Food Insecurity in Pittsburgh, Pennsylvania: An Evaluation of Just Harvests Community Interventions

by

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Abstract

Food insecurity in the United States is a major social determinant of health. Poor access to fresh food sources can greatly contribute to food insecurity and often impact individuals from minoritized and low-income communities. This paper evaluated the impact of providing fresh food sources to food-insecure neighborhoods through Just Harvests community-level interventions in Pittsburgh, Pennsylvania. The food access levels of four neighborhoods were examined using spatial analysis, Census data, and the Food Abundance Index. The neighborhoods were looked at during two timepoints. First in 2014 before the Just Harvest interventions began and in 2020, five years afterward. During this period, three out of the four neighborhoods received Just Harvest's Fresh Access and Fresh Corner programs. The public health importance associated with conducting neighborhood-level food insecurity interventions is worth further examination. The results of this evaluation suggest that neighborhoods with Just Harvests interventions directly in the neighborhood scored better on the Food Abundance Index than neighborhoods without direct community interventions. This evaluation shows that more work still needs to be done to address food access.

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1.0 Introduction

Food Insecurity is a social determinant of health in the United States (US), disproportionately impacting low-income and minoritized neighborhoods (Walker et al., 2010). Black and low-income neighborhoods generally have limited supermarket access and increased concentrations of fast-food retailers and small food stores (Larson et al., 2009; Gripper et al., 2022). Poor access to fresh food sources forces residents of these neighborhoods to travel further distances to access healthy food options (Gosh-Dastidar et al., 2017). Neighborhoods without healthy food options are shown to have poor nutritional habits and, ultimately poor health outcomes, like heart disease, type 2 diabetes, anxiety, and depression (Fang et al., 2021; Moore et al., 2008)

The systemic factors resulting in food insecurity can manifest in multiple forms, such as food deserts, lack of culturally appropriate foods, and disrupted eating (Healthy People, 2020). Food deserts are regions where large proportions of households have limited access to a variety of healthy, affordable food (Sharpe et al., 2018). Addressing a lack of culturally appropriate foods is the understanding that healthy food options can be more homogenous and come in the form of culturally relevant foods. Studies have shown that for immigrant and minoritized individuals, high food-cost, familiarity with offered foods, and the availability of culturally desired foods present household food security barriers (Moffat et al., 2017). Highlighting culture in food-based interventions increases sustainability in promoting healthy food habits (Alonso et al., 2018). Another symptom of food insecurity is disrupted eating; this is when external factors cause normal eating patterns to change, leading to infrequent meals or light meals (Coleman-Jensen, 2022). Many factors can bring on disrupted eating, the most common being: limited finances and high

food costs. This form of food insecurity is often experienced in single-person households and across aging populations.

One of the main impediments to food security comes in food access. Factors such as distance, access to transportation, and reduced new food sources can all affect an individual's ability to access fresh foods. The average distance from a grocery store in food-insecure communities is 2.2 miles; for predominantly Black and Brown communities, this distance increases by about 1.1 miles (Wilde et al., 2017). For individuals living in low-access communities, reliable transportation becomes a necessity. Considering that households without personal vehicles are disproportionately Black and low-income (Berube et al.,2006), robust public transportation is needed.

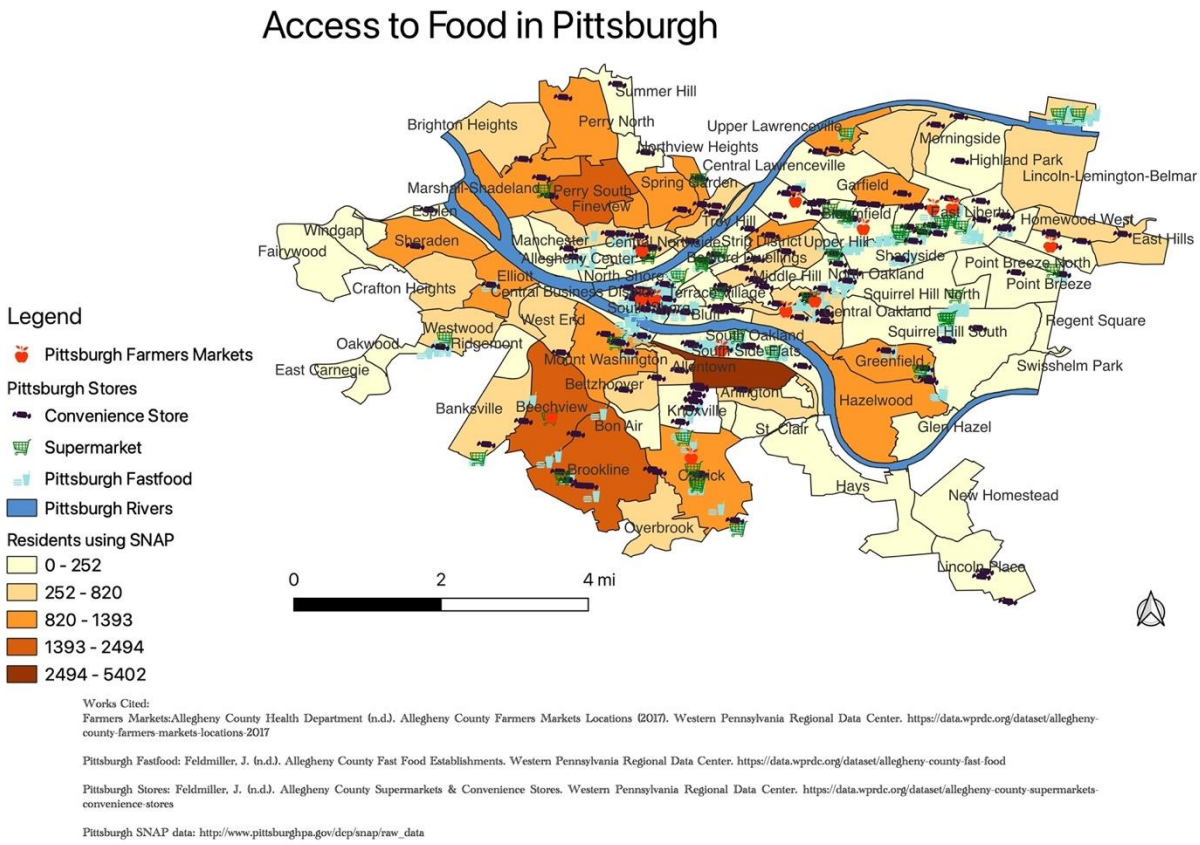
This evaluation seeks to explore the impact of food access in identified food-insecure neighborhoods in Pittsburgh, Pennsylvania. As well as how community-level intervention affected specific Pittsburgh neighborhoods. The first step in this process is providing context to the history of food insecurity in the Pittsburgh Metropolitan area and the determinants of food access from a policy, community, and household level. Following, the paper will examine the change in selected communities before and after the intervention. As well as provide recommendations for the future.

2.0 Background

In 2012, Pittsburgh ranked as one of the top cities with the highest proportion of its population residing in areas with low supermarket access. Low-Supermarket-Access (LSA) is defined by proximity to the nearest food store, half a mile to 1 mile for metropolitan areas, and 10 to 20 miles for rural spaces. LSA areas are also defined with respect to vehicle access and a radius of 20 miles for both rural and metro spaces (Rhone et al., 2020).

As of that 2012 report, about 47 percent of the Pittsburgh population was in areas classified as LSA. In Pittsburgh, this measure can be misleading. Living even one mile from a supermarket can be untenable for low-income individuals and populations without reliable transportation due to the city's steep inclines, inconsistent infrastructure (i.e., a lack of sidewalks, stairs that are not ADA-friendly), and busy thoroughfares that are not walkable. Additionally, a disproportionate number of those living in LSA areas are low-income, about 57 percent.

For Pittsburgh residents who are both Low-Income and Low-Access (LILA), having access to fresh produce options is paramount. However, for many of these residents who fall into LILA categories, those options were not made available resulting in food deserts (Figure 1). As seen in Figure 1, supermarkets, shown in green, are sparse and often located in commercial neighborhoods. This leaves many residents to rely on their local convenience store, shown in purple, or a nearby fast-food restaurant, in blue.



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Pittsburgh SNAP data: http://www.pittsburghpa.gov/dcp/snap/raw_data

Figure 1 Food Access Map

As a result, Just Harvest (JH), in collaboration with the Congressional Hunger Center, developed a more encompassing report that sought to examine and develop possible solutions to the food insecurities experienced on a neighborhood level. This report aimed to provide insight into the factors of food access, food availability, and transportation that exacerbated food desertification in some of the county's most vulnerable communities (Murray et al., 2013). “A Menu for Food Justice” was released in 2013 and led to two main interventions Fresh Access and Fresh Corners. Fresh Access is a program advocating for food accessibility by making it easier for food stamps to be used at farmers' markets. At the same time, Fresh Corners connects small food stores, corner stores, and community markets with fresh produce and nutritious food options.

Before evaluating the Fresh Corners program, the context and concepts that contributed to the need for the intervention should be elucidated, including food apartheid, transportation, and previous initiatives to address food insecurity. These topics establish a foundation that can be used to acknowledge how health disparities among Black and low-income communities are perpetuated.

2.1 Food Apartheid in Allegheny County

The connection between raceial and ethnic background and food insecurity in the US is apparent. High rates of adverse health and socio-economic outcomes that disproportionately impact Black, Indigenous, and People of Color (BIPOC) are also directly correlated to food insecurity predictors (Odoms-Young, 2018). In acknowledgment of this reality Karen Washington coined the term Food Apartheid. Food Apartheid is a term that acknowledges the systems, institutions, and racist structures that have led to Black, Brown, and low-income individuals facing food insecurity at higher rates (Brones et al.,2018). Neighborhoods with low access to nutritious, affordable, and culturally relevant foods are subjected to systemic racism. It is because of racism, ageism, and classism on a policy level through practices like redlining and gentrification that economic and food inequalities are seen on a community and individual level.

Redlining is a discriminatory practice where Homeowner Loan Corporations (HOLC) assign grades to neighborhoods based on their perceived risk (Figure 2). Banks and other lenders would use these guides to inform which areas should receive loans and investments. This practice, restrictive covenants, and other discriminatory practices made it almost impossible for Black residents to live in affluent and predominantly White areas. The impact of redlining is that Black families could not build wealth through homeownership. Moreover, on a structural level,

neighborhoods that received a low grade, seen in red in Figure 2, had fewer investments and were more likely to become low-income and low-access neighborhoods (Shaker, 2023).

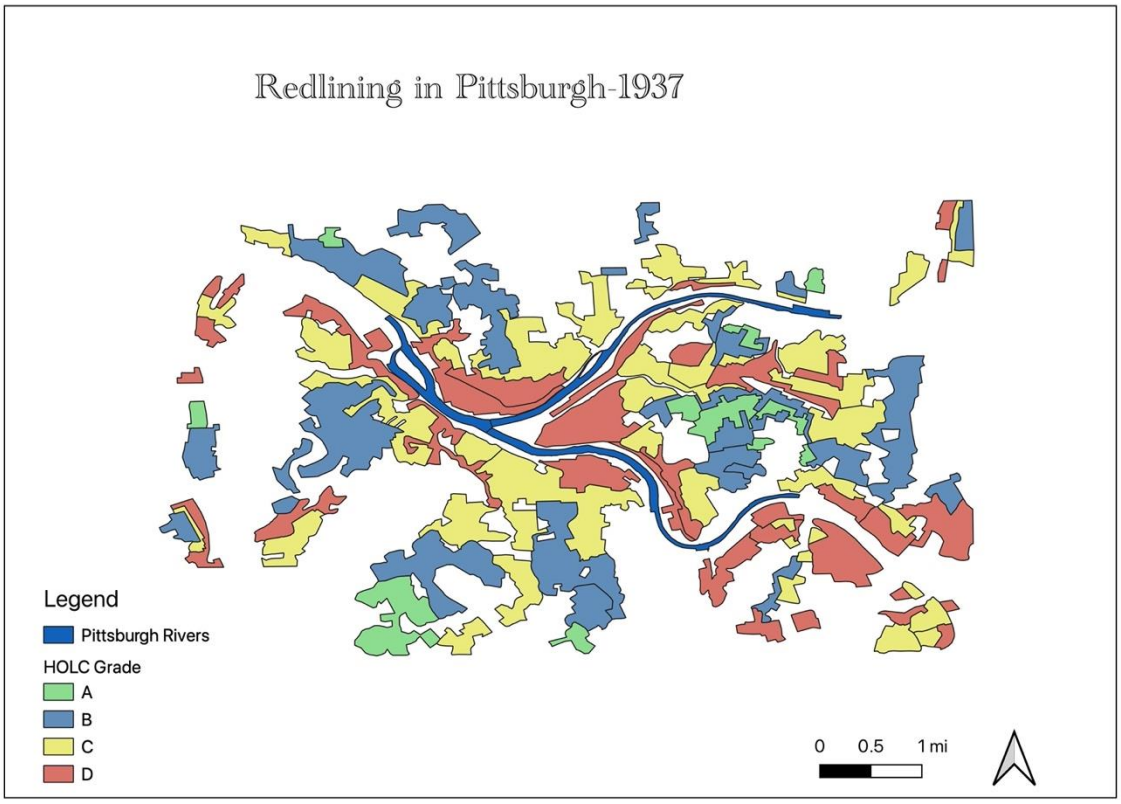

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Figure 2 Redlining In Pittsburgh 1937

For Allegheny County, and specifically the Pittsburgh metropolitan area, the struggle with food insecurity has had a harmonious relationship with economic decline. The region faced a steep economic decline because of the 2007 recession, resulting in about 12 percent of the population, or 200 thousand households, living below the poverty line, and 74 percent of those families being single-mother households (Hegwisch, 2010). The increase in unemployment and poverty rates primarily impacted Black and Brown women, who, on average, earned 63 percent of a White man's

yearly earnings. In addition to the glaring wage gap, government safety nets such as SNAP and Temporary Assistance to Needy Families (TANF) were stalling in Allegheny County. At the same time, SNAP enrollment in the area grew by 25 percent, and TANF only by 8.4 percent (Hegwisch, 2010). Many of the communities in need were left behind, resulting in 47 percent of Pittsburgh residents having low access to food from 2010-2012.

The 2007 recession was not the only time when economic hardship impacted food access in the region. From 2015 to 2019, The Pittsburgh metro area saw over 7000 of its Black residents leave the city (Deto, 2021). According to reports, many left for neighborhoods in first-ring suburbs, while others moved entirely to other cities (Pittsburgh Neighborhood Project, 2021). In 2020 a local non-profit surveyed the residents who moved, and some of the top reasons were: rent increases, housing-unit sold or torn down, and building problems (PPT, 2020). Displacement greatly impacts poor communities that have been neglected in infrastructure improvements, investments in businesses and greenspaces, and disproportionately policed due to structural and systemic racism. Systemic neighborhood neglect ultimately leads to gentrification, where higher-income and predominantly white residents move in, causing the cost of living in a neighborhood to increase dramatically (Smith, 1996). This influx in the gentrified area's cost of living forces low-income residents to move.

In Pittsburgh, several neighborhoods saw evidence of displacement and gentrification, mainly in the form of a steep decline in their Black residents. From the period of 2015-2019, neighborhoods like Downtown saw a 79 percent decline, Central Northside and East Liberty experienced a 50 percent decline, and Garfield experienced a 42 percent decline in Black residents (Neighborhood Project, 2020). All these neighborhoods also saw an increase in White residents. Displaced residents moved to more affordable areas. Some moved to neighborhoods in the

Pittsburgh metro area, such as the Hill District and South Side; however, most moved either out of the area entirely or to first-ring suburbs like Penn Hills, Wilkinsburg, and Homestead (PPT,2020). Neighborhoods currently experiencing gentrification in Pittsburgh did not occur in a vacuum but were the product of decades of systemic disinvestment in these neighborhoods. This is apparent from the three neighborhoods with the highest rates of Black resident decline in 2019, also being designated in red on the Redlining map (Figure 2).

2.2 Transportation

A multitude of factors impacts food insecurity. Access to transportation, in addition to distance to affordable food stores, greatly impacts overall food access. Those who need reliable vehicle access rely on nearby food stores and a robust public transportation system. Vehicle ownership is strongly associated with income (Bodor et al., 2013), with low-income individuals being less likely to own a vehicle. Vehicle ownership or access to reliable public transportation is imperative for Pittsburgh residents. Allegheny County and the Pittsburgh metropolitan area can be inaccessible without a vehicle because of the steep hills, unsound infrastructure, and a lack of sidewalks in non-commercial areas. Traversing the city as a pedestrian or someone with mobility concerns can quickly become untenable. This is where the need for a robust public transit system is important. Unfortunately, public transportation in Pittsburgh is not equitably maintained.

The city of Pittsburgh's public transit, Pittsburgh Regional Transit (PRT), has prioritized investing in new transportation approaches instead of meeting the needs of neighborhoods that need public transportation the most (SWPA, 2019). Under the leadership of former Mayor Peduto, the city invested in ride-sharing options, e.g., bikes, scooters, and autonomous vehicle transit, and

increased routes in commercial neighborhoods such as Downtown and Oakland. These ride-share options, while innovative, are costly and can be untenable for low-income residents. Options such as e-bikes and scooters are not ADA-compatible. They can pose a greater risk to those with mobility challenges, from being left on the sidewalk or their charging stations taking up necessary room. Additionally, considering the area's geography, scooters and bikes will have trouble in neighborhoods with higher elevations (Figure 4), which unfortunately coincides with lower-income neighborhoods (city-data, 2020).

Additionally, PRT has struggled with providing accessible public transit in non-commercial neighborhoods. Infrequent public transit accessibility, seen in the low number of bus stops or reduced bus lines, makes it difficult for residents who live in higher elevation neighborhoods or those with mobility concerns. As seen in Figure 3, walkability is reduced (denoted by the yellow and light green census tracts) in neighborhoods with few commercial retailers. This means that a strong public transit system is vital in these neighborhoods.

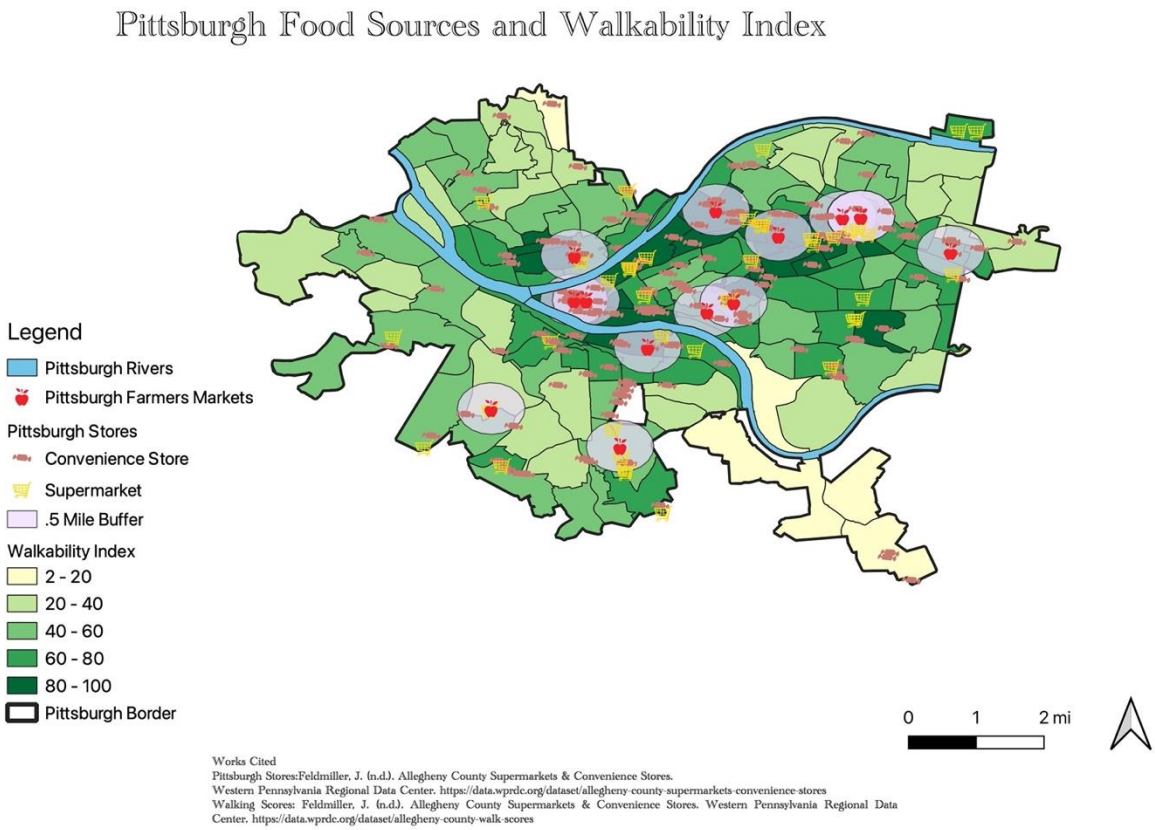

Figure 3 Pittsburgh Food Sources And Walkability Index

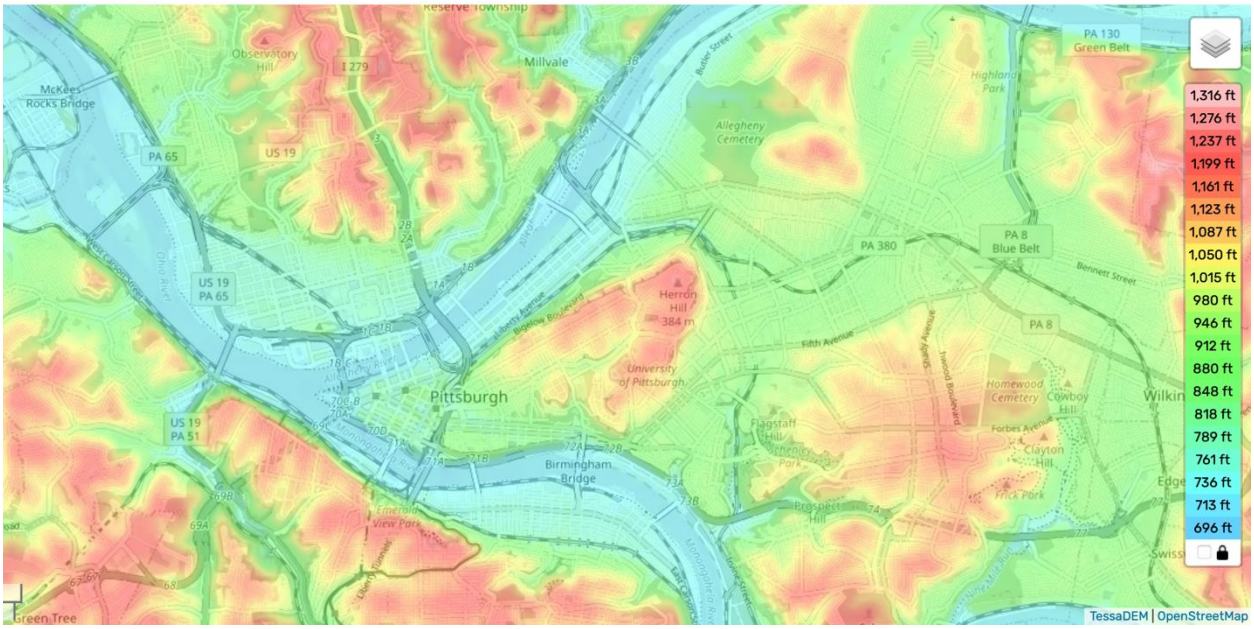

Figure 4 Elevation In Pittsburgh

2.3 Previous Interventions

There are several legislative initiatives implemented to alleviate hunger. Federal programs such as Supplemental Nutrition Assistance Program (SNAP), Woman Infants and Children (WIC), and the National School Lunch Program provide affordable food options for low-income individuals and families. The Department of Agriculture also has funding centering on affordable food options. The Food Insecurity Nutritional Incentive Grant Program, also known as the Farm Bill, incentivized SNAP participants (Parks et al., 2019). This program provides discounts for products purchased and tokens at farmer's markets.

In Allegheny County, the Allegheny Health Department received a two-year grant of $1.5 million to combat food deserts and increase food access (County of Allegheny, 2016). This grant went to community organizations such as the Greater Pittsburgh Food Bank, FitUnited, and Just

Harvest, which helped expand SNAP benefits to farmer's markets, and started implementing healthy food options at corner stores in high-need areas (County of Allegheny, 2016). This funding also went to Allegheny County Economic Development Department to invest in transportation projects.

2.4 Fresh Corners Project

Just Harvest (JH), a non-profit organization, has served Allegheny County residents for 30 years. Just Harvest aims to eliminate hunger, poverty, and economic injustice through sustainable interventions that work in partnership with community members. JH achieves their goal of reducing hunger through Individual Empowerment, Neighborhood Development, Government Advocacy, and Public Education. These approaches have led to SNAP assistance and access, tax preparation, and lobbying for food-based programs that address poverty. However, since 2015, the Fresh Corners and Fresh Access Programs have been the organization's cornerstone programs for community outreach.

The 2013 report “A Menu for Food Justice” examined food insecurity in Allegheny County. In the report, JH was able to highlight the disparities that impacted six areas and 21 neighborhoods. The report acknowledged that each neighborhood was distinct and required varying solutions. Utilizing the demographic data from the 2010 Census, Geographic Information System (GIS) tools, and the Food Abundance Index (FAI), JH was able to compile a comprehensive report of the region.

Building from the “A Menu for Food Justice” report, JH established two programs Fresh Access and Fresh Corners. JH was able to establish these two programs mainly in collaboration

with other organizations and government assistance from both the city and county programs. This collaboration greatly expanded the reach of both programs.

The Fresh Access program allows Pittsburgh residents to use SNAP benefits and credit cards to buy fresh produce at farmers markets. The program exchanges SNAP benefits for tokens, which are either fifty cents or a dollar, and provides an additional two dollars for every five dollars spent. Since its inception in 2013, the Fresh Access program has had a total sale of over 1.3 million dollars and has since expanded this program to 15 farmers markets, making affordable produce available throughout the region. The Fresh Access program also collaborated with the City of Pittsburgh to ensure that all Pittsburgh farmers' markets allow SNAP benefits.

The Fresh Corners Program is a collaboration between JH and the Food Trust. This program provides fresh produce such as apples, bananas, oranges, potatoes, and onions at corner stores in low-access neighborhoods in Pittsburgh and several first-ring suburbs. The neighborhoods currently served are Brentwood, Clairton, East Liberty, East Pittsburgh, The Hill District, Milvale, McKees Rocks, McKeesport, Larimer, and Uptown. Additionally, the program provides a food bucks incentive like the Fresh Access Program in corner stores. Shoppers using SNAP can gain a two-dollar food buck to purchase fresh produce for every five dollars spent. The food bucks can be used at the Fresh Access program locations. Currently, ten small food stores are a part of the Fresh Corners Program, with three stores utilizing the Food Bucks program. This essay aims to examine both Fresh Corners and Fresh Access programs to see their potential impact in Pittsburgh neighborhoods. This will be examined by looking at secondary data from 2014, before the intervention began, and 2020, five years after both programs were established.

3.0 Methods

The present evaluation of Just Harvest's Fresh Access and Fresh Corner programs included four Pittsburgh neighborhoods: The Hill, McKees Rocks, Larimer, and Perry South. Although the Hill, or Hill District, is comprised of five individual neighborhoods, interventions and revitalization efforts are directed at the Hill District as a whole and not the individual neighborhoods. For this reason, the Hill was examined overall. Of the neighborhoods selected, three received an intervention from Just Harvest (The Hill, McKees Rocks, and Larimer) with one neighborhood (Perry South) not receiving an intervention from either Just Harvest program.

The four neighborhoods were selected based on the following criteria: 1) previously reviewed in Just Harvest's 2013 report; 2) differing locations in the city; and 3) available Food Abundance Index (FAI) Status. The selected neighborhood's locations are all in different areas in Pittsburgh: The Hill, Central; McKees Rocks, West; Larimer, East; Perry, South, North. The locations of the neighborhoods were considered to reduce sampling bias. The neighborhoods were evaluated using Census data from the 2010 Census and American Communities Survey 2006-2010 5-Year Survey and the 2020 Census and American Communities Survey 2016-2020 5-year Survey. Based on the 2010 and 2020 Census surveys, demographic information such as median household income and racial composition were ascertained.

FAI is a measure established by Dr. Audrey Murrell, and the Joseph M. Katz Graduate School for Business at the University of Pittsburgh. The index measures the level of food security in each area. The FAI determines the level of food security based on five subcategories: 1) access; 2) diversity; 3) affordability; 4) quality; and 5) density (Murrell, 2012). The five categories are measured on a scorecard (Table 1). Based on the total score, communities are defined as "food

deserts," "food gaps," "food clusters," or "a food bounty." FAI status was used for inclusion criteria to ensure that all the selected neighborhoods were either food gaps or food deserts.

Table 1 Food Abundance Index Assessment Scorecard

Assessment Category	Evaluating Level	Points Scoring Range
Food Desert	Grey Level	-5 to 15 points
Food Gap	Yellow Level	16 to 21 points
Food Cluster	Green Level	22 to 27 points
Food Bounty	Gold Level	28 to 30 points

The Geographic Information System (GIS) software QGIS (version 3.22) was used for data management and mapping retailers' proximity and quantity, public transportation access, and personal vehicle access. Information regarding retailers was input using 2012 and 2017 data from the Western Pennsylvania Regional Data Center (WPRDC) and updated with information from Google Maps. Retailers associated with Fresh Corners and Fresh Access programs were also input with original data. Public transit routes and stops were determined based on Western Pennsylvania Regional Data Center (WPRDC) data. Vehicle access was determined using the Social Vulnerability Index data for 2014 and 2020. All additional shapefiles for Allegheny County were downloaded from WPRDC.

4.0 Results

4.1 Neighborhood Comparisons

Table 2 provides details on the comparison of the selected neighborhoods McKees Rocks, Larimer, Perry South, and the neighborhoods comprised of the Hill District (Bedford-Dwellings, Crawford-Roberts, Middle Hill, Terrace Village, and Upper Hill). The Hill District neighborhood Terrace Village was excluded from the analysis because it includes West Oakland and populations from the Universities in the area. The McKees Rocks neighborhood saw the only change in its rating in the FAI status (increasing from a Food Gap to a Food Cluster); the Perry South neighborhood was the only selected neighborhood to remain a Food Desert in both 2014 and 2020. The remaining Larimer and the Hill neighborhoods remained a Food Gap. Additionally, the Hill neighborhoods were the only neighborhoods that saw an increase in supermarket distance (2014: 1.5 miles, 2020: 1.8 miles). Tables showing each neighborhood's FAI scores and the licensed index are provided in the Appendix (Tables 2-6).

Nearly all the neighborhoods examined, apart from the Hill District, experienced a population decline during the period between 2014-2020. The race composition of each neighborhood changed with McKees Rocks (2014: 63.8% White, 2020: 51.1% White), Perry South (2014: 68.7% Black, 26.5% White; 2020: 65.7% Black, 30.6% White), and each of the Hill District neighborhoods experiencing the most changes. McKees Rocks (2014: $22,417, 2020: $32,800), Perry South (2014: $30,322, 2020: $40,661), and Upper Hill (2014: $41,977, 2020: $52,586) neighborhoods all experienced an increase in median household income.

Table 2 Neighborhood Profile

	2014 & 2020 Neighborhood Comparison Profile							
Neighborhood/Year	Population	Race	Median Household Income	Nearest Supermarket	Distance of Supermarket	FAI Score	FAI Status	Change in FAI Score
McKees Rocks-2014	6104	63.8% White; 30.8% Black	$22,417	Bottom Dollar Food	<.5 mi	17	Food Gap	
McKees Rocks-2020	5920	51.1% White, 28.7% Black	$32,800	Aldi	.5 mi	22	Food Cluster	+5
Larimer-2014	1728	85.8% Black, 9% White	$26,429	Giant Eagle Shadyside	.9mi	17	Food Gap	
Larimer-2020	1526	82.1% Black, 10.6% White	$20,583	Trader Joes	.7mi	19	Food Gap	+2
Perry South-2014	4,145	68.7% Black, 26.5% White	$30,322	Kuhn's Market	1.2mi	9	Food Desert	
Perry South-2020	3,730	65.7% Black, 30.6% White	$40,661	Kuhn's Market	1.2mi	-2	Food Desert	-11
Crawford-Roberts-2014	2090	85.1% Black, 8.2% White	$19,967	Shop n' Save	<.5 mi	17	Food Gap	
Crawford-Roberts-2020	2249	78.9% Black, 10.4% White	$19,243	Giant Eagle-Southside	1.8 mi	17	Food Gap	0
Middle Hill-2014	1703	84% Black, 10.9% White	$30,200	Shop n' Save	<.5 mi	17	Food Gap	
Middle Hill-2020	1986	80% Black, 6.7% White	$25,079	Giant Eagle-Southside	1.8 mi	17	Food Gap	0
Bedford Dwellings-2014	1138	92.2% Black, 3.2% White	$15,216	Shop n' Save	<.5 mi	17	Food Gap	
Bedford Dwellings-2020	1292	96.2% Black, 2% White	$13,295	Giant Eagle-Southside	1.8 mi	17	Food Gap	0
Upper Hill-2014	1966	73.1% Black, 14.3% White	$41,977	Shop n' Save	1.5 mi	17	Food Gap	
Upper Hill-2020	2036	78.4% Black, 16.6% White	$52,586	Giant Eagle-Shadyside	1.8 mi	17	Food Gap	0

Note: Supermarket distance is determined from the center of the neighborhood. Additionally, 2020 neighborhoods shaded in green had a JH intervention.

4.2 Community Mapping

4.2.1 McKees Rocks

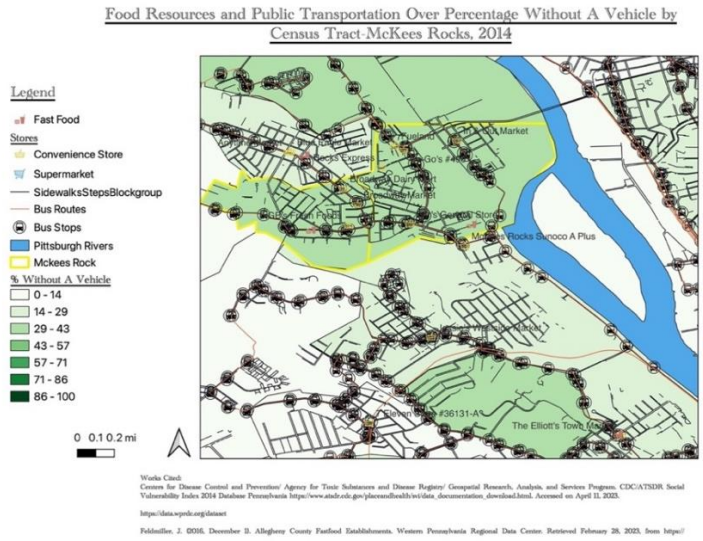

Figure 5 Community Mapping: Mckees Rocks-2014

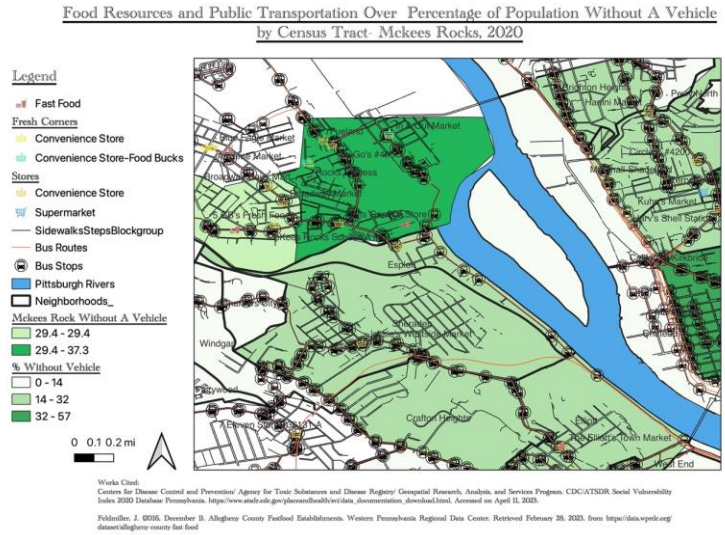

Figure 6 Community Mapping: McKees Rocks-2020

McKees Rocks, an inner ring suburb of Pittsburgh, is located on the city's west side. In 2014 the neighborhood had several small food retailers and supermarkets, Aldi and Bottom Dollar Food (Figure 5). The two supermarkets, however, are concentrated in the neighborhood's center; this posed a challenge for both residents who were low-income (median income: $22,417) and those without a vehicle (43%).

Since 2014 the area has experienced a population decline, and one of the grocery stores, Bottom Dollar Food, closed. In 2015, Just Harvest established a relationship with three local convenience stores and two locations offering food bucks. The neighborhood in 2020 also saw a decrease in residents without a vehicle (Figure 6), going from 43% to 40% of the population. McKees Rocks also saw an increase in the median household income from $22,417 to $32,800, which still falls within the Federal Poverty Income Guidelines. The three convenience stores partnered with Fresh Corners are located along the neighborhood's outskirts, allowing access to fresh food for residents who live further away from the supermarket. The increased access to fresh

food sources added to the Quality and Affordability subscores on the FAI, increasing the overall determination from a Food Gap (2014 FAI Score: 17) to a Food Cluster(2020 FAI score: 21).

4.2.2 Larimer

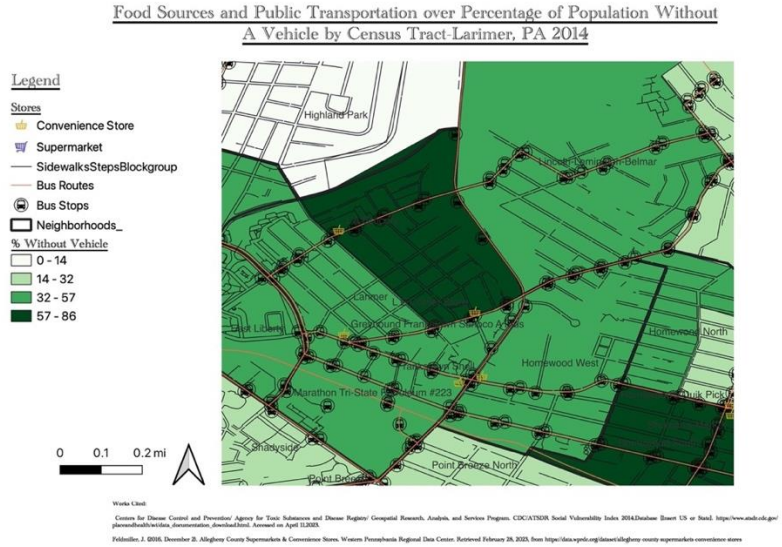

Figure 7 Community Mapping: Larimer-2014

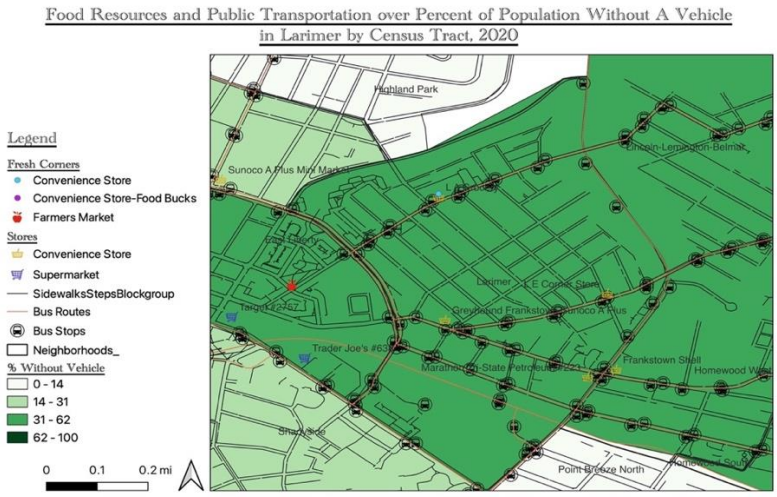

Figure 8 Community Mapping: Larimer-2020

The neighborhood of Larimer is located on the East End of Pittsburgh. Larimer, in 2014 had two small food source retailers in the neighborhood and no supermarkets in the neighborhood or surrounding neighborhoods (Figure 7). Additionally, in 2014 over half of the neighborhood's population was without a vehicle. The nearest supermarket at the time was less than .9 miles away; for many residents, this meant using one of the three bus routes that go through the neighborhood.

In the period between 2014 and 2020, the neighborhood experienced a decline in population, going from 1728 residents to 1526 residents. This decline was also represented in the median household income decreasing from $26,429 to $20,583, with both median incomes falling within the Federal Poverty Income Guidelines. Despite the decline experienced in the neighborhood, Just Harvest added its Fresh Corners program to one of the convenience stores in the neighborhood. A Farmers Market associated with the Fresh Access program was also added to the neighborhood, allowing residents to utilize SNAP and WIC to purchase fresh food. Additionally, two supermarkets were added to the adjacent neighborhoods, less than a mile,

increasing access for residents. There is still a gap in the number of affordable fresh food resources in comparison to convenience stores in the area. The ratio of food resources coinciding with the high proportion of Larimer residents without vehicle access (60.7%) is why Larimer remained a food gap.

4.2.3 Perry South

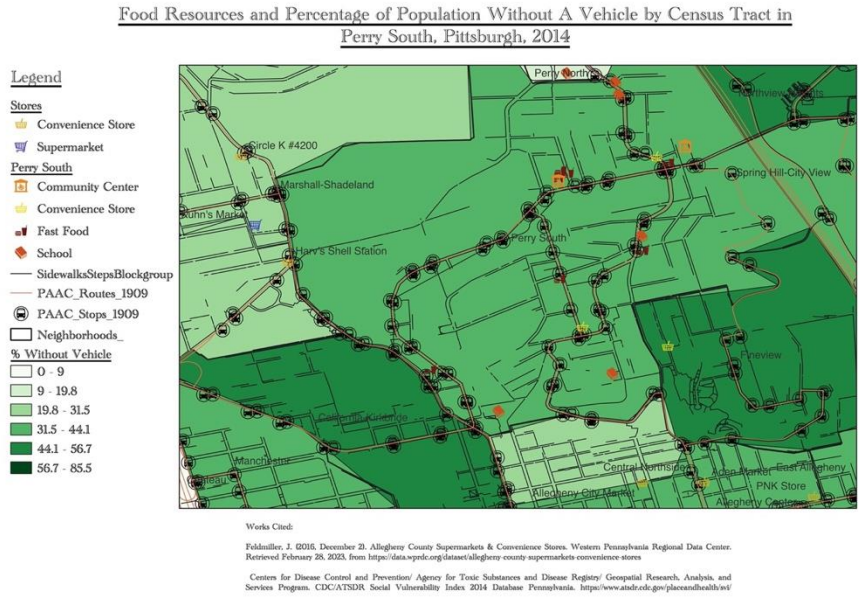

Figure 9 Community Mapping: Perry South-2014

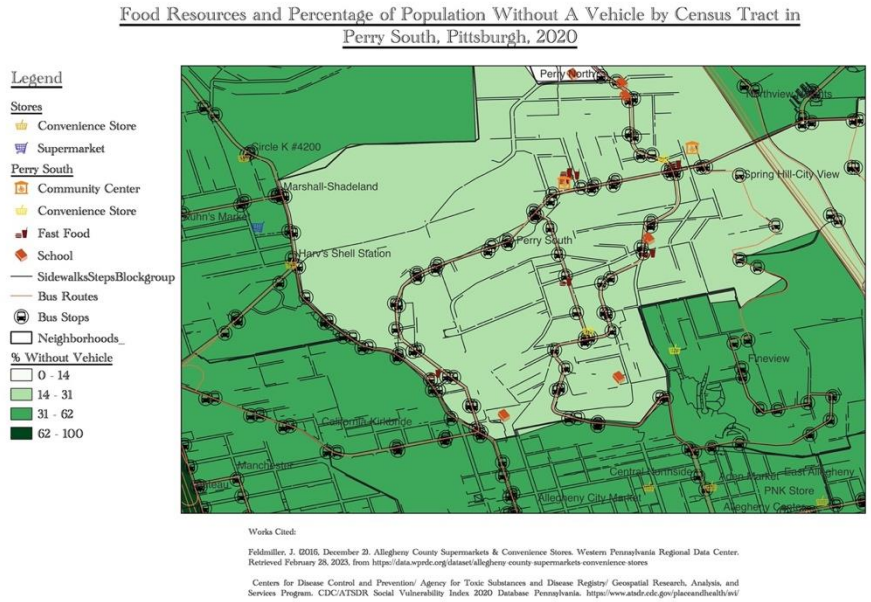

Figure 10 Community Mapping: Perry South-2020

Perry South is a neighborhood in Pittsburgh's Northside. In 2014 the neighborhood had a population of 4,145, the second-largest individual neighborhood. The median household income in Perry South in 2014 was listed as $30,322, which met the Federal Poverty Income Guidelines for that year. Despite being one of the larger neighborhoods, there are few food retailers in the area (Figure 9), with just two convenience stores in Perry South and no supermarkets. Kuhn's Market in Highwood (1.2 miles) and Giant Eagle-Northside (1.8 miles) are the nearest supermarkets. Residents can utilize several fast-food, community centers, and school programs as food resources; however, there are no fresh-food options in the neighborhood. In addition to a lack of food access, around 46 percent of the residents were without a vehicle and reliant on two bus lines to access fresh food.

In the period from 2014 to 2020, the neighborhood experienced a steep population decline going from 4,145 to 3,730. Although the population declined in this period, the median household income increased from $30,322 to $40,661. The percentage of residents without a vehicle also

decreased to about a third (Figure 10). The neighborhood also saw a decrease in programs offered from the community centers, such as the community garden which contributed to the decrease in FAI score, from 9 in 2014 to-2 in 2020. These were the only aspects of the community to change during this period. None of the convenience stores in the neighborhood participated in the Fresh Corners program, and while a farmers market was added to the northside area, it is still 1.5 miles away. The lack of overall food resources and access to food in Perry South caused the neighborhood to remain a food desert.

4.2.4 Hill District

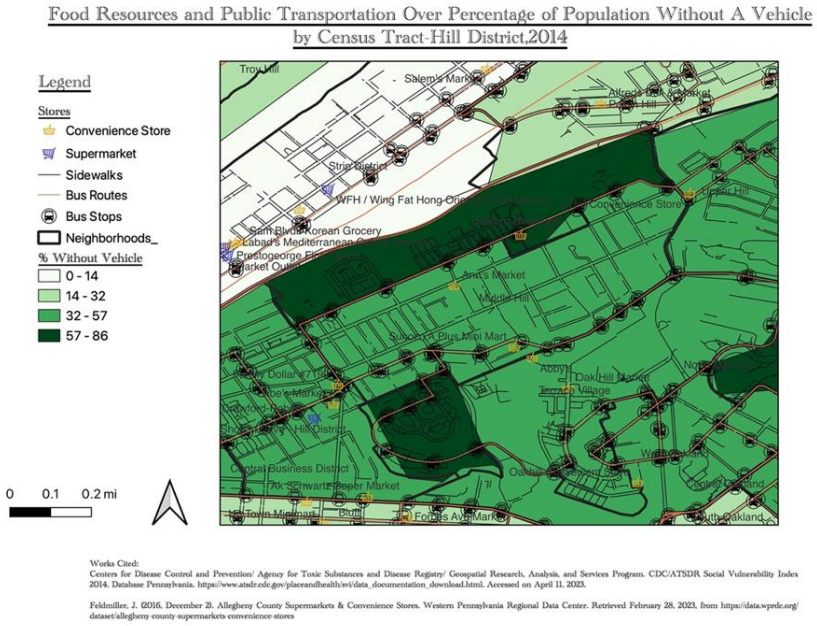

Figure 11 Community Mapping: The Hill District-2014

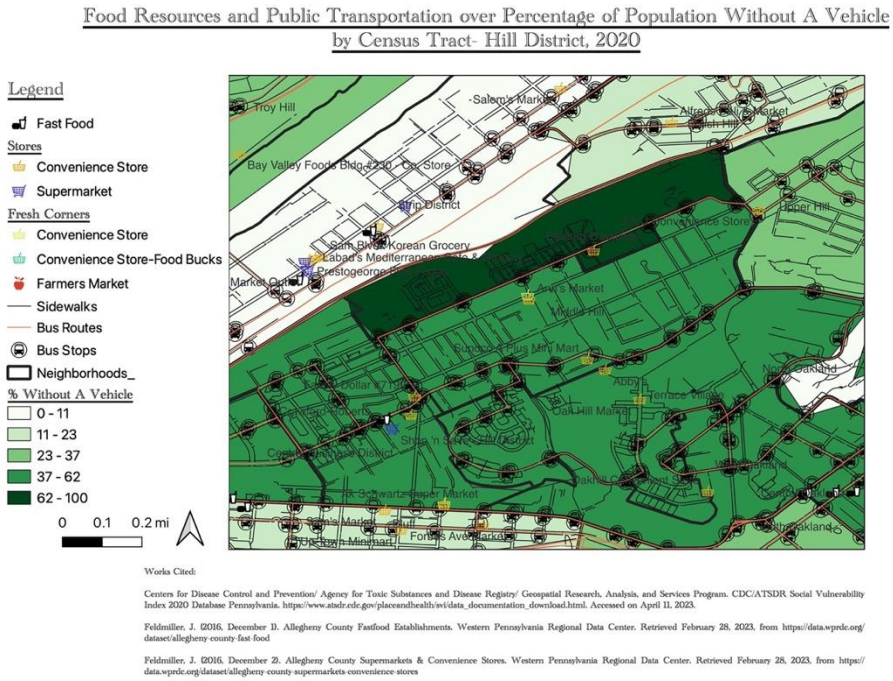

Figure 12 Community Mapping: The Hill District-2020

The Hill District is a collection of historic neighborhoods located centrally in Pittsburgh. In 2014 the neighborhood had several small store retailers in the area and a supermarket (Figure 11). The Shop 'n Save grocery store, seen as the blue shopping cart in Figure 11, was in the Crawford-Roberts neighborhood, and the only retailer offering fresh produce across all Hill District neighborhoods. In 2014 the neighborhoods Crawford-Roberts ($19,967) and Bedford Dwellings ($15,216) had median household incomes that fell well under the Federal Poverty Guidelines. All Hill District neighborhoods had a high percentage of residents without a personal vehicle, with Bedford-Dwelling having the highest percentage (62%). There are three main bus lines that go through the Hill District and bus stops in front of the supermarket. Despite the level of poverty experienced in the Hill, the area has an FAI status of a food gap (Table 2) and not a food desert. This is due to the proximity and accessibility that all the neighborhoods have to fresh foods, through Shop'n Save.

In the period between 2014 and 2020, Just Harvest added one of the convenience stores in the Middle Hill neighborhood to the Fresh Corners program (Figure 12). The convenience store is also near to the Bedford-Dwelling neighborhood, where the percentage of residents without a vehicle increased from 77.4% to 79.5%. During this period the one supermarket in the Hill closed, as of March 2019, leaving the neighborhood needing a reliable source of fresh produce outside of the one Fresh Corners location. Between 2014 and 2020 the population of each neighborhood in the Hill District increased, as shown in Table 2. However, three out of four of the Hill neighborhoods assessed saw a decline in the median household income. With Bedford-Dwelling (2014: $15,216; 2020: $13,295) and Middle Hill (2014: $30,200; 2020: $25,079) experiencing the steepest declines in household income. Despite the lack of brick-and-mortar food sources, the presence of three community gardens in the neighborhoods of Crawford-Roberts, and Middle Hill allow the Hill to remain a food gap instead of a food desert.

5.0 Discussion

The present evaluation aimed to highlight the potential impact of Just Harvest's Fresh Corners and Fresh Access programs on four Pittsburgh communities during the 2015-2020 period. The primary goal was to examine changes in food access after the introduction of affordable fresh food options in food-insecure neighborhoods. Neighborhoods were evaluated by looking at Census survey data and FAI scores from JH in 2014, before the introduction of Fresh Corner and Fresh Access sites in 2015, and then again by utilizing Census survey data in 2020. the introduction of Fresh Corner and Fresh Access sites, with one of the neighborhoods (Perry South) not having the introduction of either program. Based on the information reviewed, the neighborhoods participating in Just Harvest programs had a higher FAI score at the end of the evaluation period. McKees Rocks saw an increase of five points in the FAI score, Larimer saw a two-point increase, while the Hill District neighborhoods experienced no change in their FAI scores. It can also be noted that the McKees Rocks and Larimer neighborhoods also had farmers markets also had a higher FAI score in comparison to the Hill neighborhoods, which only had a Fresh Corner retailer. Perry South, the neighborhood without the intervention, experienced the only decline in FAI scores across the two-time points with a change of -11.

Before the Just Harvest programs, all selected neighborhoods mostly consisted of small food stores (convenience stores, gas stations) with few options for access to fresh produce. While McKees Rocks and the Hill District had a supermarket within the neighborhood, the locations of the supermarkets made accessibility a concern. Despite having a supermarket present in the neighborhood, the grocery store had little effect on both neighborhoods' 2014 FAI scores (McKees Rocks: 17; Hill District: 17). This is consistent with studies conducted in the Hill District

(Dubowitz et al., 2015; Ghosh-Dastidar et al., 2014), which have reported that despite the introduction of the Shop'n Save in 2013, residents are more likely to shop at locations outside of the neighborhood. The studies indicated that residents shopped elsewhere mostly due to concerns with food options, food quality, and accessibility to the store (Dubowitz et al., 2015).

Following the introduction of Just Harvest programs, the number of food stores across the neighborhood remained the same. However, all neighborhoods with Just Harvest programs saw increased fresh food sources, mostly in community gardens, farmers markets/stands, and the two Just Harvest programs. The increase in community gardens came largely from interventions through another organization, Grow Pittsburgh. In Larimer and the Hill District neighborhoods, these fresh food sources proved to be the only affordable produce option in the neighborhood. Larimer residents who are low-income also have the added challenge of several high-priced and specialty grocery stores in adjacent neighborhoods. These grocery stores can be untenable for low-income households leaving reduced options; this phenomenon is known as a food mirage (Breyer et al., 2013).

Data suggests that Perry South had the lowest scores across both time-periods. This included an 11-point decline in FAI scores, going from 9 in 2014 to -2 in 2020. Across both time points Perry South was the only neighborhood designated as a food desert across both time points. Perry South's low FAI scores cannot be attributed to Just Harvest but to an overall lack of investment in the neighborhood. Despite being a socio-economically diverse neighborhood, Perry South completely lacks retailers with fresh food options. Additionally, the neighborhood lacked food-based interventions, with no evidence of community gardens or farmers markets. Based on previous assessments, Perry South has one of the lowest walkability levels compared to healthy

food sources in the area (Danko-Day, 2021). Given the area's high need, the lack of interventions from the city or the community-based organizations is unclear.

5.1 Recommendations

The evaluation of Just Harvest's Fresh Corner and Fresh Access programs demonstrates that having well-funded interventions can lead to successful and sustainable outcomes for their intended areas. However, the evaluation also highlights that organizations like Just Harvest are limited as a single organization and can only do so much to help communities in Allegheny County. Food insecurity is a social determinant of health and when addressing food access, a holistic approach should be used. A collaborative effort from various intervention sources is important for improving food access in LSA neighborhoods. This is evident in neighborhoods like McKees Rocks which saw multiple interventions on a policy level, through the introduction of more grocery stores and farmers markets, and on organizational level, through the community gardens, JH programs, the food bank, and more.

There is a clear push to address food availability from Pittsburgh's city government, non-profit organizations, and individual neighborhoods. However, there is more that can be done to build an equitable and sustainable food environment. From a government and policy level, there are several recommendations. Considering the city's terrain providing more bus routes and stops in neighborhoods with low levels of vehicle access will help to reduce the burdens that impact accessibility in low-supermarket-access areas—additionally, expanding the current farmers market program to incorporate more low-access neighborhoods. Adding more farmers markets or

farm stands would provide fresh produce and seeds for more residents living in neighborhoods with scarce food access.

Pittsburgh has a strong network from an organizational level. Coalitions such as the Food Policy Council enable various non-profit organizations, public health researchers, policymakers, and stakeholders to work together. However, one growth point for this level is to increase community engagement. With an increased role from community members, interventions such as the Hill Districts supermarket will be more effective and sustainable. Also, increasing community engagement will allow individuals and neighborhoods to learn more about the opportunities that are being offered. By establishing stronger connections with the communities being served, sustainable solutions can be implemented to ensure that no neighborhoods are forgotten regarding food insecurity.

5.2 Limitations

While this paper attempts to provide an encompassing evaluation, some limitations exist. One limitation is that because this is an external evaluation of Just Harvest, the information gathered concerning the two programs Fresh Access and Fresh Corners was collected from public records. Because of this, the organizational assessment could not evaluate all sources of information for the programs. Additionally, community mapping was conducted using public records and Census data. Because of this, information pertaining to retailers, neighborhood demographics, and indexes used to analyze data are not entirely up to date. Also, the community mapping was conducted by sampling a few neighborhoods and did not represent a complete analysis of the Pittsburgh metropolitan area. Another limitation presented while completing the

evaluation is that the demographic data for each neighborhood focused on Black and White residents. While Census data included information on more racial and ethnic backgrounds, data on a neighborhood level was inconsistent. Another limitation that the evaluation presented is accounting for the various confounds that effected the results during the time period of 2015-2020. Events such as the COVID-19 pandemic potentially poses as a confound due to its societal impact. Finally, the evaluation was conducted with only one reviewer, this could leave room for bias, which might be reduced by having more than one evaluator. These limitations should be considered for future evaluations and research.

Appendix A Food Abundance Index Scorecards-2020

Appendix A.1 FAI Scorecard McKees Rocks

Food Abundance Index-McKees Rocks		
Dimension and Measurement Criteria	Level	Points
Access		
A. Presence of at least one mainstream grocery store within community and accessible by public transit		1
B. Presence of at least 1 farmers market organic, or local food source		0
C. Presence of community based educational support for food nutrition		3
Diversity		
A. Presence of at least one local food outet within the community		1
B. Availability of at least 3 items of each food group from the USDA Thifty Food Plan List		2
C. Availability of at least one organic or local food source item of each food group from the USDA Thrifty Food Plan List		3
Quality		
A. Presence of at least one food outlet with fresh and unexpired edible foods		1
B. Presence of at least 1 food outlet with two healthy dietary intake promition indicators		2
C. A rating of satisfactory or better on new or existing food quality data/reports		3
Density		

A. Ratio of one or less of convenience store bt grocery store options	1
B. Ratio of one or less fast food + convenience stores by grocery store + produce vendor	0
C. Ratio of one or less fast food + convenience stores by organic store + local food source outlets	0
Affordability	
A. Availability of USDA's Thifty Food Plan Market basket at costs equivalent to or less than the calculated weekly average cost	1
B. Presence of community-owned food outlet that provides affordabile food access	2
C. Presence of community-based growing options	3
FAI Total (30 Possible Points-Range -5 to +30)	22

Appendix A.2 FAI Scorecard Larimer

Food Abundance Index-Larimer		
Dimension and Measurement Criteria	Level	Points
Access		
A. Presence of at least one mainstream grocery store within community and accessible by public transit		-1
B. Presence of at least 1 farmers market organic, or local food source		2
C. Presence of community based educational support for food nutrition		3
Diversity		
A. Presence of at least one local food outet within the community		-1

B. Availability of at least 3 items of each food group from the USDA Thifty Food Plan List	2
C. Availability of at least one organic or local food source item of each food group from the USDA Thrifty Food Plan List	3
Quality	
A. Presence of at least one food outlet with fresh and unexpired edible foods	1
B. Presence of at least 1 food outlet with two healthy dietary intake promition indicators	2
C. A rating of satisfactory or better on new or existing food quality data/reports	3
Density	
A. Ratio of one or less of convenience store bt grocery store options	-1
B. Ratio of one or less fast food + convenience stores by grocery store + produce vendor	0
C. Ratio of one or less fast food + convenience stores by organic store + local food source outlets	0
Affordability	
A. Availability of USDA's Thifty Food Plan Market basket at costs equivalent to or less than the calculated weekly average cost	1
B. Presence of community-owned food outlet that provides affordabile food access	2
C. Presence of community-based growing options	3
FAI Total (30 Possible Points-Range -5 to +30)	19

Appendix A.3 FAI Scorecard Perry South

Food Abundance Index-Perry South		
Dimension and Measurement Criteria	Level	Points
Access		
A. Presence of at least one mainstream grocery store within community and accessible by public transit		-1
B. Presence of at least 1 farmers market organic, or local food source		0
C. Presence of community based educational support for food nutrition		3
Diversity		
A. Presence of at least one local food outet within the community		-1
B. Availability of at least 3 items of each food group from the USDA Thifty Food Plan List		0
C. Availability of at least one organic or local food source item of each food group from the USDA Thrifty Food Plan List		0
Quality		
A. Presence of at least one food outlet with fresh and unexpired edible foods		-1
B. Presence of at least 1 food outlet with two healthy dietary intake promition indicators		0
C. A rating of satisfactory or better on new or existing food quality data/reports		0
Density		
A. Ratio of one or less of convenience store bt grocery store options		-1
B. Ratio of one or less fast food + convenience stores by grocery store + produce vendor		0
C. Ratio of one or less fast food + convenience stores by organic store + local food source outlets		0
Affordability		

A. Availability of USDA's Thifty Food Plan Market basket at costs equivalent to or less than the calculated weekly average cost	-1
B. Presence of community-owned food outlet that provides affordabile food access	0
C. Presence of community-based growing options	0
FAI Total (30 Possible Points-Range -5 to +30)	-2

Appendix A.4 FAI Scorecard Hill District

Food Abundance Index- Hill District		
Dimension and Measurement Criteria	Level	Points
Access		
A. Presence of at least one mainstream grocery store within community and accessible by public transit	Required	1
B. Presence of at least 1 farmers market organic, or local food source	Suggested	0
C. Presence of community based educational support for food nutrition	Innovative	3
Diversity		
A. Presence of at least one local food outet within the community	Required	-1
B. Availability of at least 3 items of each food group from the USDA Thifty Food Plan List	Suggested	2
C. Availability of at least one organic or local food source item of each food group from the USDA Thrifty Food Plan List	Innovative	3
Quality		

A. Presence of at least one food outlet with fresh and unexpired edible foods		Required	1
B. Presence of at least 1 food outlet with two healthy dietary intake promition indicators		Suggested	
C. A rating of satisfactory or better on new or existing food quality data/reports		Innovative	3
Density			
A. Ratio of one or less of convenience store by grocery store options		Required	-1
B. Ratio of one or less fast food + convenience stores by grocery store + produce vendor		Suggested	0
C. Ratio of one or less fast food + convenience stores by organic store + local food source outlets		Innovative	0
Affordability			
A. Availability of USDA's Thifty Food Plan Market basket at costs equivalent to or less than the calculated weekly average cost		Required	1
B. Presence of community-owned food outlet that provides affordabile food access		Suggested	2
C. Presence of community-based growing options		Innovative	3
FAI Total (30 Possible Points-Range -5 to +30)			17

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