

UC Davis

UC Davis Electronic Theses and Dissertations

Title

Reimagining resilient food systems: Lessons from three California communities during the COVID-19 pandemic

Permalink

<https://escholarship.org/uc/item/5fq7j79n>

Author

Cortez, Summer Jean

Publication Date

2022

Peer reviewed|Thesis/dissertation

Reimagining resilient food systems:
Lessons from three California communities during the COVID-19 pandemic

By

SUMMER JEAN CORTEZ
THESIS

Submitted in partial satisfaction of the requirements for the degree of

MASTER OF SCIENCE

in

Community Development

in the

OFFICE OF GRADUATE STUDIES

of the

UNIVERSITY OF CALIFORNIA

DAVIS

Approved:

Catherine Brinkley, Chair

Clare Gupta

Julie Sze

Committee in Charge

2022

Dedication

I would like to dedicate my work to the food system workers who have been pushed to the front-lines of this pandemic, taking on significant occupational health risks to provide essential services that support food access for all of us. Farmers, grocery store workers, emergency food aid staff and volunteers—thank you for all that you do. I believe that you deserve a system which more appropriately values your contributions not only during emergency conditions, but every other day as well. I send my deepest gratitude to the community aid practitioners who so vulnerably shared their experiences with me during this challenging time.

Acknowledgements

I would like to acknowledge the scholars whose work has made it possible for students like myself to envision a future rooted in justice.

Thank you to my committee members, who have patiently supported me through this incredibly challenging journey. Catherine Brinkley, Clare Gupta, Julie Sze—it has been an honor to learn from and be uplifted by such brilliant and powerful women during my graduate studies.

And finally, thank you to my closest friends, who gave me the strength to keep going through the lowest of lows and stood by me to celebrate even the smallest accomplishments.

Abstract

The emergence of the COVID-19 pandemic has exacerbated existing barriers to food access for citizens in an unprecedented way, demonstrating the fragility of community access to essential goods within the present food system. The following paper documents this moment of urgency as it has impacted three communities within California and their access to food: Santa Clara County, the City of Stockton, and Woodland Joint Unified School District. This paper is exploratory in nature, and utilizes a diverse case method of cross case comparison. Across each case study, this research addresses two central questions: (1) What disruptions associated with COVID-19 occurred within the local food system from the perspective of respective community stakeholders? (2) What responses or adaptations occurred or were proposed as a result of these disruptions, and by whom?

These cases were investigated using a combination of secondary document analysis and stakeholder interviews (n=24) with the goal of uncovering a nuanced understanding of each community food system as it has been impacted by COVID-19. Because my understanding of each case was also tied to different academic and community-lead projects, my level of community embeddedness and communication with local food system stakeholders varies across cases. Despite its unconventional methods, this study aims to contribute to an important body of research analyzing how different local food systems respond to disruptive events. Further, as communities work to build back better, this paper aims to make a case for equity as an essential component of a resilient food system through the use of a food justice framework. The lessons learned from this study suggest the value of inter-organizational collaboration.

Table of Contents

Dedication	ii
Acknowledgements	iii
Abstract	iv
Table of Contents	v
Introduction	1
Background	4
Contextualizing the Modern Food System	
Contextualizing Food Insecurity, Access, and Aid	
Methodology and Positionality	9
Project Roadmap	
Methodology	
Limitations	
Positionality	
Theoretical Literature Review	14
Disaster and Vulnerability Within the Conventional Food System	
Vulnerable Groups and Accumulated Risk	
The Emergency Food System During COVID-19	
Reconciling Power Imbalance and Centering Justice	
Case Studies	21
Santa Clara County.....	21
The City of Stockton.....	26
Woodland Joint Unified School District.....	31
Discussion	40
Conclusion	50
References	52

Introduction

On March 11, 2020 the World Health Organization declared COVID-19 a global pandemic. This event disrupted the national food system in an unprecedented fashion, exacerbating existing inequalities and contributing to increased rates of food insecurity and use of emergency food aid. COVID-19 fundamentally changed the ways in which we live our daily lives—the way we work, the way we interact with one another, and the ways in which we meet our everyday needs.

The start of the COVID-19 pandemic coincided with roughly the midpoint of my first year of graduate study. For myself and many other students, the lockdown measures and day-to-day chaos that followed effectively derailed any previous plans for field research. As I navigated my own personal limitations during COVID-19, I also questioned how I could pursue my interest in researching the realm of food access without placing additional stress on emergency food aid practitioners during this especially stressful and unpredictable time. Over the next several months I struggled to land on what felt like the ‘right’ path. However, through my coursework and search for guidance from UC Davis faculty, I became engaged in several separate investigations of how COVID-19 had impacted community food systems and access.

Through my coursework I followed the impact of the global pandemic on the city of Stockton; as a native to the area I felt particularly drawn to this city and uniquely positioned to consider its unique social and political context and to capture the ways in which community organizations and local government adapted to the pandemic. Through my graduate advisor I became part of a team contracted by the County of Santa Clara to develop a workplan for post-COVID food system recovery. This team consisted of several UC Cooperative Extension advisors, the local Consumer & Environmental Protection Agency, Social Services Agency,

Public Health Department, and County Executive's Office. While this work plan spanned numerous sectors, I worked predominantly on topics surrounding emergency food aid and food insecurity. Finally, as my work with Santa Clara County wrapped up, I began working for a local nonprofit organization on assisting Woodland Joint Unified School District with navigating COVID-19 related disruptions to food service, improving cultural relevance and nutrition of menu items, and shifting district procurement to favor fresh and locally produced food items.

Each of these projects vary significantly, including both their scale and geography. In fact, it is for this reason that I had not initially considered relating my experiences across each project as my master's thesis. However, as time has passed I have been able to appreciate their fascinating similarities and believe these lessons learned to be an important contribution to the field. Perhaps what has been most noteworthy has been the extent to which improved inter-organizational relationships and information sharing have been brought to the forefront as desired areas of improvement by community food system stakeholders. Furthermore, there has been an unprecedented degree of acknowledgement surrounding the limitations of the conventional supply chain, and, enthusiasm toward leveraging local resources not only for the sake of future disaster preparedness but also for the sake of improving the resilience of each region and its people overall.

Given the extraordinary ways in which the pandemic has impacted food specifically, it is not surprising that a number of papers have been released to document national and state level trends—what COVID has meant for national labor, the agricultural sector, and major distributors. However, far fewer papers have touched on the unique ways in which this national health tragedy has impacted individual communities, and what it could mean for them moving forward. The research performed for this paper began in Fall of 2020 and was concluded in

winter of 2022; this paper is written as the pandemic and its consequences are still unfolding. While the pandemic is not over, much of the initial shock and panic surrounding supply chain disruption has subsided. Now more than ever, we are presented with an opportunity to consider how our communities can build back better, more resilient, and more equitable under both extreme and ordinary circumstances.

Background

Contextualizing the Modern Food System

A food system consists of the actors, drivers, activities and relationships involved in the supply, demand, use, and disposal of food (Biehl et al., 2018; Ericksen et al., 2010; Gottlieb & Joshi, 2010; Nesheim et al., 2015). The proverbial ‘food system’ is a global giant, but can be studied at a multitude of scales; investigating stakeholders and exchanges nationally, at the state level, or even within individual neighborhoods. Because food is a fundamental human need, a region’s economic, environmental, and public health depend on a supply of food that is both stable and resilient. As such, understanding regional food system assets and limitations (including how these systems respond and adapt to major disruptions) plays a pivotal role in how community members, businesses, and government officials are able to prepare for disasters and other disruptive events.

The supply chain is a key component of the food system and consists of a sequence of sectors including producers, manufacturers, wholesalers, distributors, and retailers. The modernization of the food system through industrialization and globalization has led to the lengthening of this supply chain as well as a massive surplus of food generation, making the management of this surplus and disposal of food waste other key components of the food system (Thyberg & Tonjes, 2015). Some food surplus is diverted to food recovery organizations like food banks, food pantries, and soup kitchens in order to feed hungry people who cannot afford to participate in the conventional ‘consumer’-food relationship some or all of the time. What cannot or is not donated is disposed of through waste management companies that either sell it to landfill or compost processing facilities.

The conventional food supply chain operates according to a just-in-time economy, where businesses aim to purchase supply to meet existing demand as closely as possible; this model prevents accumulation of unused inventory, helps to keep cost of food low, and has historically proved to be economically efficient for businesses (De Steur et al., 2016, Huff et al. 2015). The modern food supply chain is lengthy, relying on a handful of massive corporations and the tendrils of international trade to provide cheap, readily available products for mass distribution. Because of its rigid and linear structure, the traditional supply chain model is well suited for the just-in-time economy but is by nature vulnerable to both supply and demand side disruption (Keating, 2013. Nijhuis et al 2018, Hobbs 2020). Moreover, because the food supply chain is composed of multiple interdependent sectors, acute disruptions present risk to the entirety of the system (Buldyrev et al. 2010).

The conventional food supply chain prioritizes profit maximization and frequently utilizes interstate and international resources, minimizing redundancy and thereby hindering the ability to adapt during times of natural disaster and other disruptions (Cleveland et al., 2014). Disruptions to the supply chain can also indirectly impact food supply by altering consumer behavior (Peck 2006, Vo and Thiel 2006, Hobbs 2020). When instances of uncertainty occur, consumer demand becomes volatile and the just-in time economy of food becomes particularly difficult to maintain. Rising demand for specific items (e.g. non-perishable foodstuffs) creates strain within an already weakened food system and inventory lag risks spurring a positive feedback loop of consumer panic buying (Peck 2006, Vo and Thiel 2006, Hobbs 2020).

The emergence of the COVID-19 pandemic has shone a light on many of the shortcomings of the traditional food system, including its underlying risks and precarity, and has pushed them to a near breaking point. While food studies experts have long warned against the

unsustainable nature of our present food system, the disruptions triggered by COVID-19 have demonstrated the fragility of community access to essential goods. The systemic weaknesses exposed by the virus will undoubtedly be compounded in the years to come by economic unrest, particularly jeopardizing the numerous individuals living in or on the cusp of hunger and poverty who are therefore highly vulnerable to the effects of extreme events and recession (IPES 2020). In the long term, we must be prepared for food supply disruptions like that experienced during COVID-19 to become a more frequent occurrence due to the impact of climate change or future pandemics (Hatfield et al. 2014, Huff et al., 2015). With the challenges to come, innovative structures must be in place as the vehicle by which regions might recover from COVID-19 and reframe their conceptualization of food in order to establish improved resilience for the sake of community food access.

Contextualizing Food Insecurity, Access, and Aid

The U.S. Department of Agriculture (USDA) defines food insecurity as a lack of consistent access to enough food for an active, healthy life. For those it affects, food insecurity has been found to increase the risk of mental and physical health related problems, such as depression, diabetes, irregular sleep patterns, reduced attentiveness, and premature mortality (Gundersen and Ziliak 2015). Food insecurity and hunger are often used interchangeably in colloquial contexts, however, while hunger and food insecurity are closely related, it is important to establish that they are distinct concepts. Hunger refers to a personal, physical sensation of discomfort brought on by insufficient amounts of food and can occur as a result of being in a state of food insecurity (USDA ERS). To be food *secure* is to have safe and nutritionally adequate food readily available at all times as well as assured ability to acquire these personally acceptable foods in a socially acceptable way (IBID). In most instances the USDA considers

households with high or marginal food security as food secure, and those with low or very low food security as food insecure.



Figure 1. Levels of Food Insecurity

Source: Adapted from the USDA Economic Research Service

Food access is related to food security. Food security by definition refers to a household's economic and physical ability to access food. Food access is a broader term which is used to characterize a household or community's food environment as it impacts resident food security (USDA ERS). Barriers to food access can be physical, economic, educational, or cultural and efforts which seek to improve food access must consider all four (SPUR 2015). Physical barriers impact individuals' ability to get to healthy foods and include: proximity to grocery stores and other quality food retail, neighborhood safety and walkability, and availability of public transportation. Economic barriers impact individuals' ability to purchase healthy foods and refer to the affordability of the food items at local food retail outlets and whether or not they accept food assistance benefits such as SNAP (Supplemental Nutrition Assistance Program) or WIC (Special Supplemental Nutrition for Women, Infants, and Children). Educational barriers refer to

individuals' nutritional knowledge, cooking skills, food literacy, and general knowledge surrounding making healthy food choices. Cultural barriers refer to the appropriateness of the affordable food that is available for residents.

A constellation of government and privately managed resources exist to help aid food insecure households. The most extensive and far-reaching government food assistance programs include: SNAP, WIC, and the National School Lunch Program (NSLP). Each of these programs is means-tested, limiting eligibility to households whose income falls below a predetermined threshold—typically between 100-200% of the federal poverty level. While poverty is a strong indicator of food insecurity, many families significantly above the federal poverty level struggle with food insecurity—often due to high regional costs of living—and are therefore ineligible for means tested food aid (Gundersen and Ziliak 2015). Food banks, pantries, and meal distribution sites provide essential services to their respective communities; however, the charitable food sector is only a fraction of the size of the federal nutrition safety net. As such, private charitable food assistance can only effectively serve as a complement to federal and state programs.

Methodology and Positionality

Project Roadmap

This work begins with a literature review which serves to (1) situate the massive impact of COVID-19 as a disaster by elaborating on citizens' accumulated risks (specifically food related), (2) highlight the ways in which low income and BIPOC communities have been particularly impacted by this disaster, and (3) introduce Food Justice as a fundamental theoretical framework in approaching these case studies as well as in conceptualizing strategies for improved regional food system resilience post-COVID.

The second section of this work explores three case studies of COVID-19 impact on community food systems—Woodland Joint Unified School District (WJUSD), the city of Stockton, and Santa Clara County. According to Creswell (1998), conducting diverse exploratory case studies are appropriate for examining the impact of sudden phenomena, like COVID-19, on a system. These cases were investigated using a combination of secondary document analysis and stakeholder interviews. Two of the three case studies (WJUSD and Santa Clara County) were also tied to participation in existing, community-driven COVID recovery projects. For each case two central research questions will be addressed: (1) What disruptions associated with COVID-19 occurred within this food system from the perspective of various food system stakeholders? (2) What responses or adaptations occurred or were proposed within this food system as a result of these disruptions, and by whom?

The third section of this work discusses overlapping trends from these three cases, makes suggestions for practical and theoretical pathways for improved access and resiliency, and suggests avenues which warrant additional research.

Semi-Structured Interviews

A combination of telephone calls and emails were used to recruit (n=24) participants from organizations focused on promoting food access, such as: nonprofits, school food authorities, emergency food aid practitioners, or community groups/organizations. Participants were identified alongside colleagues familiar with the respective food landscape of each case study location, as well as via snowball sampling. Organizations were selected with the aim of identifying informants from diverse organizations backgrounds.

All participants were 18 years or older. Interviews took place from December 2020 to December 2021, in line with the timeline of corresponding community projects. Interviews were conducted either via phone or in person at the participant's place of work, according to participant preference. During the consent process interviewees were informed that their participation in this study was voluntary and confidential, and that their identities would not be revealed in the study results. All participants provided verbal informed consent. The UCD Human Subjects Division determined that this study did not involve 'human subjects' as defined by federal regulation and did not require IRB review.

Table 1. Participants interviewed by organization type/role

Participant Role		n Interviewed
Santa Clara	Nonprofit employee (urban agriculture + food advocacy)	2
	University food access initiative member	1
	Food pantry employee	2
	Food bank employee	1
	Employee at meal distribution site	3
Stockton	Nonprofit employee (urban agriculture + food advocacy)	1
	Nonprofit employee (food recovery)	1

	Food Pantry Employee	2
	Employee at meal distribution site	3
WJUSD	School Kitchen Manager	7
	District Food Service Admin	1
		n=24

One core interview guide was created to facilitate interviews with food system stakeholders (See Appendix I). Questions were divided into four conceptual parts—interviewee profile, assessment of current situation, food systems thinking, and organizational background—in order to maintain a clear logical progression communicated from interviewer to interviewee. Still, questions were framed in a semi-structured format to allow for more richness of data from participants' free flowing thought, and from improvised follow-up questions based on participant responses (Galletta 2012, Rubin and Rubin 2005). The structure, format, and contents of the interview guide were modified from Hecht et al's 2019 study assessing emergency preparedness in an urban food system. Excerpts from these interviews that addressed research aims were taken from the interviews and entered into a spreadsheet, coded into six categories—pre-COVID needs, COVID disruptions, adaptations, sustained changes, gaps/needed aid, and perceptions/food system thinking.

Document Analysis Methods

This exploratory study leans on a secondary document analysis methodology to ascertain the social/political/economic context of each place before the onset of COVID-19 and to help provide richness in detailing the impact of COVID from a number of sources. This design of inquiry describes a form of qualitative research that uses a systematic procedure to analyze documentary evidence and answer related research questions. Similar to other methods of

analysis in qualitative research, document analysis requires repeated review, examination, and interpretation of the data in order to gain meaning and empirical knowledge of the construct being studied (Frey 2018). Through this methodology, the researcher is able to glean themes and trends from the authors' points of view in order to better understand the context of their creation (Bowen 2009). Utilizing document analysis for this research project allows for an investigation of each respective food landscape prior to and amidst COVID-19, including: food system actors, typical operational purview, respective COVID-19 response strategies, and pre/amidst-COVID challenges. Such documents included: local news reports, city memos/reports/funding allocations/meeting minutes, CBO/non profit reports/program descriptions/meeting minutes/presenter-attendee lists, etc.

Limitations

The methods utilized in this study pose several key limitations. While the investigation of these cases involved modest community interaction and a small quantity of stakeholder interviews, this research could have been strengthened overall through the addition of more primary information. Involvement in the community projects which informed each case study occurred only for the span of several months each, and interviews with key stakeholders were intentionally designed to be brief (in recognition of the immense strain experienced by food service/aid practitioners during COVID-19). Future research would benefit from additional in-depth stakeholder interviews, surveys, and deeper community embeddedness/inclusion.

Second, because the COVID-19 pandemic is an ongoing crisis, the data collected will not reflect community action taken outside of the window of analysis—which is inherently constrained by the limited time frame in which a Masters thesis is written. Continued research on

the impact of COVID-19 will be essential in the months and even years to come, as new strains of the virus and new adaptive policies continue to make waves across the country.

Positionality

As a Community Development Master's student with a Food Systems background, I am passionate about investigating the systems through which low-income communities and communities of color continue to be disadvantaged in the realm of food access; that is, how history, policy, and the built environment meet in a complex nexus to result in under resourced communities. These communities are suspended in a state of precarity, especially in times of crisis. It is my lived experience as a brown woman native to the Stockton area, and an individual who has experienced food insecurity during various stages of life, that initially fueled my desire to study food and spatial justice and informs my overarching goal of contributing to the restructuring of food system governance within the Central Valley. Given this lived experience, I am familiar with the landscape of hunger interventions from the perspective of an aid recipient and food systems student. However, as an individual currently external to each of these regions' government and CBO leadership, I lack understanding of the experiences associated with organizing and facilitating stakeholder networks within that context, and the bureaucratic and financial barriers that may shape decision making and priority setting. As such, the recommendations made in this report do not necessarily reflect the immediate priorities or capacities of these bodies—but rather, present numerous potential pathways for improved access and regional food system resilience in the long term.

Literature Review

Disaster and Vulnerability Within the Conventional Food System

This paper explores the impact of the COVID-19 pandemic on a handful of communities, and demonstrates the impact of this disaster on community food access and food system perspectives. However, in discussing such topics it is essential to also acknowledge that states of disaster are not caused simply by an isolated hazard—such as a hurricane, a fire, or in this case the materialization of a virus. Instead, the ‘Sociology of Disasters’ (a disciplinary construction based on the ideas of those such as Quarantelli, Dynes, and others), implores us to position disaster as the union of both a hazard and underlying risk conditions (Bohle, Downing, & Watts 1994; Ribot 2019). In this sense, we must understand the crisis surrounding COVID-19 as being inherently characterized by not only biological threat (SARS-coV-2 itself), but also the level of vulnerability faced by individuals and communities as a result of pre-existing conditions (Lavell, Mansilla, Maskrey, & Ramirez 2020). Disasters are the emergence of this socially produced risk; this risk is accumulated through the interaction of a range of economic, social, and environmental processes and, as such, are deeply rooted in the history of a given place and its people (Wang 2014; Lavell, Mansilla, Maskrey, & Ramirez 2020).

It is widely acknowledged among food scholars that the present industrial food system is not well equipped for disaster—it is wrought with underlying risks and precarities, not only as a system itself, but in the varying degrees of personal risk it allocates to its users (Hendrickson 2020). COVID-19 has crashed like a tidal wave over multiple sectors of the food system, over a vast geography, over a very short period of time. The pandemic has glaringly illuminated that the just-in-time system economy of the industrial food system lacks the resilience to effectively respond to any significant multi-sectoral shock (Hendrickson 2020; Matthewman & Huppertz

2020; Thilmany, Canales, Low, & Boys 2020). The lengthy supply chains that wrap around the globe have proven to be inflexible, showing little capacity to accommodate change when necessary (Thilmany, Canales, Low, & Boys 2020). With little redundancy of operations or diversity in scale, this system fails to provide itself with fail-safe mechanisms (Hendrickson 2020). Now, in 2020/1, countless persons are living through the brutal exposure of these shortcomings that scholars have documented for years. Produce has been destroyed in fields because of narrowed markets sparked by food service closures (ibid). Farmers face euthanizing their animals for lack of slaughter space (ibid). And grocery store shelves sit empty due to a cycle of supply chain disruptions and consumer panic buying (ibid).

At the same time, this system serves to allocate varying degrees of personal risk to its users. Presently and historically, distribution of food resources has been highly inequitable, leaving 1 in 10 citizens food insecure (pre-pandemic)(Coleman-Jensen et al. 2020). Resolving food insecurity is imperative for countless reasons, foremost being its role as a social determinant of public health. In an age of crisis especially, food insecurity serves as an indicator of vulnerable communities riddled with pre-existing health conditions and, consequently, a heightened risk of coronavirus infection (O'Hara & Toussaint 2020). In addition to issues of access and supply chain resiliency, the inception of COVID-19 has served as an expression of unsettling U.S. class dynamics—as workers at countless hand-off points along the food supply chain have been exposed to infection risk. Further, low wage workers such as grocery clerks, school food service, and factory workers have been pushed to the front lines of the pandemic—deemed essential—but provided little protective gear or means of social distancing (Thilmany, Canales, Low, & Boys 2020). Despite their work to help secure a fragile supply chain, these largely black and brown laborers are placed in a state of socially produced precarity—an

injustice that stems from a long history of discrimination “embedded in culture and woven into local regulatory landscapes,” (O’Hara & Toussaint 2020).

Vulnerable Groups and Accumulated Risk

Low income, Black, Indigenous, and other persons of color have historically been and continuously are vulnerable groups. Limited access to nutritious food is a particularly prevalent example of a vulnerability that disproportionately impacts communities of color (Gundersen, Kreider, & Pepper 2011; Schram 2014; Bowen 2021). Between 2019 and 2020, food insecurity increased from 10.5% to 23% of U.S. households (Coleman-Jensen et al. 2020). However, within this number lies wide racial disparities; 34% of Latinx households and 29% of Black households were food insecure, compared to 18% of White households (Ibid). Indeed, since the USDA began tracking rates of food insecurity in the mid-1990s, research has consistently shown that (with or without the consideration of income) some households are more likely to experience food insecurity than others, including: female-headed households, Black and Latinx-headed households, Indigenous households, recent immigrants and noncitizen households, and households headed by individuals with disabilities (Chilton et al. 2009; Blue Bird Jernigan et al. 2017; Coleman-Jensen et al. 2020).

The literature supports a clear White/non-White divide in food insecurity. These stark differences in food insecurity rates between demographic groups can be linked to a host of racist American policies and practices which have also resulted in racial disparities in incomes, educational attainment, and physical asset attainment (such as homeownership) (Korver-Glenn 2018; Thomas et al. 2020; U.S. Census Bureau 2020). Redlining, for example, resulted in decades of BIPOC individuals being corralled into blighted neighborhoods (from which Whites and capital had fled) thereby concentrating poverty. Racialized pockets of urban food insecurity

emerged in tandem with the post WWII growth of suburbia and the industrial food system (Slocum and Saldanha, citing Beaulac et al. and Jackson 1985). Big box food retail hegemonized and these supermarkets followed white middle class consumers to the suburbs. This shift undermined predominantly BIPOC populations without private transportation in accessing food outside of convenience stores and fast food outlets (Slocum and Saldanha citing Becker 1992, Cannuscio et al 2010, Morland and Filomena 2007, Block et al 2004). This history of racism and concentration of poverty serves as a base for the construction of contemporary neighborhoods and ultimately their food landscapes.

The food system, and the issue of food insecurity, are deeply entrenched in history, policy, and cultural values. Low income, BIPOC communities were particularly impacted by disruptions to the food system during COVID-19, as years of historically accumulated risk met newly exacerbated barriers to food access.

The Emergency Food System During COVID-19

The onset of the COVID-19 pandemic highlighted the national charitable food system as a critical frontline service for millions of U.S. citizens (Cavaliere et al. 2021). This system includes food banks and pantries, meal distribution sites, as well as established and new community-based mutual aid initiatives. Many of these sites experienced an overall increase in demand during COVID-19, especially in the first several months. During the first three months of the pandemic, U.S unemployment was higher than at any point during the Great Recession (Hedge et al. 2021). As these tens of millions of newly unemployed individuals struggled to make ends meet, the SNAP application portal saw a 164% increase in traffic (Hunter & McGrath 2020).

Amidst swelling community need, Feeding America, a network of more than 200 food banks across the country, reported a 64% decrease in donations (Feeding America 2020). Food banks and pantries alike reported shortages in manpower to distribute the food they did have. Practitioners accommodated these larger populations as well as possible, including the number of new clients unfamiliar with navigating food assistance, while facilitating programmatic transitions—such as a shift to no-contact drive-through operations (Shanks et al 2020).

Families with children are more likely to be food insecure (Chilton et al. 2009). School meals, including breakfast, lunch, and afterschool snack/supper, are a vital part of the safety net for children and families. With the closure of in-person school instruction came disruption to these programs, through which many children received nearly all of their daily meals. At the start of COVID-19, staff quickly pivoted to no-contact drive-through operations. They have since been back to ‘normal’ service as of Fall 2021; yet, have continued to struggle with rapidly changing policy and supply chain disruptions.

In many communities, networks of mutual aid have rallied and/or formed to render assistance where needed (Matthewman & Huppertz 2020). Jun & Lance (2020) argue that these forms of horizontal organization between “existing loose associational networks” occurs largely in the absence of clear government response. One example of such non-hierarchical ‘solidarity, not charity,’ is the Community Fridge Project (also known as ‘Free-dge’) based and operated independently out of countless communities—Los Angeles, San Jose, and Sacramento to name a few. These free-food fridges are hosted and sustained by individuals, businesses, organizations, and organizers who fund that some may not seek aid due to cultural beliefs around welfare programs, beliefs that their use of traditional aid takes away from others more in need, and so forth (James 2020).

Reconciling Power Imbalance and Centering Justice

The current food and health crisis reflect a socially inequitable and volatile corporate food regime; one that is rooted in systemic racism, capitalistic gain and wholly unprepared to endure shocks such as that experienced during COVID-19 (Cohen 2020; IPES 2020; Chiwona-Karlton et al 2021; Gagliardi 2021). The following case studies, and the community work that spurred them, are rooted in the notion that unless substantive changes are made to our present system, patterns of inequity are positioned to continue to endanger community health. High level, top-down action to ‘improve’ food system conditions have largely favored investment in ameliorating proximate rather than root causes of food insecurity, and as such, will not alter the fundamental imbalance of power within the industrial food system (Holt-Gimenez, Patel, and Shattuck 2009; Holt-Gimenez and Wang 2011). As such, this work insists that the use of a Food Justice (FJ) Framework is necessary in order to reconcile these power imbalances and transform the food system through regional stakeholder networks in favor of equity, health, and resilience.

Food Justice was born from the Environmental Justice (EJ) movement, which has contributed foundational work in both demonstrating and seeking to rectify the disproportionate environmental burdens associated with various social inequalities (Pierce 2013; Chakraborty 2016). With these roots, the FJ movement emerged to place access to healthy, affordable, culturally appropriate food in the contexts of structural inequity and racialized geographies (Alkon and Norgaard 2009). As a framework, FJ seeks not only to combat unjust practices/institutions but narrow and unsustainable interventions as well (Scholsburg 2013).

Under this framework significant focus is put toward rethinking/redesigning communities’ relationships with food (Holt-Gimenez and Wang 2011). FJ seeks to move beyond food security as a goal, toward food sovereignty—where individuals not only have access to

nutritious and culturally acceptable foods but can also shape their own food system (Holt-Gimenez and Peabody 2008; Pimbert 2009). In order to achieve this, an FJ framework necessitates that we move beyond the notion of food as solely a commodity and people solely as consumers (Welsh & MacRae 1998). That is, we must adequately value the importance of community/cultural relationships with food, its place in education and expressing autonomy, and the resources and labor associated with food production through a sort of true cost accounting (Heynen, Kurtz, & Trauger 2012). FJ scholars argue that the contemporary habit of hyper-commodifying food assists in driving high volume production, scaling up power and control to large institutions and firms, and ultimately undermining citizen capacity for autonomy and expression of foodways (Goodman and Redclift 1991; Lang 2003; Pimbert 2009).

FJ links food access to broader questions of power, race, and sustainability, suggesting that a socially just food system is one in which community members have equal freedom and capability to achieve the nutrition and sustenance culturally and nutritionally appropriate for them *as well as* the opportunities and benefits presented by food production and distribution activities (Meenar and Hoover, 2012). Food justice, then, serves as a strategy to evaluate these variables within a given context with consideration of the historical processes through which race and class privilege have influenced who lives where and who has access to what kind of services (Alkon and Norgaard, 2009). Furthermore, by utilizing food justice as a framework, practitioners have the opportunity to look critically at the food insecurity interventions currently in place and evaluate how they do or do not address issues with the intention of long-term impact; whether they do or do not go beyond the hegemonic ‘reactivity’ of supplying a basic need to chip away at the underpinnings of a greater, unsustainable system (Schlosberg, 2013).

Case Studies

The following case studies are addressed sequentially. I will begin by providing background context for each location, followed by a brief description of my involvement there. Finally, I will detail the findings derived from interviews with key stakeholders, organized by major themes. Codebooks for each geography are available in Appendices II-IV.

Santa Clara County

Profile of Place

Santa Clara County (SCC) is located in the heart of California's Bay Area. The Ohlone and Yokuts have been the predominant indigenous group of the SCC region, past and present. European and American colonization of this indigenous land began in the late 1700s, and by 1852 there was more than a 90% loss in pre-colonial Ohlone and Yokut populations in this region (Bay Area Equity Atlas). The gold rush sparked even more rapid changes in the region, as San Jose soon became a major supply center for arriving miners and the first state capital of California. SCC was one of the original counties of California, formed at the time of statehood. Economic growth was linked to the development of railroads as well as agricultural success in the Santa Clara Valley (Hall 1871). The establishment of several universities in the region contributed to this region becoming a hub for technological innovation both during industrialization and the birth of the 'Silicon Valley,' (ibid).

Today the county is home to just under two million people and is known for its rich diversity in both industry and culture. SCC is a major employment center, providing more than a quarter of all jobs in the Bay Area. However, extreme wealth disparity between cities and industries within SCC is apparent. 76,000 millionaires and billionaires live in Santa Clara County. And four of Silicon Valley's tech firms: Alphabet, Facebook, Cisco, and Apple, have combined \$307 billion in cash reserves (Bricker 2020). At the same time, 20% of households in

SCC reported having less than \$400 in savings for an emergency (Silicon Valley Pain Index 2020). In 2018, more than half (53%) of all households in the county held a mere 2% of the region's wealth (as measured by investable assets) (Silicon Valley Institute for Regional Studies 2018). This gaping wealth disparity manifests itself in soaring costs of living and a housing crisis which prices many low income citizens out of the region (Kendall 2019).

Like in many cities, wealth in SCC is racially stratified. The county is composed of 39% Asian individuals, 30% White individuals, 25% Hispanic or Latinx individuals, 3% Black individuals, and 3% Pacific Islander, Indigenous, and multi-race citizens (American Community Survey 2019). In 2018, 57% of Hispanic/Latinx households in SCC were living below the Self-Sufficiency Standard; 45% of Black households and 26% of Asian households, compared to 18% of White households (Silicon Valley Institute for Regional Studies 2018). In total, nearly $\frac{1}{3}$ of SCC households did not earn enough money in 2018 to meet their basic needs without public or private/informal assistance (Silicon Valley Institute for Regional Studies 2018). In this, many SCC residents struggle to obtain consistent access to adequate quantities of food. Food insecurity rates in Santa Clara County vary widely across reports—between 7.8% and 29.3% for 2018, depending on metrics utilized (JVSV 2020). Nonetheless, it is evident that food insecurity is a prevalent and growing issue that plagues numerous Santa Clara County residents as regional cost of living and income inequality steadily rise (JVSV 2020).

Community Involvement

My investigation of food access in Santa Clara County began in November 2020, when I started working with a team of county officials and University of California Cooperative Extension (UCCE) researchers on developing a plan for improved county food system resilience post-COVID. This food system work plan was to be the outcome of detailed document analysis

and community stakeholder engagement. Because the regional food system involves a broad set of stakeholders, this work plan was to serve as a framework for coordinating the efforts of these stakeholders and outlines areas where the county of Santa Clara can assist in making progress toward building a food system that is more equitable, resilient, and sustainable.

This effort involved experts from a variety of backgrounds who investigated the diverse and expansive sectors which make up local food systems—agriculture and land use, manufacturing and distribution, waste and recycling, and so on. Because of my educational focus in food equity and community development, I was tasked with working on the portions of the report which touched on improving food security and improving community engagement toward greater food sovereignty. I participated in this project from November 2020 through March 2021 when the report was completed and submitted to the County Board of Supervisors. Through this work I conducted 9 over-the-phone interviews with practitioners of food aid. During interactions, my role as both a graduate student researcher and UCCE affiliate was explicitly disclosed.

Findings

See Appendix II for Santa Clara County interview codebook.

Disruptions

Interviews with food access organizations revealed a collective experience of uncertainty during the initial wave of COVID-19. During this several month period, practitioners reported receiving unclear top-down direction from city and county offices and being uncertain about what resources were available to them for support. Funding, which had been a major pre-existing burden for aid groups, became an even more significant concern as groups did their best to meet the swelling community need for food resources.

Reduction in staff/volunteer availability was perhaps the most widely reported disruption—reported by eight interviewees. Because many of these programs rely *predominantly* on volunteers, concerns about COVID-19 caused these organizations to experience a significant loss in capacity. However, the staff and volunteers that remained were reported to be exceptionally resilient and flexible.

While supply shortages were concerned for some interviewees (2), others (2) expressed that they struggled more with the logistics of picking up donated food and transporting meals/groceries to distribution locations. For many, the question of how to reach in-need community members who were sheltering at home was both concerning and frustrating, as most organizations lacked the capacity to perform grocery ‘drop-offs.’ Others were concerned about the impact of shelter-in-place restriction on personal interactions; congregate meal services were no longer able to gather as they had, and staff worried about the mental health of their clients given COVID related isolation.

Interviewees reported massive increases in demand for their services, in some cases double their historical participation. Amidst these challenges, aid practitioners uniformly reported feeling pressure to meet the increased need present in their communities. While top-down resources were both limited and delayed, interviewees reported a groundswell of community support as key to their success.

Adaptations and Sustained Changes

Grocery and meal distribution operations were forced to quickly transition to a “grab and go” format, causing a complete overhaul in their operations. However, a number of changes and innovations enabled these practitioners to continue meeting community need:

- Scaling up of services; providing services at more locations for longer time blocks

- Providing no-touch, drive through sack meal or grocery distributions
- Engaging new volunteer pools, including students and faith-based communities
- Shifting forms and resources to online platforms
- Learning from and sharing resources with community partners

When asked whether they intended to sustain any of the strategies they implemented during COVID-19, four interviewees responded no. However, the five interviewees who responded yes reported that their organizations intended to continue working to improve communication across sites and developing working partnerships.

Looking to the Future

When asked what kind of aid or resources would be most helpful to interviewee organizations to cope with current or future COVID-19 related disruptions, practitioners provided a variety of responses:

- Infrastructural needs were addressed five times, including the need for industrial community kitchen spaces, aggregation capacity, storage, and delivery capacity
- Assistance with large scale coordination and collaboration was addressed three times
- Sustainable funding was addressed four times
- Political needs were addressed two times, including the need for living wages and stronger relationships with city/county officials

When asked if COVID-19 had changed the way that they think about the food system, interviewees largely responded with a tentative no. They explained that the events of the pandemic had reinforced their values surrounding mutual aid and strongly emphasized the essential nature of collaboration. While some organizations had not been undergoing extensive collaboration pre-pandemic, acknowledging its importance had become a necessary strategy for survival—especially for smaller organizations. Interviewees explained, furthermore, that the pandemic had served to exacerbate existing barriers to food access for the communities...forcing

inequities into the spotlight. Two interviewees in particular noted their optimism that these glaring issues would make political leaders and voters alike more amenable to change ...potentially sparking significant reform in the world of food.

When asked what broad changes they believed would lead to improved food system equity and/or resiliency:

- Three recommended that efforts should be made to prioritize the welfare of the most historically vulnerable persons in our communities, including food system workers, BIPOC communities, the elderly, and the disabled
- Five recommended efforts be made to develop emergency protocol within food system planning and to integrate food planning with other sectors such as (affordable) housing
- Two recommended that organizations work intentionally to divert some efforts away from fulfilling immediate needs and toward solving upstream causes of hunger
- Two reiterated the need for additional collaboration and coordination across organizations

The City of Stockton

Profile of Place

Stockton, California is a mid-sized urban seat to an otherwise largely rural San Joaquin County. Before the city's settlement, the Yatchicumne people—a group of northern valley Yokuts—inhabited the delta region as their home (City of Stockton History & Archeology). European and American colonization decimated the Yokuts, forcing them into missions and off of their land. It was the discovery of gold along the American River in 1848 that catalyzed Stockton's initial transformation from a small settlement into a booming commercial center (City of Stockton History & Archeology). From then on, the city began to support a flood of gold seekers from across the globe, setting the foundation for Stockton's diversity of culture. Given a rich peat soil and temperate climate, the region around the city quickly became extensively cultivated. Stockton sits at the confluence of several rivers and man-made channels; this network

has allowed the city to serve as a longstanding, major shipping point for agricultural and manufactured products in and out of Northern California (City of Stockton History & Archeology).

Today, Stockton remains a central hub of agricultural and food related industry. Still, 18% of the city's 312,000 residents live in poverty, notably higher than the California state poverty rate of 12% (American Community Survey 2019). Stockton also faces crime at a rate that is double the national average; violent crime here is higher than in 97% of U.S. cities (City-Data Archive 2019). The city is comprised of approximately 43% Hispanic or Latinx residents, 21% White residents, 21% Asian residents, 11% Black residents, and 4% Pacific Islander, Indigenous American, and multi-race citizens (American Community Survey 2019). Yet, despite being a majority minority city, Stockton residents experience severe racial/ethnic income disparities. White households have a median income of about \$60,700, roughly twice the median income among Black households (\$30,400) and still considerably more than Hispanic/Latinx (\$43,900) or Asian households (\$56,200) (Galvin 2020 citing ACS 2019).

Despite being at the epicenter of California agriculture and food commerce, Stockton CA residents experience food insecurity at an exorbitant rate. That is, many residents of Stockton struggle to obtain sufficient access to the fruits, nuts, and vegetables the San Joaquin region is known for producing (City of Stockton, 2017). The USDA Food Access Research Atlas reveals that in 2019, 13 of Stockton's census tracts were deemed low income and low access (See Appendix V). This means that upward of 73,000 citizens (23% of the population) struggled to meet their daily needs.

Community Involvement

Unlike the other cases explored in this paper, this case study investigation is not rooted in a community driven project. Rather, as a native to the Stockton area I simply found myself drawn toward investigating the ways in which COVID-19 impacted this community's access to essential goods. Relevant secondary materials were sought out over the course of January 2021 through August 2021. Fifteen community food resources were contacted via a combination of phone and email to inquire about participation in brief semi-structured interviews; of these 15 inquiries, seven participants were obtained.

Findings

See Appendix III for Stockton interview codebook.

Disruptions

Interviewees consistently reported the first several months of COVID-19 to be the most challenging thus far, given the rapidly changing political landscape and unclear expectations surrounding how best to protect staff, volunteers, and clients. Four interviewees noted difficulty acquiring appropriate PPE. They emphasized this transition to be “an extended period of uncertainty” wherein they received little government direction or support.

Finding sustainable funding was a consistent concern for community organizations pre-pandemic; this gap was only exacerbated during the onslaught of COVID-19, as organizations grappled with a flood of newly unemployed and food insecure citizens. Amidst this increase in need was a rapid decline in staff and volunteer numbers. Health concerns and shelter-in-place recommendations caused countless essential contributors to step away from their duties. The volunteers and staff that remained were noted to have played an essential role in these organizations' ability to successfully adapt, due to their persistence and flexibility.

Adaptations and Sustained Changes

For grocery and meal distribution sites, the initial wave of COVID-19 prompted a swift shift to contactless “grab and go” service. The urban agriculture and food advocacy nonprofit interviewed expressed adaptations such as social distancing and limiting the number of people on site at a given time. The food recovery organization interviewed noted that in the face of COVID-19, their organization pivoted greatly—shifting programming from event food recovery to meal creation and distribution (due to the absence of large events during shelter-in-place). Many of these organizations offered extended hours and additional resource locations to meet community needs; however, especially at the start of the pandemic, practitioners were concerned about the accessibility of this rapidly evolving information.

The Stockton Strong Coalition was a major collaborative effort born out of the initial shockwaves of COVID-19 which aimed to meet this need. The initiative aims to bring together public and private sectors and civic leaders to coordinate community-based COVID-19 response efforts within the city of Stockton. With the support of former Mayor Michael Tubbs, the coalition launched in March of 2020 in the form of biweekly Zoom meetings, and selected a full-time coordinator by August 2020 to maintain the coalition’s comprehensive resource index. This index of services includes food aid as well as mental health resources, housing resources, and educational resources. Spreadsheets of services are linked to google forms, with permissions granted to community organizations so that they can update their service hours or requirements as needed. Regularly updated, easy to navigate, and comprehensive, this resource fills the gap left by outdated and incorrectly linked county 211 web pages.

Not every provider interviewed expressed being deeply involved in the Stockton Strong Coalition’s work. However, nearly every interviewee was familiar with the coalition website as a

new and major source of COVID-relevant food access information. More generally though, inter-organizational collaboration *was* a major theme across interviewee adaptations—as five of them expressed information sharing, strengthened partnerships, and improved coordination across other sites as being pivotal to their organization’s success in early COVID. One interviewee even noted that their organization had received much needed PPE (gloves and sanitizer) from one of their partner organizations.

When asked if they intended to sustain any changes made to operations during COVID-19, the same five interviewees who reported the importance of collaboration in their adaptation process stated their intention to maintain and/or grow these relationships. While providers generally reported support and excitement around the Stockton Strong Coalition, as well as intent to continue utilizing at least their platform for updating service details, three interviewees noted concern surrounding information accessibility for older adults and individuals without access to the internet. One interviewee stated, “while these digital forms and platforms have been convenient, I still worry about accessibility for those without computer access or literacy...or even english language skills. We need to keep working on solutions in order to get support to our community members who need it most.”

Looking to the Future

When asked what kind of aid or resources would be most helpful to interviewee organizations to cope with current or future COVID-19 related disruptions, three key themes emerged:

- Sustainable funding was addressed four times
- Local government prioritization of food access/equity was addressed three times
- Land use policy in favor of urban gardening and agriculture was addressed once

When asked if COVID-19 had changed the way that they think about the food system, three interviewees reported that the events had made them reflect on the inequities of the current food system broadly, especially the ways in which it impacts traditionally marginalized communities. For these interviewees, this realization was paired with frustration and motivation to contribute to positive local change. Two other interviewees reported optimism in the face of COVID-19; while these events had been both challenging and traumatic, they felt hopeful that in the face of such glaring shortcomings of the present system substantive change could potentially be more palatable.

When asked what broad changes they believed would lead to improved food system equity and/or resiliency:

- Four recommended efforts be made to develop emergency protocol within food system planning and to integrate food planning with other sectors such as (affordable) housing
- Three emphasized the need to shift culture of food aid away from a competitive approach, toward a collaborative approach toward community service
- Two emphasized the broad need for greater accessibility of emergency services
- Two recommended the prioritization of partnerships spanning multiple sectors, organization types, and sizes
- Two recommended that organizations co-create shared objectives and metrics

Woodland Joint Unified School District

Profile of Place

Woodland, California is a small semi-rural city which serves as the seat of Yolo County. This place was at one time home to the Patwin people, who lived in the mild climate amidst the vast oak forests (Stroll through history: Woodland). In 1833, European and American colonizers came to the region in search of beaver and otter fur, virtually decimating the Patwin people before moving on. By the 1850s, many who had come to California to mine for gold were

leaving the hills to farm in the valley. It was these pioneering farmers who settled modern Woodland in 1953; since then, the city has maintained a strong connection with its agricultural heritage and a pride in its rich soils (Woodland Chamber of Commerce). Proximity to Sacramento and access to various major transportation routes has created a wealth of opportunities for food and agriculture related industry in Woodland and has caused it to become increasingly important as a manufacturing and distribution center (City of Woodland).

Today, Woodland is home to 61,032 residents (American Community Survey 2020). The city is composed of 48% Hispanic or Latinx residents, 39% White residents, 8% Asian residents, 2% Black residents, and 3% Pacific Islander, Indigenous American, and multi-race citizens. Retail trade, wholesale trade, warehousing, and distribution make up half of the City's employment. However, as the county seat, educational and health services also make up a large sector (one quarter) of the city's employment structure (City of Woodland Economic Development). Per capita income in 2019 was \$32,057, which is notably lower than regional and statewide averages but closely corresponds with the city's economic structure where there is a strong demand for 'low' to 'moderate' skilled labor (Woodland Economic Development).

Poverty in Woodland was 11% in 2019—in line with the state average of 12%. However, Like in many cities, wealth in Woodland is stratified. Indigenous and Pacific Islander persons are most likely to be in poverty in Woodland, with a 33% poverty rate according to the 2019 American Community Survey. The Hispanic population faced a 12% poverty rate and the Black population faced a 32% poverty rate. Asian persons faced a poverty rate of 16% and White persons in Woodland faced a poverty rate of 8%. Linguistic isolation has been identified as a potential factor driving inequity and creating barriers to high paying jobs for the large Hispanic/Latinx population in Woodland, as has educational stratification (Existing Conditions

Report, 2018). Woodland is home to a large migrant and non-citizen population (12%), many of whom are monolingual Hispanic/Latinx persons.

For many children and their families, school meal programs are an essential component of the safety net. Woodland Joint Unified School District is the largest school district in Yolo County, with a population of 9,658 students (Ed-Data 2020). Of these students, 60% are eligible for free or reduced price meals due to financial need. In total, WJUSD's school nutrition director and their staff plan and prepare nearly 1,250,000 lunches per school year. Breakfast accounts for another 30,000 student meals while summer feeding programs raise the total even higher. Despite being only one niche of the broader regional food system, school food service holds notable centrality for communities; they are pillars which provide resources, community, and so on. This case study highlights WJUSD as a unique ecosystem within Woodland, rather than the city as a whole.

Community Involvement

My investigation of food access in Woodland began in July 2021, when I started working with a local nonprofit organization—Yolo Farm to Fork (YF2F). Formed in 2012, the backbone of this organization is educating the public (especially children and school communities) about the power of food literacy and collaborative food systems. In the wake of COVID-19, I would be responsible for assisting Woodland Joint Unified School District (WJUSD) with navigating disruptions to food service, improving cultural relevance and nutrition of menu items, and shifting district procurement to favor more fresh and locally produced food items.

This YF2F x WJUSD project is still ongoing, and will continue until March 2023. However, for the purposes of this paper, I will be sharing key findings obtained from July 2021 to December 2021. These findings represent an initial exploration and immersion into district

food service, providing a deep understanding of the ways in which COVID-19 has impacted district nutrition staff and the communities they serve. Over these six months I performed 8 semi-structured interviews, attended several district board and committee meetings, and performed 48 hours of food service job shadowing. During interactions, my role as both a graduate student researcher and YF2F affiliate was explicitly disclosed.

Findings

See Appendix IV for WJUSD interview codebook.

Initial Shocks

The emergence of COVID-19 forced WJUSD to close site operations rapidly, with nearly no notice in March of 2020. This shock forced kitchen managers and district food service administrators to immediately pivot their operations in order to provide meals in a rapidly changing environment. All eight WJUSD interviewees reported that shifting meal service from the traditional model to a limited contact pick-up service presented major challenges, especially in the first several months of this change. Challenges associated with this initial shift were consistent across interviewees and included:

- Developing feasible division of labor in the face of major staff loss
- Acquiring appropriate PPE to maintain operations; not only to protect staff from SARS-coV-2, but also from the summertime heat and lingering smoke during fire season
- Determining ideal pick-up times to best accommodate families
- Altering menu options to accommodate limited ability for refrigeration in this new model
- Coping with increased preparation time and materials cost associated with packaging food for pick-up service
- Difficulty gauging meal participation in this new model, wherein eligible children do not need to be present during pick-up and guardians self report the number of enrolled children they are picking up for
- Sadness surrounding the loss of student interaction and engagement surrounding nutrition

Policy and Reporting Changes

During the initial wave of the pandemic, the USDA provided waivers allowing schools to offer free meals to all students regardless of family income. During the 2021-2022 school year, \$54 million from the California state budget was allocated to supplement USDA funding to continue universal free school meals. California will invest \$650 million in ongoing funds by 2022-2023 to permanently continue offering two free meals per day to public school students regardless of income. These funds are one component of Governor Newsom's \$123.9 billion education package to improve California public schools, introduced on 2/10/21 and signed on 7/9/21 (New York City Food Policy Center 2021). In addition to these funding changes, during the course of the pandemic the USDA has phased in and out over 110 modifications to school meal patterns (Lunch Assist 2021). These waivers were developed in response to COVID-19 to provide administrative review flexibility, flexibility to nutrition requirements, and changes in reimbursement rates.

While these administrative and funding changes have typically been beneficial—providing additional funds and flexibility—interviewees reported immense stress in navigating the rapidly changing political landscape of school food during COVID-19. Many expressed having mixed emotions—happy that students would receive free meals, but concerned about the additional reporting and paperwork associated with this program. Kitchen managers interviewed reported increased communication across in-district sites, as well as use of online forums to help navigate policy changes.

The one food service administrator interviewed reported feeling incredibly overwhelmed by the policy changes introduced since COVID-19. They explained that although several opportunities for grants were available to help with infrastructure and procurement, they had

little to no time to apply for them given their daily responsibilities. They expressed that they had recently taken to communicating with food service administrators in other Yolo County school districts for help navigating policy matters—something they had never previously considered.

Supply Chain Disruptions

Consistently since the pandemic started, kitchens have experienced supply chain disruptions. This occurrence has impacted ‘center of the plate’ items, produce, as well as serving materials like clamshell boxes and cutlery. Interviewees reported adaptations in the form of:

- Prioritizing use of minimal prep items (e.g. whole apples rather than grapes, which would need to be cut and bagged)
- Serving fewer scratch-cooked meals (again favoring items which arrive in-packaging, such as burritos)
- Narrowing the diversity of items offered (one default option and one vegetarian)
- Utilizing online forums to glean advice from kitchen staff in other districts
- Communicating more consistently across sites in-district to ask colleagues for guidance and share resources
- Collaborating with with community partners outside of food services, such as the Parent Teacher Association (PTA) and Yolo Farm to Fork (YF2F)

Interviewees noted that amidst extreme staffing shortages, they looked to school PTAs to recruit family members to fill vacant positions. These recruitments from the PTA were the only vacant positions filled from the start of school closures through Fall 2020. As of February 2022, dozens of positions still remain unfilled.

Yolo Farm to Fork is a nonprofit organization which works closely with WJUSD to facilitate school gardens and nutrition education to students. The produce harvested from these gardens is donated to WJUSD families—a total of 30,000lbs since 2016 (Yolo Farm to Fork). Until the start of the pandemic, YF2F had not worked closely with kitchen staff; however, in the face of supply chain disruptions, the partnership between YF2F and WJUSD food service grew

immensely. School garden produce was channeled into school meals to help meet state nutrition pattern requirements, especially when their primary produce distributor could not fulfill orders.

Beginning Fall 2021, YF2F began working as a liaison between WJUSD and several local producers with the goal of coordinating advance delivery contracts for produce items. This effort would help fill in the gaps left by disruptions to large distribution chains, and provide kitchens with higher quality produce (a pre and during-COVID challenge expressed by many interviewees.

Swelling Expectations and Exacerbated Needs

Throughout the pandemic, school food staff grappled not only with swelling community need, but also its expectations. Despite food service's internal challenges, parents, administrators, and board members consistently made requests for food service staff to provide additional services (without additional resources). These included extended/additional meal pick-up times, additional menu options, and bulk food pick-up options. Interviewees expressed frustration surrounding a lack of understanding around school food services; they argued that the community and school administrators do not understand the degree of crisis occurring in food services as a result of COVID-19.

One example of these exchanges occurred during the June 24, 2021 school board meeting, where the WJUSD district food service director implored the board to not order the implementation of weekend food bundles as an additional program. This program had been brought forward by the Board of Trustees as a strategy to reduce community hunger on days where school food service was not available. While the suggestion of this program was well-meaning, it was presented without any proposed assistance to food service staff who were

already stretched to their limits—with only half of its typical staff. At this time, food services had a mere 16 staff to work across 15 meal distribution locations.

However, while the conditions present during COVID-19 have been extreme, interviewees emphasized that many of the challenges faced were magnified versions of issues that had been present prior. “Staffing shortages are the norm,” explained one interviewee, “while we are used to operating with 1-2 unfilled positions in each kitchen, COVID-19 brought our team down to 4 vacant positions.” Every other interviewee echoed staffing shortages as their most prevalent pre and during-COVID challenge. Four interviewees expressed that they had been experiencing variable quality in the produce they received from their distributor pre-COVID, another issue that was magnified during the pandemic as well. Language barriers across staff and broken/outdated equipment were challenges for three interviewees, both of which limited the efficiency of their team pre and during COVID.

Looking to the Future

When asked if they would sustain any of the adaptations or changes utilized during COVID-19, four interviewees reported that they intended to continue working with local growers (including school garden programs) to source produce. Three of these interviewees reported that they intended to work to continue to strengthen their relationships with these growers in order to improve the effectiveness of their exchanges. Three interviewees reported that they intend to stay in frequent contact with other kitchen managers in the district and three interviewees reported that they intended to continue communicating with food service staff from other districts via online forums.

When asked if COVID-19 had changed the way that interviewees think about the food system broadly or within their specific sector, many (5) expressed a new/renewed appreciation

for communication and collaboration with those outside of their immediate team—whether that be with community partners, other in-district staff, or school food service staff from other geographies. Four interviewees reflected on supply chain disruptions, expressing that they had never before thought much about how their supplies got to them; of these four, three interviewees noted that their perception of local producers had changed—they had previously perceived smaller operations to be *less* reliable than large corporate ones.

When asked about the role of school food in the broader context of the food system, interviewees consistently reported that they viewed school food to be an essential service for both children and families as well as a fundamental component of student educational success. When asked what big picture or long term changes could benefit the resilience of school food or the regional food system broadly, many interviewees reported that they were unsure; however, they emphasized the importance of better community understanding surrounding how school food works and is (not) funded.

Discussion

Cross Case Comparison

Twenty-four interviews with key stakeholders across three distinct food systems illustrated that despite significant differences related to scale, geography, and demographics, food aid practitioners' descriptions of challenges and lessons learned during the COVID-19 pandemic were remarkably similar. Interviewees were employees working in school food, food pantries/banks, distributing hot meals through nonprofit and faith-based organizations, and employees at urban agriculture and food sovereignty community groups.

Amidst the personal, social, and economic upheaval triggered by COVID-19, interviewees reported a number of key disruptions, particularly during the first several months of the pandemic as they transitioned to new, contactless service formats. In each of these cases interviewees reported that their organizations faced an

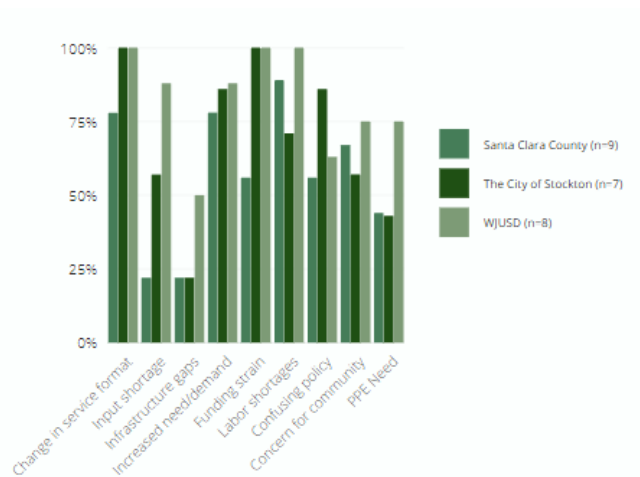


Figure 2. COVID-19 Related Disruptions

increased demand for services, despite having reduced capacity. This was the result of a number of factors, typically including labor/volunteer shortages, inadequate PPE supplies, and strained funding. This influx of community need resulted in interviewees reporting feeling significant responsibility for 'making things work,' in order to provide essential community services during this state of disaster.

In response to these disruptions, interviewees reported a number of organizational adaptations. While some organizations expanded their service windows to accommodate increased need, others were forced to narrow windows or reduce distribution points due to

limited staff capacity. Some organizations reported attempting to engage new pools of volunteers, including faith-based communities and parents of school age children (to varying degrees of success).

Inter-site knowledge and resource sharing emerged as a key strategy for many community organizations. These

exchanges typically occurred digitally, via Facebook or other online forums. Individuals and organizations who were already connected

prior to the pandemic, even if only vaguely, reported feeling significant relief in knowing that they had these relationships—they felt as though they could look to their colleagues for guidance during this time of uncertainty; that they were not starting from scratch.

When asked what kind of aid or resources would be most helpful to interviewee organizations to cope with current or future COVID-19 related disruptions, a handful of key themes emerged. WJUSD interviewees emphasized a need for infrastructure (including repaired cold storage and cooking equipment),

staffing, and improved funding allocation. Because school meals are reimbursed federally and by the CA dept of education, interviewees argue that school districts ought to allocate funds to

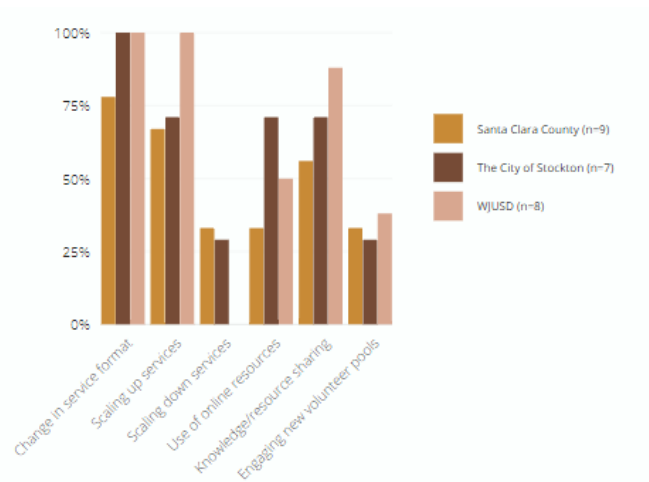


Figure 3. Adaptations during COVID-19

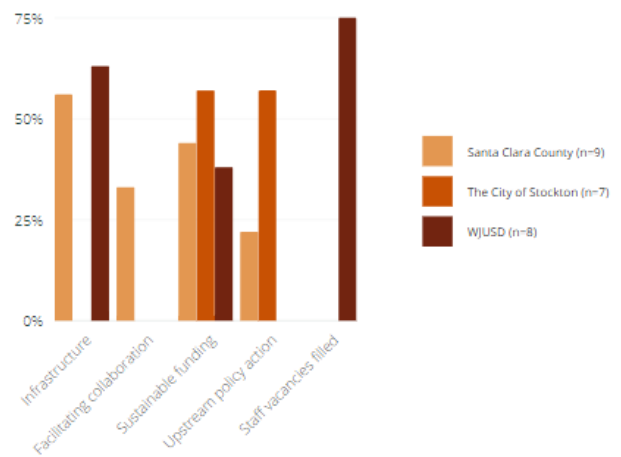


Figure 4. Immediate Organizational Needs

improve the wages/benefits of kitchen staff for their essential labor. Alternatively, interviewees in Stockton reported a broad need for sustainable funding for their programs. Many argued that reliance on short-term funding channels creates an additional barrier for community groups who aspire to go beyond meeting immediate needs, toward community capacity building. In that same vein, enthusiasm for upstream investment (poverty prevention, affordable housing, etc.) was a common theme amongst Stocktonian interviewees. Finally, in Santa Clara County, infrastructural needs were the most frequently cited by interviewees—including need for industrial community kitchen spaces to improve aid services, aggregation capacity for local agriculture, cold storage, and transportation. Food banks/pantries in particular faced significant challenges in storing and moving the food they endeavored to distribute. Sustainable funding and upstream investment were significant themes, similarly to Stocktonian interviewees. Interestingly, several Santa Clara County interviewees cited assistance with facilitating large scale coordination and collaboration as one of their immediate organizational needs.

Interviewees were asked whether the events of the COVID-19 pandemic had any impact on the way that they thought about the food system. For many, it had reinforced what they had already known to be evident—that within our present systems there are abundant inequities. Practitioners saw how the pandemic exacerbated existing barriers to access for their community members—especially those who were already vulnerable pre-

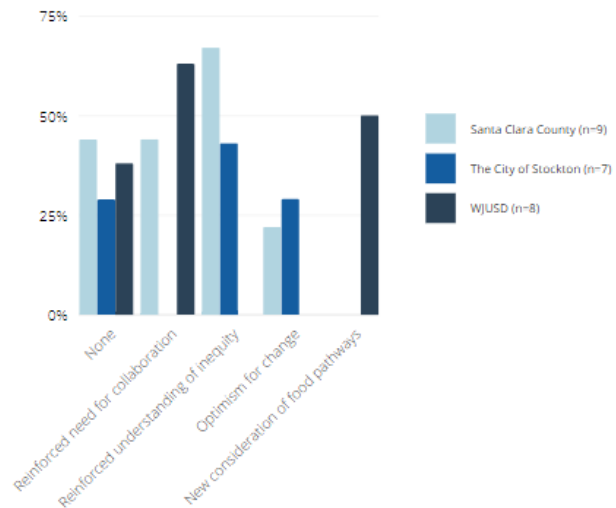


Figure 5. Changes in Thinking Surrounding the Food System

pandemic. Whatsmore, the events of the pandemic shifted the value of collaboration from theory to practice. Interviewees expressed that they had understood the advantage of cross-site collaboration prior, but it was not until the events of the pandemic that they were pushed beyond their silos to communicate in a meaningful way. For many kitchen staff at WJUSD, the disruptions caused by the COVID-19 pandemic marked a new consideration for how food gets from farm to table. These individuals experienced a personal shift: from scarcely considering the components of the supply chain to pondering the advantages of a regional, closely connected food network. For four interviewees in SCC and Stockton, the pandemic has catalyzed hope that others will recognize the immense need for change within the food system.

Interviewees were asked what big picture or long term changes could benefit the resilience of the regional food system broadly. WJUSD interviewees were unsure how to respond to this question beyond the need for increased public awareness around school food affairs. However, for SCC and Stockton respondents, a need for improved emergency planning as well as large scale collective action emerged as major community priorities. Across all three case studies interviewees noted their intention to continue to strengthen working partnerships beyond the duration of the pandemic. In this, inter organizational communication was valued not only for its utility during times of crisis, but also for its potential to improve community access to services (e.g. through minimizing overlapping service windows).

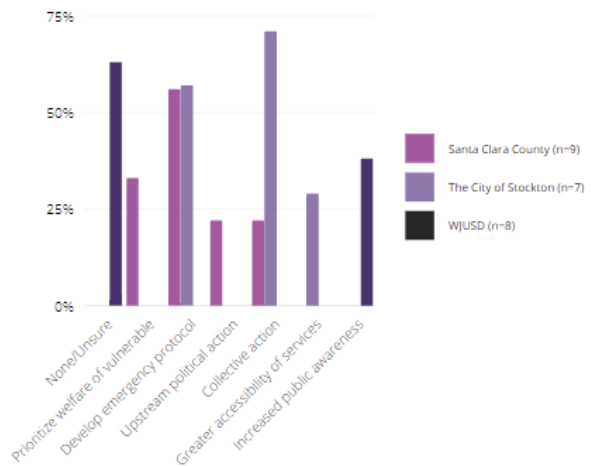


Figure 6. Changes for Improved Long Term Resilience

Implications & Considerations

The results from these case studies suggest five areas of opportunity which stand to improve the resilience of community food aid and contribute to improved long-term access.

1. Include food in emergency planning

Utilizing lessons learned from the COVID-19 pandemic to be better prepared for future disasters was a recurring theme across interviews. Many interviewees identified a need for formalized agreements between counties, cities, and community partners that could be activated during the next moment of crisis. Kinsey et al. (2019) notes that while a number of cities across the United States have broad disaster plans, the number of cities with existing emergency food response measures are incredibly limited in number. Furthermore, while general plans with food system elements already exist within each of these three case study locations, there remains a need for a unifying document to encompass food systems as critical infrastructure within moments of disaster. Proactively constructing such documents would provide essential frameworks for emergency response protocols and would establish structures for coordination during such scenarios. Kinsey et al. (2019) asserts that this preemptive planning process is particularly important in ensuring that the most vulnerable citizens do not experience interrupted access to essential goods and services.

2. Support neighborhood food sovereignty by increasing capacity for community gardening

Three interviewees from SCC and Stockton were from urban agriculture organizations, and about half of the school food service staff interviewed work closely with the surrounding school and community gardens. In Stockton and SCC these sites served as community organizing points and were utilized for resource distribution during the pandemic. In WJUS, the surrounding gardens helped supplement fresh foods made unavailable during the pandemic due

to supply chain disruptions. While access to land was not a central topic of this piece, it relates heavily back to our overarching focus on food sovereignty and local resiliency. The literature and these interactions have demonstrated that urban agriculture can be a powerful gateway to empower and connect citizens around food.

The presence of urban agriculture in communities has been shown to increase individual access to and consumption of fresh produce, promote skill sharing and the sharing of knowledge, as well as catalyze increased community bond-making and neighborhood pride (Horst et al 2017). Undoubtedly, urban agriculture by itself cannot resolve the array of structural causes and impacts of food injustice. Rather, it is fairer to view urban agriculture as a gateway to allow for a shift in governance within the food system (Napawan and Townsend 2016). Supporting community inclusion in food-related decision making and creating policies that create this space in the long term orients geographies to small steps toward cultivating citizen food autonomy.

SCC is home to a handful of proactive urban agriculture organizations who provide low income residents with materials and workshops to empower them to cultivate their own produce. However, residential space and community plots to cultivate throughout the county are limited. The Urban Agriculture Incentive Zone (UAIZ) Ordinance was passed in Santa Clara County in 2015 (UCANR) in an attempt to support such activities; this program incentivizes the use of vacant private land for urban agriculture. However, since it's passing, only one of SCC's 15 cities (San Jose) has approved the UAIZ. In Stockton, September 2020 marked the official passing of the city's first urban agriculture ordinance (City of Stockton Economic Development Department). This policy permits back/front yard gardens, raising bees and chickens, and extends permissions for produce stands and the cottage food industry. However, while urban agriculture advocates in Stockton agree that this ordinance is a good first step in improving local

economic mobility and food security, access to garden-able space remains a significant barrier for many residents in central-city Stockton.

In both of these cases there exists policy with the potential to do tremendous good for citizens, yet, alone these policies are ineffective due to other top-down bottlenecks. Additional reform to existing land-use policies stands to make food cultivation and advocacy projects in these geographies far more feasible.

3. Invest in schools as anchors of community food

School meals, including breakfast, lunch, and afterschool snack/supper meals, are a vital part of the safety net for children. However, barriers to participating in school meals, including stigma, prevent the benefits of school meals from reaching all children. The adoption of universal free meals in California made significant progress toward reducing this stigma and providing students with 2+ meals per day regardless of family income. Still, many districts across California are struggling to meet the increased demand associated with this policy change. In Woodland, this gap has compounded with staggering labor shortages and equipment needs; as a result, hyper processed foods are increasingly being favored over whole foods which require additional preparation—simply out of necessity. The individuals (usually older women) who do this work care deeply for the children they feed, and their nutrition, but are limited by impossibly rigid reimbursement budgets and perpetually understaffed teams (even pre-pandemic). Still, they prepare thousands of meals every day and are paid a median hourly wage of \$10.20 despite often having over thirty years of on-the-job experience (Gaddis & Rosenthal 2020). School meals are an integral part of our national safety net and public health infrastructure; as such, it is imperative that future school funding decisions value the work of the women who provide these meals as such. Doing so also stands to draw more potential applicants to fill these chronically

vacant positions, thereby increasing kitchen capacity for processing whole foods into nutritious student meals.

4. *Strengthen the capacity for coordination across local aid organizations by standardizing platforms for communication.*

Desire to strengthen communication and collaboration across community food access organizations was a recurring theme in case study interviews. The Stockton Strong Coalition was a strong example of citywide coordination of aid resources. In order to organize this effort, facilitators utilized Google Sheets in order to maintain the most accurate documentation of services possible. Still, communication within this coalition was limited to committee meetings and digital newsletters; actual communication from practitioner to practitioner was left to be facilitated independently. In Santa Clara County as well, there exists a number of food-centric collaboratives (e.g. the Food System Alliance); while these groups contribute to beneficial political work, their formats do not speak to the need expressed by practitioners to be able to participate in regular dialogue with their colleagues. Alternatively, kitchen managers in Woodland have expressed a great deal of success in knowledge-sharing through the use of web-based communication platforms and niche forums. In particular, Facebook Messenger served as a valuable resource for raising district-specific questions to staff across each kitchen site; a master ‘group chat’ consisting of cooks and managers helped to form a network of allies, rather than several segmented connections. For broader questions and advice, the WJUSD staff took to Facebook Groups like “NorCal Lunch Ladies,” and “Tips for School Meals that Rock,” to ask their colleagues from other districts. With this in mind, constellations of food access organizations in SCC and Stockton might consider utilizing a standardized web-based mode of communication—such as a Facebook service, Slack, or Discord.

5. *Utilization of a collective impact model, toward the goal of collaborative governance*

Case study interviews revealed that many organizations across each of these geographies are invested in addressing upstream, root causes of food insecurity within their communities. Interviewees frequently acknowledged the interconnectedness of food insecurity and other essential sectors such as housing, healthcare, education, and transportation. At the same time, interviewees expressed their frustration that the local government is not adequately recognizing community food insecurity as a symptom of several simultaneous resource and power inequities. As such, community food aid practitioners might consider utilizing Kramer and Kania's (2011) Collective Impact Model in order to deploy a shared, justice oriented agenda.

According to Eric Holt-Gimenez (2010), "The challenge for many food movements is the need to address the immediate problems of hunger and food insecurity, while working steadily toward the structural changes needed to turn sustainable, equitable and democratic food systems into the norm rather than a collection of projects. This means that both reform and transformation are needed." In this, Collective Impact stands as a model which might allow constellations of community groups to organize around a common agenda, goal setting and metrics, mutually reinforcing activities, and continuous communication, in demand of upstream reform. While there are many other long-standing collaborative problem-solving strategies, utilization of this model might serve as a *pragmatic* pathway for communities to either begin collaborative food work, or to collectively orient themselves toward collaborative governance specifically due to its practical and material framework for execution (Judelsohn, Hoey, Shapiro, & Colasanti 2021).

This Collaborative Governance (CG), then, could serve as the 'transformation' described by Holt-Gimenez. CG is a mode of policy and/or service delivery that shifts away from government and market-centric control toward a setting in which the public, nonprofit, and

private business actors are jointly involved in and accountable for decision making (Voets, Brandsen, Koliba, & Verschuere 2021). Food system scholarship is increasingly acknowledging the potential of CG, especially as it might serve to help improve regional food system equity and community capacity (Edge & Meyer 2019; Clark 2019; Larson & Sjoqvist 2021). As citizens, community organizations, and local businesses become increasingly linked through collaborative processes, not only does local knowledge of food affairs grow, so does the potential resilience and adaptability of the regional food systems. Diverse, well connected community food systems demonstrate improved resilience as they reduce dependence on external sources—such as are present in long-distance supply chains—especially during times of crisis.

Conclusion

It seems as though everyone in the United States has experienced some change to their world of food due to COVID-19, whether due to disruptions in grocery store supplies, reduced spending capacity, or so on. In this, the pandemic has begun to pull off some of the band aids which have been enabling the present industrial food system, to reveal the longstanding damage that exists underneath. In many ways the pandemic has reemphasized the way in which marginalized groups are most impacted by food system policy, yet are also those with the least amount of decision-making power over the development of that policy. However, amidst this moment of collective trauma, there have also been moments of hope. Community members in Woodland, Stockton, and Santa Clara County have demonstrated altruism and dedication to their community's wellbeing. In these places, existing networks of community groups have shown resilience and become even more connected. And these practitioners of food aid have expressed optimism that substantive food system reform will become more politically palatable in a post-COVID world.

As Arundhati Roy (2020) has said: "The virus is a portal, a gateway between one world and the next." If nothing else, these events have demonstrated that other ways of living are within our grasp. The Food Justice Movement suggests that there are solutions for communities to achieve improved access and equity in their food systems through the prioritization of citizen food sovereignty and localized power. That is, in order to rebuild a more resilient food system, it is necessary to shine a light on the concentrated power of a handful of global firms. We must correct the capitalistic food value system currently in place, which simultaneously makes food cheap through the exploitation of nature, farmers, and laborers, while being too expensive for low income households. The way forward must be explicitly rooted in equity and anti-racism,

driven not only by radical hope for a better tomorrow, but also radical actions which stand to achieve that goal.

Interviews in Woodland, Stockton, and Santa Clara County confirmed that the COVID-19 pandemic threw food system inequities into high contrast...and where there were inequities, the entire system suffered. Furthermore, while the pandemic introduced greater overall vulnerabilities to this already precarious system, it also provided an opportunity for community members to discover how to collectively redistribute wealth and resources by leaning on one another. The findings in this paper speak to the ability of community organizations to respond rapidly to changing conditions on the ground—especially when working collectively. In order to further regional food system resilience and community organizing, support, action, and policies are necessary at multiple levels. Local governments and agencies must become aligned in their planning, during times of crisis and otherwise. Cities must support community food autonomy by increasing local capacity for gardening and edible landscaping. Schools and their employees must be appropriately valued as anchors of community nutrition. And local organizations must continue to strengthen their working relationships, rallying together around aligned goals.

Our food systems gain flexibility and adaptability when they are decentralized, amenable to bottom-up community action, and composed of a diversity of interconnected actors who build redundancy and provide fallbacks when some avenues fail. Radical, urgent, and transformative change is necessary within the food system. And the steps to achieve this vision are part of an *ongoing process* of critical reflection and prioritizing justice in order to build back better.

References

- Alkon, A. H., & Norgaard, K. M. (2009). Breaking the food chains: An investigation of food justice activism. *Sociological Inquiry*, 79(3), 289-305.
- Babbie, E. R. (2004). *The practice of social research*. Belmont, CA: Wadsworth.
- Bay Area Equity Atlas. (n.d.) *Indigenous Populations in the Bay Area*. Retrieved from <https://bayareaequityatlas.org/about/indigenous-populations-in-the-bay-area>
- Biehl, E., Buzogany, S., Baja, K., & Neff, R. A. (2018). Planning for a Resilient Urban Food System: A Case Study from Baltimore City, Maryland. *Journal of Agriculture, Food Systems, and Community Development*, 8(B), 39–53.
- Block, J. P., Scribner, R. A., & DeSalvo, K. B. (2004). Fast food, race/ethnicity, and income: a geographic analysis. *American journal of preventive medicine*, 27(3), 211-217.
- Bohle, H. G., Downing, T. E., & Watts, M. J. (1994). Climate change and social vulnerability: toward a sociology and geography of food insecurity. *Global environmental change*, 4(1), 37-48.
- Bowen, S., Elliott, S., & Hardison-Moody, A. (2021). The structural roots of food insecurity: How racism is a fundamental cause of food insecurity. *Sociology Compass*.
- Bricker, J. (2020). The land of inequality: New research highlights Silicon Valley’s wealth gap. San Jose Spotlight. Retrieved from <https://sanjosespotlight.com/the-land-of-inequality-new-research-highlights-silicon-valleys-wealth-gap/>
- Buldyrev, S. V., Parshani, R., Paul, G., Stanley, H. E., & Havlin, S. (2010). Catastrophic cascade of failures in interdependent networks. *Nature*, 464(7291), 1025–1029.
- Cannuscio, C. C., Weiss, E. E., & Asch, D. A. (2010). The contribution of urban foodways to health disparities. *Journal of Urban Health*, 87(3), 381-393.
- Chilton, M., Black, M. M., Berkowitz, C., Casey, P. H., Cook, J., Cutts, D., ... & Frank, D. A. (2009). Food insecurity and risk of poor health among US-born children of immigrants. *American journal of public health*, 99(3), 556-562.
- Chiwona-Karlton, L., Amuakwa-Mensah, F., Wamala-Larsson, C., Amuakwa-Mensah, S., Hatab, A. A., Made, N., ... & Bizoza, A. R. (2021). COVID-19: From health crises to food security anxiety and policy implications. *Ambio*, 50(4), 794-811.
- City of Stockton Economic Development Department. (2017). *Stockton Food and Agriculture Action Plan*. Retrieved from: http://www.stocktongov.com/files/Food_and_Ag_Plan.pdf
- Cleveland, D. A., Müller, N. M., Tranovich, A. C., Mazaroli, D. N., & Hinson, K. (2014). Local food hubs for alternative food systems: A case study from Santa Barbara County, California. *Journal of Rural Studies*, 35, 26–36.
- Cohen, M. J. (2020). Does the COVID-19 outbreak mark the onset of a sustainable consumption transition?. *Sustainability: Science, Practice and Policy*, 16(1), 1-3.
- Coleman-Jensen, A., Rabbitt, M. P., Gregory, C. A., & Singh, A. (2021). *Statistical Supplement To Household Food Security in the United States in 2020* (No. 1962-2021-2625).
- De Steur, Hans, Wesana, Joshua, Dora, Manoj K, Pearce, Darian, & Gellynck, Xavier. (2016). Applying Value Stream Mapping to reduce food losses and wastes in supply chains: A systematic review. *Waste Management (Elmsford)*, 58, 359-368.
- Ditton, S. (2021). How Local Governments Support Community-Led Food Systems Transformation. *Local Governments for Sustainability*. Retrieved from: <https://icleiusa.org/how-local-governments-support-community-led-food-systems-transformation/>

- Food and Agriculture Organization. (2021). *Elevating voices of cities at the UN Food Systems Summit*. Retrieved from <https://www.fao.org/urban-food-agenda/news-events/news-detail/en/c/1402170/>
- Feeding America (2019.). *Map the Meal Gap: A report on county and congressional district food insecurity and county food cost in the United States in 2017*. Retrieved from <https://www.feedingamerica.org/sites/default/files/2019-05/2017-map-the-meal-gap-full.pdf>
- Gaddis, J., & Rosenthal, A. (2020). Cafeteria workers need support during the COVID-19 pandemic. *USA Today*. Retrieved from <https://www.usatoday.com/story/opinion/2020/04/05/cafeteria-workers-risking-their-health-feed-vulnerable-students-column/2939584001/>
- Gagliardi, E. (2021). Planning for Resilient Food Systems: How COVID-19 helped to Further Expose Gaps in the Land Use Planning process and the Food System.
- Galletta A. (2012) *Mastering the Semi-structured Interview and Beyond: From Research Design to Analysis and Publication*. New York University Press, New York.
- Goodman, D., & Redclift, M. R. (Eds.). (1991). *Environment and development in Latin America: The politics of sustainability*. Manchester University Press.
- Gundersen, C., Kreider, B., & Pepper, J. (2011). The economics of food insecurity in the United States. *Applied Economic Perspectives and Policy*, 33(3), 281-303.
- Gundersen, C., & Ziliak, J. P. (2015). Food insecurity and health outcomes. *Health affairs*, 34(11), 1830-1839. Retrieved from <https://www.healthaffairs.org/doi/full/10.1377/Hlthaff.2015.0645>
- Hall, F. (1871). *History of San Jose and Surroundings*. San Francisco Printing House of A.L. Bancroft and Company. Retrieved from <https://archive.org/details/history-sanjosan00hallgoog>
- Hans G. Bohle, Thomas E. Downing, Michael J. Watts, Climate change and social vulnerability: Toward a sociology and geography of food insecurity, *Global Environmental Change*, Volume 4, Issue 1, 1994, Pages 37-48, ISSN 0959-3780, [https://doi.org/10.1016/0959-3780\(94\)90020-5](https://doi.org/10.1016/0959-3780(94)90020-5).
- Hatfield, J., Takle, G., Grotjahn, R., Holden, P., Izaurrealde, R. C., Mader, T., Marshall, E., Liverman, D. (2014). Agriculture. In J. M. Melillo, T. C. Richmond, & G. W. Yohe (Eds.), *Climate change impacts in the United States: The Third National Climate Assessment* (pp. 150-174).
- Hecht, A. A., Biehl, E., Barnett, D. J., & Neff, R. A. (2019). Urban food supply chain resilience for crises threatening food security: a qualitative study. *Journal of the Academy of Nutrition and Dietetics*, 119(2), 211-224.
- Heynen, N., Kurtz, H. E., & Trauger, A. (2012). Food justice, hunger and the city. *Geography compass*, 6(5), 304-311.
- Hobbs, Jill E. (2020). Food supply chains during the COVID-19 pandemic. *Canadian Journal of Agricultural Economics*, 68(2), 171-176.
- Holt-Giménez, E., & Peabody, L. (2008). From Food Rebellions to Food Sovereignty: Urgent call to fix a broken food system. *Food First Backgrounder*, 14(1), 1-6.
- Holt-Giménez, E., & Shattuck, A. (2011). Food crises, food regimes and food movements: rumblings of reform or tides of transformation?. *The Journal of peasant studies*, 38(1), 109-144.
- Holt-Giménez, E., & Wang, Y. (2011). Reform or transformation? The pivotal role of food justice in the US food movement. *Race/Ethnicity: Multidisciplinary Global Contexts*,

- 5(1), 83-102
- Huff, A. G., Beyeler, W. E., Kelley, N. S., & McNitt, J. A. (2015). How resilient is the United States' food system to pandemics?. *Journal of environmental studies and sciences*, 5(3), 337-347.
- International Panel of Experts on Sustainable Food Systems. (2020). *COVID-19 and the crisis in food systems: symptoms, causes, and potential solutions*. Retrieved from: http://www.ipes-food.org/_img/upload/files/COVID-19_CommuniqueEN.pdf
- Jernigan, V. B. B., Huysen, K. R., Valdes, J., & Simonds, V. W. (2017). Food insecurity among American Indians and Alaska Natives: A national profile using the current population survey—food security supplement. *Journal of hunger & environmental nutrition*, 12(1), 1-10.
- Keating A (2013) Food security in Australia: the logistics of vulnerability. In: Farmar-Bowers Q, Higgins V, Millar J (eds) *Food Security in Australia*. Springer US, Boston, MA
- Kinsey, E. W., Hammer, J., Dupuis, R., Feuerstein-Simon, R., & Cannuscio, C. C. (2019). Planning for Food Access During Emergencies: Missed Meals in Philadelphia. *American Journal of public health*, 109(5), 781–783.
- Korver-Glenn, E. (2018). Compounding inequalities: How racial stereotypes and discrimination accumulate across the stages of housing exchange. *American Sociological Review*, 83(4), 627-656.
- Krippendorff, K. (2004). *Content analysis: An introduction to its methodology*. Thousand Oaks, CA: Sage Publications, Inc.
- Lavell, A., Mansilla, E., Maskrey, A., & Ramírez, F. (2020). The social construction of the COVID-19 pandemic: Disaster, risk accumulation and public policy. *LA RED (Network for Social Studies on Disaster Prevention in Latin America)*.
- Lang, T. (2003). Food industrialisation and food power: implications for food governance. *Development Policy Review* 21 (5), pp. 555–568.
- Levkoe, C. (2006). Learning democracy through food justice movements. *Agriculture and Human Values* 23 (1), pp. 89–98.
- Meenar, M. R., & Hoover, B. M. (2012). Community food security via urban agriculture: Understanding people, place, economy, and accessibility from a food justice perspective. *Journal of Agriculture, Food Systems, and Community Development*, 3(1), 143-160. Retrieved from <https://www.foodsystemsjournal.org/index.php/fsj/article/view/143>
- Morland, K., & Filomena, S. (2007). Disparities in the availability of fruits and vegetables between racially segregated urban neighborhoods. *Public health nutrition*, 10(12), 1481-1489.
- Nesheim, Malden C ; Oriá, Maria ; Yih, Peggy Tsai. (2015) *Committee on a Framework for Assessing the Health, Environmental, and Social Effects of the Food System ; Board, Food and Nutrition ; Resources, Board on Agriculture and Natural ; Medicine, Institute of ; Council, National Research*. Washington, D.C: National Academies Press
- New York University School of Global Public Health. (2021). COVID-19 Pandemic Exacerbated Food Insecurity, Especially in Families with Children. *NYU News Release*. Retrieved from <https://www.nyu.edu/about/news-publications/news/2021/september/pandemic-food-insecurity.html>
- Nijhuis, Austin, Macfarlane, Ronald, Ridsdale, Taryn, & Zeuli, Kimberly. (2018). The Impact of Climate Change on the Food System in Toronto. *International Journal of Environmental Research and Public Health*., 15(11), 2344.

- Peck, H. (2006). Resilience in the food chain: A study of business continuity management in the food and drink industry. Final Report to the Dep. for Environment, Food and Rural Affairs, Dep. of Defense Management & Security Analysis, Cranfield University, Shrivenham, 1- 193
- Pimbert, M. (2009). *Towards food sovereignty: reclaiming autonomous food systems*. London: International Institute for Environment and Development.
- Purifoy, D. M. (2014). Food policy councils: Integrating food justice and environmental justice. *Duke Environmental Law & Policy Forum*, 24(2), 375-398.
- Ribot, J. (2019). Social causality of our common climate crisis: Towards a society for the Anthropocene. In *The Commons in a Glocal World* (pp. 34-53). Routledge.
- Rubin H.J. & Rubin I.S. (2005) *Qualitative Interviewing: The Art of Hearing the Data*, 2nd edn. SAGE, Thousand Oaks, CA.
- Schlosberg, D. (2013). Theorizing environmental justice: the expanding sphere of discourse. *Environmental politics*, 22(1), 37-55.
- Schram, M. (2014). *Supermarket Redlining and Food Deserts: Characterizing Food Insecurity and Urban Decline*. Institute of Urban Studies.
- Slocum, R., & Saldanha, A. (Eds.). (2016). *Geographies of race and food: Fields, bodies, markets*. Routledge. Pp 253-260
- SPUR (2015). *Healthy Food Within Reach: Helping Bay Area residents find, afford, and choose healthy food*. Retrieved from https://www.spur.org/sites/default/files/2021-05/SPUR_Healthy_Food_Within_Reach_Report.pdf
- Taylor, D. E., & Ard, K. J. (2015). Food availability and the food desert frame in Detroit: an overview of the city's food system. *Environmental Practice*, 17(2), 102-133.
- Thomas, M., Herring, C., Horton, H. D., Semyonov, M., Henderson, L., & Mason, P. (2020). Race and the accumulation of wealth: Racial differences in net worth over the life course, 1989-2009. *Social Problems*, 67(1), 20– 39.
- Thyberg, K., & Tonjes, D. (2015). Drivers of food waste and their implications for sustainable policy development. *Resources Conservation and Recycling*, 106, 110–123.
- United States Department of Agriculture Economic Research Service. (n.d.) *Definitions of Food Security: Ranges of Food Security and Food Insecurity*. Retrieved from <https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/definitions-of-food-security.aspx>
- United States Department of Agriculture Economic Research Service. (n.d.) *State level estimates of low income and low access populations: Food access research atlas*. Retrieved from <https://www.ers.usda.gov/data-products/food-access-research-atlas/state-level-estimates-of-low-income-and-low-access-populations/>
- Vo, Thiel D (2006) A system dynamics model of the chicken meat supply chain faced with bird flu. University of Nantes and ENITIAA Nantes, LEM-LARGEZIA, France. <http://citeseerx.ist.psu.edu/viewdoc/download;jsessionid=BFBEDAA6D36B0CE13760CE0C0329D48?doi=10.1.1.408.5794&rep=rep1&type=pdf>. Accessed February 13, 2020.
- Wang Tangjia. A Philosophical Analysis of the Concept of Crisis. *Front. Philos. China*, 2014, 9(2): 254–267 <https://doi.org/10.3868/s030-003-014-0021-0>
- Welsh, J., & MacRae, R. (1998). Food citizenship and community food security: lessons from Toronto, Canada. *Canadian Journal of Development Studies/Revue canadienne d'études du développement*, 19(4), 237-255

Appendix I: Interview Guides

Introduction and Consent Script

Hello, my name is Summer Cortez. I am a graduate student at UC Davis. I am studying how COVID-19 is affecting the _____ food system and would really like to learn about your experiences. Results from this study will help me understand how the _____ food system is dealing with the stresses of the current pandemic. Is this a good time to talk? (If “no,” try to schedule another time, if “yes,” keep reading) Thank you. I will now read a consent script. I am going through this so you will understand what it means to participate in this project and how I will be using the information you provide in this interview.

- Participation in this interview is voluntary, and you can decide to end it at any time.
- This interview will last approximately 30 minutes.
- The degree of risk is perceived as very minimal in this project, although you may be uncomfortable when asked certain questions. You are not required to answer the questions and may end the interview at any time.
- This interview will be audio recorded if that is okay with you. Recordings will be destroyed once contents have been transcribed-no later than April 2022. Your name will not be linked with your answers; all interview results will be combined so that your answers are not identifiable to you.
- If you have questions about your rights as a participant of this project, you may contact the UC Davis Institutional Review Board by phone: 916 703 9158 or by email: HS-IRBEducation@ucdavis.edu. Do you have any questions about this project? Do you consent to participating in this interview? (If “yes,” continue with the interview. If “no,” thank them for their time.

Interview Materials

The following is a semi-structured interview guide for employees and volunteers at nonprofit organizations, community based organizations, philanthropic food organizations, and public school district food service; this interview guide serves to aid in investigating the ways in which COVID-19 disrupted or shifted how these groups supply food to their respective communities.

Part I. Interviewee Profile

I am going to begin this interview with a few background questions:

1. Can you tell me briefly about the goals and scope of your organization?
2. Can you tell me briefly about your current role in this organization?
3. Can you characterize any (other) community services that your organization provides?
4. To what extent are you involved in big picture planning within your business/organization? That is, to what extent do you participate in change-making, goal-setting, and designing programs?
 - Who (else) participates in these activities?

Part II. Assessment of Current Situation

These next several questions will center on how the COVID-19 pandemic has impacted your operations in regard to supply chains, community demand/need, labor, etc.

5. Please take me through the flow of food in your business/operations pre-COVID?
 - During non-COVID times, what are the top needs/challenges for your organization?
6. Can you please highlight any disruptions you've had to your operation due to COVID-19?

Prompts:

 - Have you needed to make any changes in the way that you handle/transport/work with food day to day?
 - Is your food supply adequate to the need?
 - Has the loss/failure of any food supplier's operations impacted yours?
 - Has COVID impacted your workforce in terms of employment, number of staff, or responsibilities?
 - Overall, what would you say are the top needs/challenges your organization has experienced during COVID-19?
 - In what ways has your operation adapted to these changes?
7. Did any particular strategies for managing COVID-19 disruptions work well?
8. Did your organization implement any changes during COVID-19 that you think will be continued post-COVID?
9. Did you collaborate with or receive support from any other community organizations or local groups to help cope with / strategize about COVID-19?

10. Has COVID impacted community demand/need for the services your organization provides? In what ways / how can you tell?
11. What resources or support do you think would be most helpful to your organization to cope with current/future COVID-19 related disruptions? (From who?)

Part III. Food System Thinking

12. Has COVID-19 changed the way that you think about the food system, broadly or within your specific sector?
13. What do you think is the role of community organizations/businesses/groups like this in the local food system?
14. What big picture or long-term changes do you think could make _____ or the regional food system broadly, better prepared to weather future disasters?

Part V. Organizational Background

[Research applicable information prior to interviews and do not ask if information is available]

15. In terms of staff, how large is your operation?
16. Who does this organization serve? (e.g. students, a particular neighborhood, or age group)
17. How long has this organization/site existed where it is currently? (if applicable)
18. Is there anything else that you feel is important that has not been covered in this interview thus far?

Thank you very much for your time. As I mentioned before, this information will contribute to an investigation of how COVID-19 has impacted different community food systems. I will not release your name or the name of your organization. If you have any questions or concerns, feel free to contact me at 209-495-5704 or sjcortez@ucdavis.edu.

Appendix II: Interview Codebooks—SCC

Santa Clara County

Meal distribution
 Food pantry
 Food bank

Urban Agriculture
 University food access program

Pre-COVID needs	COVID disruptions	Adaptations
Cold storage	Transition to grab + go	Adaptable volunteers + staff
Inability to predict participation	Increased need + reduced capacity	Expanded services to meet needs
Supply transportation	Inability to congregate	Transition to grab + go
Funding	Lack of volunteers	County helpful during initial transitions
Funding	Need for equipment to carry out new grab + services	Transition from 'grocery store' model to food bag distribution
Additional Supply	Reduced supply of key food items	Adaptable volunteers + staff
Culturally relevant supply	Supply issues	Adaptable volunteers + staff
Language barriers	Lack of volunteers	Shifting resources to online platforms
Funding	Increased need + reduced capacity	Learning from community partners
Top-down support for environmental justice	Insufficient budgets for increased need	Learning from community partners
Policy-level convening spaces rooted in food justice	Challenging initial wave; stakeholders did not understand each other's roles	
	Uncertainty around what policy/support exists	
	Increased need + reduced capacity	
	Stakeholders perceive competition around financial support	
	Increased need + reduced capacity	

Sustained Changes	Gaps/Needed Aid	Food System Thinking
Consultation/collaboration with efforts across county lines	How to reach those quarantining at home?	Large organizations should be familiar with other resources due to their role as a referral source
Continue to improve communication across sites	Community kitchens for large scale meal prep	Integrate food aid planning more strongly with housing and other sectors
Working partnerships	Need for coordination so not to duplicate service days/times	Need for targeting highest need neighborhoods
Reinforced value of mutual aid and community support	Minimal delivery capacity for food (to distribution sites)	Emergency planning needed
Working to build decentralized hubs of collaboration	Funding	Need for additional collaboration
	Volunteers	Emergency planning needed
	Funding	Need for unified community voice + advocacy agenda to bring to govt
	Living wages so we don't need food banks	COVID exacerbated existing barriers to access
	Development of stronger relationships with city/county policy staff	Need for advocacy surrounding access of food system laborers
	Improved aggregation capacity	Integrate economic recovery in food system disaster planning
	Additional storage	Need to envision a more just and equitable food system
	Community kitchens for large scale meal prep	Need go beyond meeting basic needs
	Funding	
	Training on effective inter-org collaboration	

Appendix III: Interview Codebooks—Stockton

Stockton

Meal distribution

Food pantry

Urban Agriculture

Food recovery nonprofit

Pre-COVID needs	COVID disruptions	Adaptations
Strategies to engage communities on educational topics	Unprepared in regard to PPE	Adaptable volunteers + staff
Transportation for families to aid sites	No longer able to congregate	Information sharing with other community orgs
Funding	Funding	Received PPE (gloves and sanitizer) from community partner org)
Funding sustainability	Decrease in volunteers/staff	Use of online forms
Additional staff/volunteers	Increased need + reduced capacity	Strengthened partnerships with other service providers
Land access	Delayed govt response/aid	County-initiated conversations around collaboration
Funding	Pivot to contactless service	Adaptable volunteers + staff
Unsuccessful attempts at collaboration with other types of practitioners	Decrease in volunteers/staff	Coordination with community centers and other aid sites
	Increased need + reduced capacity	Limiting number of people on site
	Extended period of uncertainty	Sharing materials with other sites
	Challenges obtaining PPE	Pivoted programming from food recovery to meal distribution to meet community need
	Surplus food donors nonexistent due to lack of events	
	Extended period of uncertainty	

Sustained Changes	Gaps/Needed Aid	Food System Thinking
Maintaining relationships	Consistent/reliable funding	Need to establish a collaborative rather than competitive approach
Crafting shared objectives and goals	Desire for county/local govt to prioritize food access in funding and policy writing	Need for comprehensive resource list for citizens
Intentional effort to form relationships across org types and sizes	Funding sustainability	Need for relevant emergency planning
Reinforced value of grassroots community organizing	Funding sustainability	Need for improved partnerships across multiple sectors of food system
	Food equity prioritization at multiple levels of government	Need for MOUs and frameworks to be able to react more quickly next time
	Land use policy in favor of urban ag expansion	Broad need for greater accessibility of services
		Exploring models of collaboration
		Integrate food planning with other sectors like housing
		Need to establish a collaborative rather than competitive approach
		Need to establish common goals and metrics across community orgs

Appendix IV: Interview Codebooks—WJUSD

Washington Unified School District

*notes that codebook is not color-coded due to the uniformity of interviewee positions

Pre-COVID needs	COVID disruptions	Adaptations
Staffing shortage	Unfulfilled or delayed orders from vendors	Prioritizing use of produce items with minimal needed prep
Equipment replacement or repair	Staff loss	Fewer scratch cooked entrees
Additional storage (including cold storage)	Rapid transition to drive-up service	Leaning on community partners (labor, recruitment, materials)
Improved quality produce	Time, labor, and materials needed for additional safety protocol	Local procurement
Kitchen update (small or ineffective layout)	Difficulty in gauging meal participation	Greater communication across sites
Assistance navigating language barriers across staff	Loss of student engagement/education	Use of online forums for knowledge sharing
Solutions for how to streamline prep to save time	New paperwork	Narrowing diversity of items offered
	Rapidly changing policy and requirements	Communication with other food service admin within Yolo County
	Additional workload associated with COVID-relief programs	
	Major meal items unavailable for order	
	Grappling with community expectations	

Sustained Changes	Gaps/Needed Aid	Food System Thinking
Local procurement	Labor	Appreciation for collaboration and relationships
Intra-district communication	Equipment repair/replacement	Schools as a major source of child nutrition and family assistance
Cross-district communication	Creative solutions to supply chain disruptions	Call for better understanding of school food within education as well as the food system broadly

Participation in online forums		Optimism toward local procurement
Leaning on community partners		Shock regarding initial supply chain disruptions
		New consideration of how the food supply chain works

Appendix V: Stockton Census Tract Data

USDA ERS Census Data Chart for Stockton CA

Census tract number	Population
6077003213	4571
6077001500	8384
6077003602	3272
6077000801	6692
6077000300	2396
6077000401	3043
6077000402	4582
6077002504	3982
6077003801	12552
6077003802	6519
6077002800	6052
6077002701	6409
6077002702	4239
	72,693