comprehensively analyze how racial inequalities are replicated and structurally embedded throughout interconnected systems. In deeply polarized and conflict-ridden societies experiencing complex political emergencies, successful development of community social capital through horizontal and vertical integration efforts requires critical analysis of the historical social and political context that impacts the level and quality of engagement among different groups, as active civic engagement programs may not be sufficient to enhance interpersonal trust due to suspicion and mistrust arising from the content of interactions or doubts about the

motives of outside organizations, ultimately resulting in increased resident cynicism and distrust even with high engagement (National Research Council, 2006). This food justice framework provides an avenue for government stakeholders, such as local food policy councils to address the social justice issues that exist via the systemic inequalities that contribute to food insecurity and unequal access to healthy food for marginalized communities. The concept of food justice serves as an important tool in creating awareness and visibility in the structural innerworkings of food systems and will play a crucial role in shaping the future of food systems that prioritize equity and sustainability.

CHAPTER 6: INDICATORS FOR A RESILIENT FOOD SYSTEM: A VIEW FROM MINNEAPOLIS

> We're getting together with other organizations in the community because we understand the population that we work with and the population that we serve. Those connections between other organizations and stakeholders really provide more of a safety network for food security in North Minneapolis, but then beyond that as well. Community development depends on whether those who have the power understand what's going on in the community. For individuals to represent us, they *must* understand *exactly* what's happening in these communities and that must be first and foremost because we need representation (Amondo Dickerson, Phyllis Wheatley Community Center, Interview on 08 July 2022).

Although BIPOC communities residing in north Minneapolis face contemporary challenges resulting from historical oppression, there exists a strong community presence that is actively engaged in collaborative efforts to transform the foundations of structural racism to create an equitable and flourishing neighborhood where individuals and families can thrive. The forefront of this endeavor is led by a social network of community-based organizations in North Minneapolis whose efforts and interventions contribute significantly to the area's social capital, which serves as the key indicator of resiliency within the local food system by enhancing the community's adaptive capacities to recover from shocks and stressors. At the community level, social capital offers a conceptual lens for which to identify and examine community resilience because it emphasizes the role of social relationships, networks, trust, and collective action that exist within a community to shape outcomes, including effectively mobilizing different social groups for disaster management and response (Carmen et al., 2022; National Research Council, 2006). Therefore, communities with strong social capital are better equipped to respond to challenges and recover from disasters because they have a network of resources and support that they can rely on (National Research Council, 2006); however, empirical studies indicate that the presence of social capital is not

enough to shape resilience for individuals who are marginalized, excluded, or living in areas with high social inequality because systemic factors constrain opportunities for resilience, regardless of how much social capital exists for the community (Carmen et al., 2022).

Despite the strong presence of social capital visible in the community networks that enhance the resiliency of the local food system in North Minneapolis through both reliable and innovative efforts, sustainable community development interventions are stymied by low levels of institutional trust. Formal organizations, such as national and local governments, are often regarded as essential for fostering social capital and enhancing community resilience; however, the inclination of these institutions to prioritize top-down approaches through hierarchical structures reduces the development of resilience at the community level by disrupting power dynamics and altering the way that stakeholders interact (Carmen et al., 2022). This often occurs as a result of policy processes that operate through market-based approaches which generate competition for funding, favor individualism over cooperation among community-based stakeholders, and prioritize myopic technical solutions over holistic ones (Carmen et al., 2022). In order to build resilience in local food systems serving marginalized and underserved communities, it is essential to adopt strategies that take into account the socio-cultural context of each distinct community, prioritize the development of bridging social capital through the engagement and collaboration of diverse stakeholders, and adopt a whole systems perspective (National Research Council, 2022) that considers the interplay among various factors (Carmen et al., 2022). Food justice principles serve as a strategic framework for North Minneapolis CBOs to adopt a whole systems perspective that

develops local capacities to withstand shocks and stressors to the food system by promoting collaboration among diverse stakeholders and highlighting the importance of addressing social and psychological factors alongside technical and infrastructural interventions to enhance community resilience.

Indicators of resilience within the food system are measured through a range of community-based organization activities, including initiatives related to food access and affordability, agricultural diversity and sustainability, infrastructure and logistics, community engagement and participation, and innovation and adaptation. Many CBOs have implemented food shelves, community gardens, meal programs, and financial assistance to aid in the purchasing of food. Urban and rural community gardens and farms have also played a role in promoting agricultural diversity and sustainability, while CBOs have become designated distribution systems to ensure the timely and safe delivery of food. Additionally, there is a growing effort to engage community members and organizations in food system planning, implementation, and evaluation. Meanwhile, the development of innovative adaptive capacity activities, including pop-up food shops and social enterprises focused on food waste reduction and recycling serve to enhance the local food system's capacity to adapt to changing environmental, economic, and social conditions. The implementation of these indicators and their causal relationships in the portrayal of food system maps will allow policymakers, researchers, and stakeholders to better collaborate on common goals to build a more resilient and equitable food systems.

Recommendations for Policymakers:

Based on my data from research participants, peer-reviewed literature, and publicly available statements and documents from stakeholders in North Minneapolis, I

have formulated specific recommendations for policymakers to develop resiliency within the local food system. Commonalities exist across many of the recommendations that were revealed throughout this study and vary from specific suggestions to broad proposals, based upon each organization's respective activities and missions; however, for the purpose of this study, I chose to focus on the broad recommendations that targeted the core of the systemic vulnerabilities within the North Minneapolis food system. Giving priority to these recommendations will increase the community-based organizational capacity to sustainably implement current and future food system activities and to adopt future food related policies.

The evidence gathered in my investigation points to a central theme in regard to the government's responsibility in coordinating collaborations between community-based organizations and local stakeholders to promote food system equity. To achieve this, governments must acknowledge racism as a public health emergency and take continuous action to address the underlying crisis of structural racism (Williams et al., 2019). As my research suggests, this involves sharing power with communities, especially those experiencing disparities, and involving them as co-creators in establishing equitable systems at the local, state, and federal levels (Williams et al., 2019). To do this, the National Research Council (2006) recommends that local governments establish a diverse panel (e.g., the Minneapolis Homegrown Food Policy Council) on food systems informatics, including stakeholders from different sectors and professional constituencies who may contribute knowledge and expertise in both the natural and social sciences.

The data I gathered implies that this panel should seek to develop and implement advanced technological tools such as maps and models that illustrate the causal

relationships within a food system and place importance on bridging community social capital networks. Food system mapping workshops provide an avenue to facilitate communication, coordination, and planning to develop an integrated strategy that fosters a collaborative relationship between organizations and government stakeholders. Furthermore, my study suggests that this panel should prioritize involving transdisciplinary social science practitioners in these workshops to gain deeper insights into the human dimensions and societal impacts of food system vulnerabilities (National Research Council, 2006). This would aid efforts to address the intersectional relationships and systemic barriers that exist in community-level food systems and tackle the complex interdependent global issues of racism and food insecurity.

The 'Food is Medicine Research Action Plan' (2022), developed by local stakeholders, includes 26 recommendations for research aimed at achieving equity in the food system. Emphasizing the importance of continued and further research, stakeholders highlighted the need to understand and communicate the issues at hand:

> The next steps are strategic investment of resources, close attention to the process by which research is conducted, and awareness of the historical context and current injustice in which our health care and food systems exist. By implementing the recommendations in the Food is Medicine Research Action Plan, we can build on the innovative research to date, powerfully shift the day-to-day operations of our health care system, and better understand how to reform and collaborate across institutions, programs, and policies within that system and beyond (Anonymous comment, The Food is Medicine Research Action Plan, Downer et al., 2022).

Fortunately, the Minneapolis Food Vision Plan, which aims to develop a roadmap for food systems action in the city by 2033, is incorporating many of the recommended strategies. Although the plan was paused during the COVID-19 pandemic, it is now back on track to build upon previous food justice efforts that align with the Milan Urban Food

Policy Pact to create sustainable and equitable change through the local food system. As indicated by the results of my analysis, to strengthen the sustainability of community development initiatives proposed by the Minneapolis Homegrown Food Policy Council, ongoing transdisciplinary food justice research and technological advancements will provide opportunities to continue to build resiliency into the North Minneapolis food system.

Conclusions

In the field of disaster theory and research, the concept that disasters are created by deliberate design highlights the degree to which susceptibility to disasters can be attributed to unsustainable development methods and underscores the notion that the consequences of disasters are the outcome of previous decision-making processes that endangered both individuals and assets (National Research Council, 2006). This research examines a localized case study through a global transdisciplinary lens to provide insights into the complexity of the interdependent global issues of racism and food insecurity and how they manifest in community-level food systems. The results of this study revealed that community development approaches to food security may be designed to respond effectively, efficiently, and sustainably to crises by empowering local communities, strengthening their resilience, and promoting sustainable agriculture practices, thus ensuring long-term food security.

My findings revealed that BIPOC-led community-based organizations in North Minneapolis are creating and building networks of resiliency in the local food system by establishing urban gardens and farms, facilitating access to affordable and culturally relevant food, providing education and training on sustainable agriculture, fostering

community partnerships, and advocating for policies that address systemic inequities and support food sovereignty. Food security for the diverse individuals of this community encompasses multiple dimensions, including access to affordable and nutritious food that aligns with cultural preferences and dietary needs, availability of local food sources, equitable distribution of resources, elimination of food deserts, promotion of sustainable farming practices, community-led initiatives addressing food sovereignty, culturally appropriate education on nutrition and food preparation, and opportunities for economic empowerment through local food systems, all with the aim of ensuring that every individual has reliable access to safe, nutritious, and culturally appropriate food to meet their dietary requirements and lead healthy lives.

This case study of BIPOC-led community-based organizations building networks of resiliency in the local food system of North Minneapolis offers valuable lessons for global food resilience and speaks to broader concerns of global food security as it highlights the importance of community empowerment, inclusivity, and cultural relevance in addressing food security challenges. By prioritizing local solutions, such as urban gardens and farms, these organizations demonstrate the significance of decentralized food production and distribution systems that can adapt and respond to crises. This case study also emphasizes the need to address systemic inequities and structural barriers that perpetuate food insecurity, showcasing the importance of advocacy and policy change to achieve long-term resilience.

Moreover, while the specific circumstances and social vulnerabilities in the 55411-zip code of North Minneapolis may be unique, the underlying issues of structural racism, social risks, and limited access to food security resonate with global contexts.

Similar dynamics of marginalization and systemic inequities can be observed in various regions worldwide, affecting the food security of marginalized communities. Understanding and addressing these challenges requires a transdisciplinary approach that combines social sciences with natural sciences to comprehensively evaluate the societal impacts of disasters and develop effective interventions.

The degree to which social vulnerabilities are systematically present in the 55411-zip code of North Minneapolis are inherently based upon the social location of these communities, in which structural racism functions as a hazard for BIPOC communities by generating physical and social risks that impede access to food security. The process of hazard mitigation involves a complex network of interconnected power dynamics between stakeholders with varying characteristics, and while decision-making failures may be exposed in the aftermath of disasters, there is an opportunity to integrate hazard reduction into existing policies and practices to enhance community resiliency and create a safer future for underserved communities (Carmen et al., 2002; National Research Council, 2006), as exemplified by the Minneapolis Food Vision Plan.

By centering the voices and needs of marginalized communities, this case study underscores the critical role of community-based approaches in fostering sustainable and equitable food systems globally. It highlights the significance of involving transdisciplinary stakeholders in development interventions to reinforce the essential role of community-based actors in promoting sustainable food systems and improving resilience within communities. This research contributes to the growing body of knowledge and calls for systematic assessments of policies, programs, projects, and technologies to advance research on human dimensions and ensure the effectiveness and

worth of interventions in creating safer and more resilient futures for underserved communities (Carmen et al., 2002; National Research Council, 2006).

REFERENCES

1. Abdul-Mutakabbir, Jacinda C, et al. "*A Three-Tiered Approach to Address Barriers to COVID-19 Vaccine Delivery in the Black Community."* The Lancet Global Health, vol. 9, no. 6, 2021, pp. e749–e750.

2. Quinn, Sandra C, and Michele P Andrasik. "*Addressing Vaccine Hesitancy in BIPOC Communities — Toward Trustworthiness, Partnership, and Reciprocity*." The New England Journal of Medicine, vol. 385, no. 2, 2021, pp. 97–100.

3. ACT. (2016). *The Condition of College & Career Readiness 2015: African American Students*.

4. Ainsworth, James. *American Journal of Sociology*, vol. 120, no. 4, 2015, pp. 1239–40. *JSTOR*. Accessed 3 Feb. 2023.

5. Alkon, Alison Hope, et al. A Recipe for Gentrification: Food, Power, and Resistance in the City. New York University Press, 2020.

6. Alkon, Alison Hope. "Food Justice." *Routledge international handbook of food studies*. Albala, Ken. London: Routledge (2014), pp.300-310.

7. Alkon, Alison Hope, & J. Agyeman. *Cultivating Food Justice*. The MIT Press, 2011.

8. Allen T, Prosperi P. Modeling sustainable food systems. Environ Manag. 2016;57(5):956–75.

9. *Appetite For Change | Health, Wealth and Social Change*. (n.d.). Retrieved March 9, 2023, from https://appetiteforchangemn.org/

10. *At A Glance: CDC/ATSDR Social Vulnerability Index | Place and Health | ATSDR*. (n.d.).

11. Bene, Christophe. "Resilience of Local Food Systems and Links to Food Security – A Review of Some Important Concepts in the Context of COVID-19 and Other Shocks." Food Security, vol. 12, no. 4, 2020, pp. 805–22, https://doi.org/10.1007/s12571-020-01076-1.

12. Bertrand, M., & Mullainathan, S. (2004). Are Emily and Greg more employable than Lakisha and Jamal? A field experiment on labor market discrimination. The American Economic Review, 94, 991 – 1013. doi:10.1257/0002828042002561

13. Britannica, The Editors of Encyclopaedia. "Fair Housing Act". Encyclopedia Britannica, 4 Apr. 2022, https://www.britannica.com/topic/Fair-Housing-Act. Accessed 7 February 2023.

14. Britannica, The Editors of Encyclopaedia. Encyclopedia Britannica, 23 Aug. 2022. Accessed 31 January 2023.

15. Chodur, G. M., Zhao, X., Biehl, E., Mitrani-Reiser, J., & Neff, R. (2018). Assessing food system vulnerabilities: A fault tree modeling approach. *BMC Public Health*, *18*(1), 1–11.

16. Minneapolis Legislative Information Management System, City of Minneapolis. Accessed 12 Mar. 2023, https://lims.minneapolismn.gov/RCA/1390.

17. Carmen, E., Fazey, I., Ross, H. *et al.* Building community resilience in a context of climate change: The role of social capital. *Ambio* 51, 1371–1387 (2022). https://doi.org/10.1007/s13280-021-01678-9

18. Chaney, Michael. Interview. Conducted by Jo Schlegelmilch, 21 July 2022.

19. Cohen, B., Andrews, M., & Kantor, L. (2002). *Electronic Publications from the Food Assistance & Nutrition Research Program Community Food Security Assessment Toolkit*.

20. Cooksey-Stowers, Kristen et al. "Food Swamps Predict Obesity Rates Better Than Food Deserts in the United States." *International journal of environmental research and public health* vol. 14,11 1366. 14 Nov. 2017, doi:10.3390/ijerph14111366.

21. *Counting Carrots in Corner Stores: The Minneapolis Staple Foods Ordinance – News & Events | health.gov*. (n.d.). Retrieved March 4, 2023, from https://health.gov/news/201809/

22. Cutter, S. L., Barnes, L., Berry, M., Burton, C., Evans, E., Tate, E., & Webb, J. (2008). *A place-based model for understanding community resilience to natural disasters.* Global Environmental Change, *18*(4), 598–606.

23. Darian-Smith, Eve., and McCarty, Philip C. *The Global Turn: Theories, Research Designs, and Methods for Global Studies.* 1st ed., University of California Press, 2017.

24. *Data by Topic - Income & Poverty / MN State Demographic Center*. (n.d.). Retrieved February 15, 2023, from https://mn.gov/admin/demography

25. Dickerson, Amondo. Conducted by Jo Schlegelmilch, 8 July 2022.

26. *Discussing Diversity over Dinner: How Food Systems and Communities Interact - Magazine*. (n.d.). Retrieved February 19, 2023, from https://magazine.libarts.colostate.edu/

27. Delegard, Kirsten and Kevin Ehrman-Solberg. 2017. "'Playground of the People'? Mapping Racial Covenants in Twentieth-century Minneapolis." *Open Rivers: Rethinking The Mississippi*, no 6. https://lib.umn.edu/mapping-racial-covenants

28. Delgado, Richard, and Jean Stefancic. "Critical race theory and criminal justice." *Humanity & Society* 31.2-3 (2007): 133-145.

29. Department of Education Office for Civil Rights Civil Rights Data Collection, U. S., Snapshot College, D., & March, C. (2014). *Civil Rights Data Collection*. http://ocrdata.ed.gov

30. Downer S, Clippinger E, Kummer C. *Food is Medicine Research Action Plan*. Published Jan. 27, 2022.

31. Eliseo J. Pérez-Stable. *NIMHD Director Statement in Support of NIH Efforts to Address Structural Racism*. NIH *(202).*

32. Eric Holt-Giménez, Annie Shattuck, Miguel Altieri, Hans Herren & Steve Gliessman (2012) We Already Grow Enough Food for 10 Billion People … and Still Can't End Hunger, Journal of Sustainable Agriculture, 36:6, 595-598.

33. FAO. *Food Security and Nutrition in the World: The State of Repurposing Food and Agricultural Policies to Make Healthy Diets More Affordable.* Food and Agriculture Organization of the United Nations, 2022.

34. FAO. (2008). An Introduction to the Basic Concepts of Food Security Rome Food and Agriculture Organization, http://www.fao.org/3/a-al936e.pdf

35. FAO. *In Brief to The State of Food and Agriculture 2021. Making agrifood systems more resilient to shocks and stresses*. Rome, FAO, 2021.

36. *Facing Hazards and Disasters: Understanding Human Dimensions*. National Academies Press, 2006.

37. Food and Agriculture Organization of the United Nations. "*The State of Food Insecurity in the World 2013*." Food and Agriculture Organization of the United Nations, 2013.

38. "Food as Medicine Program Delivering Greater Food Security and Access in North Minneapolis." North Memorial Health, 3 Mar. 2021. Accessed 12 March 2023, https://northmemorial.com/news/food-as-medicine-program.

39. *Food Policy Networks - Johns Hopkins University*. (n.d.). Retrieved February 26, 2023, from https://www.foodpolicynetworks.org/

40. Erin Golden, *Minneapolis Healthy Food Rules Prompt Dollar Tree to Drop Food Stamp Benefits*, STAR TRIBUNE (May 6, 2016), http://www.startribune.com/

41. Gordon, Cam. Healthy Food Policy Project." Healthy Food Policy Project, n.d., https://healthyfoodpolicyproject.org/.

42. Gossett, Thomas F. "Structural Racism." The Oxford Handbook of Racism, edited by G. Yancey & Sally D. Kornblum, Oxford University Press, 2014, pp. 41-58.

43. Hane, Amanda. "New Food Insecurity Data Highlight Minnesota's Continuing Disparities and the Need for Multi-Sector Solutions." *Wilder Foundation*. (2020).

44. *HEALTH EQUITY IN PREVENTION. Appetite for Change Impacts and opportunities: Results from a discussion of Appetite for Change's Fresh Corners project.* April 2015 Prepared by Wilder Research on behalf of the Center for Prevention at Blue Cross and Blue Shield of Minnesota. (n.d.).

45. *Healthy Food Policy Project*. (n.d.). Retrieved March 7, 2023, from https://healthyfoodpolicyproject.org/

46. Hoover, Brandon M. "White spaces in black and Latino places: Urban agriculture and food sovereignty." *Journal of Agriculture, Food Systems, and Community Development* 3.4 (2013): 109-115.

47. Huff, Andrew G., et al. "How resilient is the United States' food system to pandemics?" *Journal of environmental studies and sciences* 5.3 (2015): 337-347

48. James W. Ely Jr., Buchanan and the Right to Acquire Property, 48 Cumberland Law Review. 423 (2018) Available at: https://scholarship.law.vanderbilt.edu/

49. Jensen, Paul D, and Caroline Orfila. "*Mapping the Production-Consumption Gap of an Urban Food System: An Empirical Case Study of Food Security and Resilience*." Food Security, vol. 13, no. 3, 2021, pp. 551–570.

50. "Jim Crow of the North." Twin Cities PBS, tptoriginals.org, n.d., https://www.tptoriginals.org/minneapolis-history-of-racial-covenants.

51. *Kristen Klingler, MPH, CHES 8th Biennial Childhood Obesity Conference the Minneapolis Staple Foods Ordinance*. (2015).

52. Laska, M. N., Caspi, C. E., Lenk, K., Moe, S. G., Pelletier, J. E., Harnack, L. J., & Erickson, D. J. (n.d.). *Evaluation of the first U.S. staple foods ordinance: impact on nutritional quality of food store offerings, customer purchases and home food environments*. https://doi.org/10.1186/s12966-019-0818-1

53. Laska M.N., The STORE Study Team. *The Minneapolis Staple Foods Ordinance Evaluation Study: Data Brief*. The University of Minnesota. October 2018.

54. *"Lessons Learned from State and County Food Systems Mapping Projects."* YouTube, uploaded by The Johns Hopkins Center for a Livable Future. (n.d.). Retrieved February 26, 2023, from https://www.youtube.com/

55. McCarthy, U., Uysal, I., Badia-Melis, R., Mercier, S., O'Donnell, C., & Ktenioudaki, A. (2018). Global food security – Issues, challenges, and technological solutions. *Trends in Food Science & Technology*, *77*, 11–20. https://doi.org/10.1016/J.TIFS.2018.05.002

56. "Mapping Prejudice." University of Minnesota, n.d., https://mappingprejudice.umn.edu/.

57. *Milan Urban Food Policy Pact*. (2015). Accessed 3 Mar. 2023. Available at: Milan-Urban-Food-Policy-Pact-EN.pdf (milanurbanfoodpolicypact.org)

58. *Minneapolis City, Minnesota - Housing, Employment, Education, More*. (n.d.). Retrieved February 15, 2023, from https://www.homearea.com/place/minneapolis-city-minnesota/2743000/

59. *Minneapolis Food Action Plan - City of Minneapolis*. (n.d.). Retrieved March 13, 2023, from https://www2.minneapolismn.gov/government/programs

60. *Minneapolis Promise Zone - City of Minneapolis*. (n.d.). Retrieved March 9, 2023, from https://www2.minneapolismn.gov/government/programs

61. Minneapolis Zip Code Map - Minnesota." US Map Guide, Accessed 15 Feb. 2023 www.usmapguide.com/minnesota/minneapolis-zip.

62. Mills, Marguerite; Mapping Prejudice Project. (2020). 2010 Minneapolis Area Black Population & Racial Covenants. Retrieved from the University of Minnesota Digital Conservancy, https://hdl.handle.net/11299/217467.

63. *8° MUFPP Global Forum - Milan Urban Food Policy Pact*. (n.d.). Retrieved March 11, 2023, from https://www.milanurbanfoodpolicypact.org/

64. National Research Council (U.S.). Committee on Disaster Research in the Social Sciences: Future Challenges and Opportunities., & National Research Council (U.S.). Division on Earth and Life Studies. (2006). *Facing hazards and disasters: understanding human dimensions*.

65. Neal, Ethan. Interview. Conducted by Jo Schlegelmilch, 20 July 2022.

66. Odoms-Young, Angela, and Marino A Bruce. “Examining the Impact of Structural Racism on Food Insecurity: Implications for Addressing Racial/Ethnic Disparities.” *Family & community health* vol. 41 Suppl 2 Suppl, Food Insecurity and Obesity, Supply 2 Food Security and Obesity (2018): S3-S6.

67. Quillian, L., Pager, D., Hexel, O., & Midtbøen, A. H. (n.d.). *Meta-analysis of field experiments shows no change in racial discrimination in hiring over time*. https://doi.org/10.1073/pnas.1706255114

68. Pager, D., & Western, B. (2012). Identifying Discrimination at Work: The Use of Field Experiments. *Journal of Social Issues*, *68*(2), 221–237.

69. Pillsbury United Communities. pillsburyunited.org. Accessed 4 Nov. 2022.

70. Pudup, Mary Beth. "It takes a garden: Cultivating citizen-subjects in organized garden projects." *Geoforum* 39.3 (2008): 1228-1240.

71. Putnam, R., Light, I., Xavier de Souza Briggs, William M. Rohe, Avis C. Vidal, Judy Hutchinson, Jennifer Gress & Michael Woolcock (2004) *Using Social Capital to Help Integrate Planning Theory, Research, and Practice*: *Preface*. Journal of the American Planning Association, 70:2, 142 192, DOI: 10.1080/01944360408976369

72. *RCA-2017-01137 - Homegrown Minneapolis Food Council: Milan Urban Food Policy Pact*. (n.d.). Retrieved March 3, 2023, from https://lims.minneapolismn.gov/RCA/1390

73. Shockman, E. (2019, October 14). *Report ranks Minnesota among worst achievement-gap states | MPR News*. MPR News.

74. Slocum, Rachel. "Race in the study of food." *Progress in Human Geography* 35.3 (2011): 303-327.

75. Sood, Aradhya and Speagle, William and Ehrman-Solberg, Kevin, Long Shadow of Racial Discrimination: Evidence from Housing Covenants of Minneapolis (September 30, 2019). Available at SSRN: https://ssrn.com/abstract=3468520

76. Spatig-Amerikaner, A. (2012). *Unequal Education Federal Loophole Enables Lower Spending on Students of Color*.

77. *Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) | Food and Nutrition Service*. (n.d.). Retrieved February 25, 2023, from https://www.fns.usda.gov/wic

63. *Staple Foods - City of Minneapolis*. (n.d.). Retrieved March 5, 2023, from https://www2.minneapolismn.gov/business-services/business-assistance/run/food business-rules/staple-foods/

79. *The Milan Pact - Milan Urban Food Policy Pact*. (n.d.). Retrieved March 3, 2023, from https://www.milanurbanfoodpolicypact.org/the-milan-pact/

80. Tendall DM, Joerin J, Kopainsky B, Edwards P, Shreck A, Le QB, et al. Food system resilience: defining the concept. Glob Food Sec. 2015; 6:17–23.

81. Thakur, Azra. "Appetite for Change: Impacts and Opportunities - Results from a Discussion of Appetite for Change's Fresh Corners Project." Amherst H. Wilder Foundation, Apr. 2018.

82. Twin Cities PBS. "Mapping the Roots of Housing Disparities in Minneapolis. "tptoriginals.org, Twin Cities PBS, n.d.

83. Williams, D. R., Lawrence, J. A., & Davis, B. A. (2019). The Annual Review of Public Health is online at. *South Africa Annu. Rev. Public Health*, *40*, 105–125. https://doi.org/10.1146/annurev-publhealth

84. Woolcock M (1998) Social capital and economic development: toward a theoretical synthesis and policy framework. Theory Soc 27:151–208