

# Strategies to Mitigate Child Food Insecurity in El Paso County, Texas



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**Frank Batten School of Leadership and Public Policy**

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## Disclaimer

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The author conducted this study as part of the program of professional education at the Frank Batten School of Leadership and Public Policy, University of Virginia. This paper is submitted in partial fulfillment of the course requirements for the Master of Public Policy degree. The judgments and conclusions are solely those of the author, and are not necessarily endorsed by the Batten School, by the University of Virginia, or by any other agency.

## Honor Pledge

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On my honor as a student, I have neither given nor received aid on this assignment.



Signature

April 8, 2022

Date

## **Glossary**

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**Food Desert-** Geographic areas where affordable or high-quality food is inaccessible due to the absence of a grocery store within convenient traveling distance.

**Food Insecurity-** A condition describing the limited or uncertain access to adequate nutrition

**High Food Security-** Households have consistent access to adequate food and experience no anxiety about the ability to do so

**Marginal Food Security-** Households sometimes have problems accessing adequate food or experience anxiety about the ability to access food, but the quality and quantity of food intake do not substantially change

**Low Food Security-** Households may reduce the quality, variety, or desirability of their diets but are able to maintain normal eating patterns and a normal quantity of food intake

**Very Low Food Security-** Eating patterns are disrupted and food intake is reduced for one or more members of the household due to the lack of money and other food resources

## **Acronyms**

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**ALICE-** Asset Limited, Income Constrained, Employed.

**CPS-** Current Population Survey

**EPDPH-** El Paso Department of Public Health

**EPFH-** El Pasoans Fighting Hunger

**WIC-** Special Supplemental Nutrition Program for Women, Infants, and Children

**SNAP –** Supplemental Nutrition Assistance Program

**USDA-** United States Department of Agriculture

## Executive Summary

Food promotes the physical and mental functions that people require to maintain an adequate quality of life. However, not all people have equal access to food. Over 38 million people in the United States experienced food insecurity in 2020 (Facts About Hunger in America, n.d.). Of the 38 million affected by food insecurity, over a third are children under the age of 18 (Facts About Child Hunger in America, 2021). Certain areas of the United States are particularly afflicted by high child food insecurity rates. El Paso County, Texas is one locality that is uniquely burdened.

This document provides an overview of child food insecurity rates in El Paso County, Texas as well the role that the El Paso Department of Public Health can take to help mitigate this problem. It begins by providing a general background of food insecurity and its definitions. It will then explore child food insecurity in a context specific to El Paso County, suggesting reasons why this problem may be particularly prevalent in this locality, exploring consequences for the county's younger residents, and recognizing subgroups that may bear a disproportionate burden.

Even though the El Paso Department of Public Health, independent school districts, and non-government community organizations have taken a number of actions to mitigate this problem, the Covid-19 pandemic has exacerbated child food insecurity rates and has created a need for additional intervention. This report will present advocacy for school gardens, a food recovery initiative, and a volunteer recruitment initiative to help expand mobile pantry services as possible ways that the Department of Public Health can respond to the increasing severity of child food insecurity in El Paso. Each of these alternatives will be evaluated based on: (1) anticipated participation (2) likelihood of benefit to vulnerable populations (3) consistency of benefit, and (4) cost.

Based on these criteria, this report ultimately recommends that the El Paso Department of Public Health consider implementing a **volunteer recruitment initiative to help expand mobile pantry operations**. This initiative is anticipated to attract enough participation for successful implementation and has the ability to provide benefits year-round. While it does not have the same cost-saving potential that a food recovery initiative may have, it is less costly than school gardens. Compared to other alternatives evaluated in this report, is also much more likely to provide benefits to those who are most vulnerable to child food insecurity and its effects.

With the help of the Department of Public Health, more children in El Paso County can gain access to the nutrition that they need to meet their full potential and overcome food insecurity barriers that prevent them from achieving long-term success.

## Client Overview

The El Paso Department of Public Health is a local government agency that seeks to promote public health in the El Paso County community. Its mission is to provide residents with public health related research, evaluation, education, prevention, intervention, and preparedness services.

Adequate nutrition is an important factor of public health and has numerous health implications for children. While the department has already been instrumental in mitigating this problem through the administration of the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), the Covid-19 pandemic has exacerbated the number of El Paso children that are at risk of inadequate nutrition. To meet a growing need to meet the nutritional needs of children, the El Paso Department of Public Health now seeks new strategies to provide more food insecure children with proper nutritional resources.

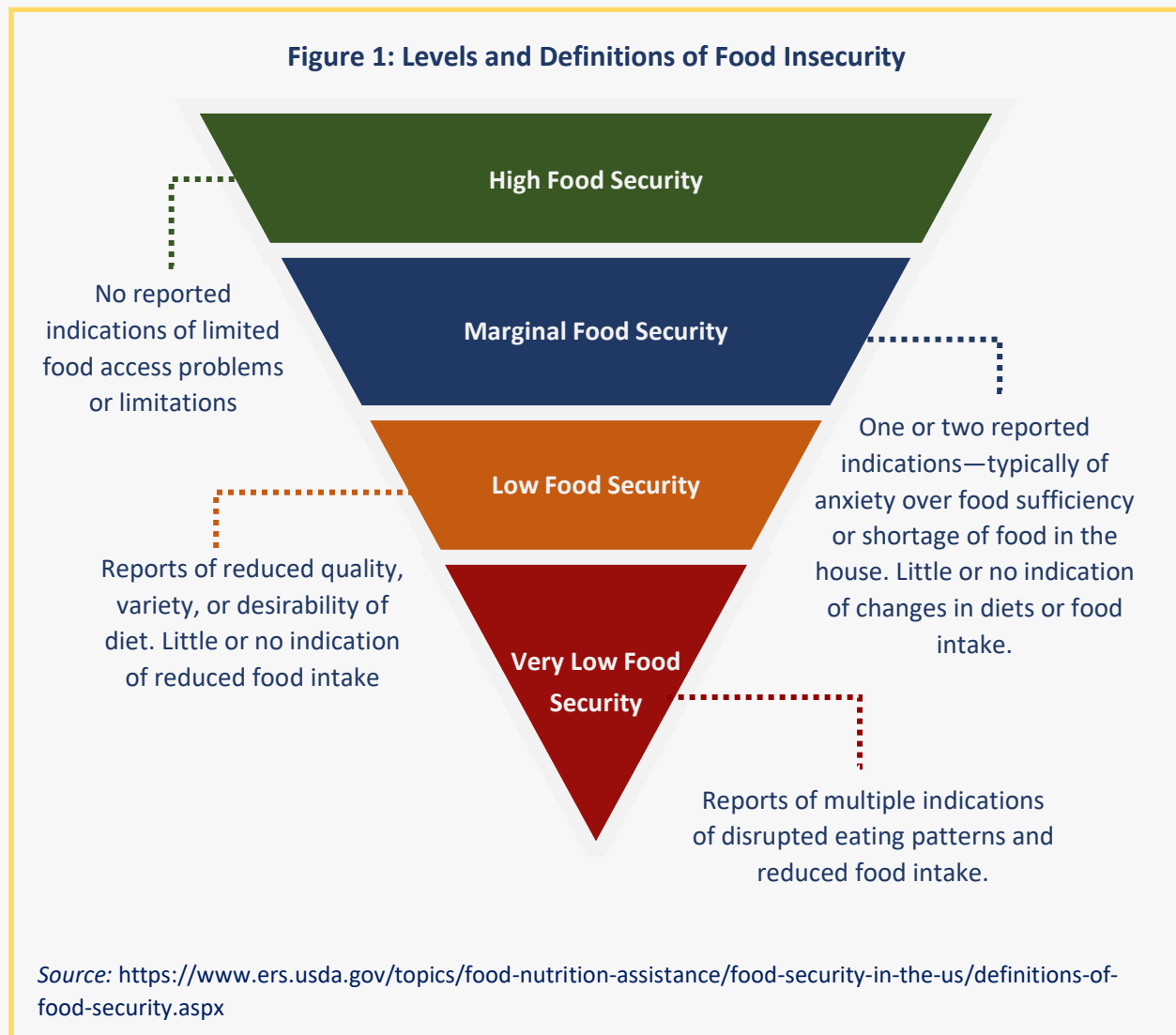
## Problem Statement

Food promotes the physical and mental functions that people require to maintain an adequate quality of life. However, not all people have equal access to food. Food insecurity describes the “limited or uncertain availability of nutritionally adequate and safe foods, or limited or uncertain ability to acquire acceptable foods in socially acceptable ways,” and it affects millions of people across the United States (Measurement, 2021). Over 38 million people in the United States experienced food insecurity in 2020 (Facts About Hunger in America, n.d.). Of the 38 million affected by food insecurity, over a third are children under the age of 18 (Facts About Child Hunger in America, 2021).

Certain areas of the United States such as El Paso, are particularly burdened by high child food insecurity rates. **Over one in five children in El Paso County, Texas suffers from food insecurity, leaving them more vulnerable to adverse effects on health, social, and socioeconomic outcomes** (Renner, 2020).

## Definitions of Food Insecurity

Food insecurity describes the limited or uncertain availability of nutritionally adequate and safe food. It also describes the limited or uncertain ability to acquire these foods without resorting to scavenging, stealing, or using emergency food supplies (Measurement, 2021). The United States Department of Agriculture (USDA) defines different levels of food insecurity with the following labels as shown in Figure 1 (Definitions of Food Security, 2021):

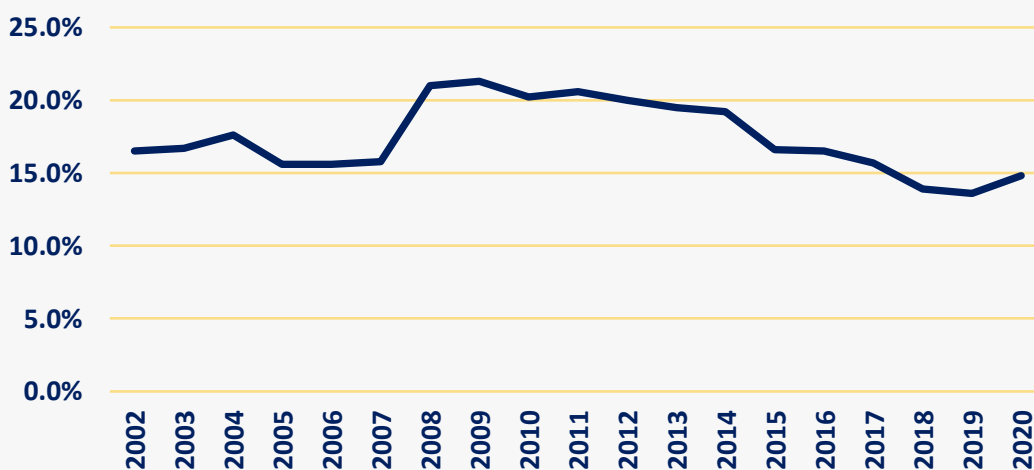


People who experience High Food Security and Marginal Food Security are still considered to be food secure. However, people who experience Low Food Security and Very Low food security are considered to be food insecure (Definitions of Food Security, 2021).

The USDA assesses national food security statistics based on an annual supplement to the monthly Current Population Survey (CPS). The CPS is conducted by the Bureau of the Census and collects data about employment, income, and poverty. Every month, approximately 60,000 households are selected to complete the CPS. Out of these households, 40,000 are randomly selected to respond to additional questions about food security. The surveyed households are selected to be representative of all households at state and national levels.

As shown in Figure 2, the rate of food insecurity in the United States had fallen steadily from the 2008 recession to 2017 (Holben & Marshall, 2017). In 2009, 21.3 percent of households with children experienced food insecurity. These rates fell steadily, and by 2019, the rate of food insecurity was about 13.6 percent. However, the Covid-19 pandemic put economic strain on households, further limiting the financial resources available to acquire adequate nutrition. Since the beginning of the pandemic, the rate of food insecurity amongst households with children increased, for the first time since the 2008 recession, to 14.8 percent (Balch, 2020; Buscholz, 2021).

**Figure 2: Food Insecure Households with Children (2002-2020)**



Source: [https://www.census.gov/data/datasets/time-series/demo/cps/cps-suppl\\_cps-repwgt/cps-food-security.html#cpssupps](https://www.census.gov/data/datasets/time-series/demo/cps/cps-suppl_cps-repwgt/cps-food-security.html#cpssupps)

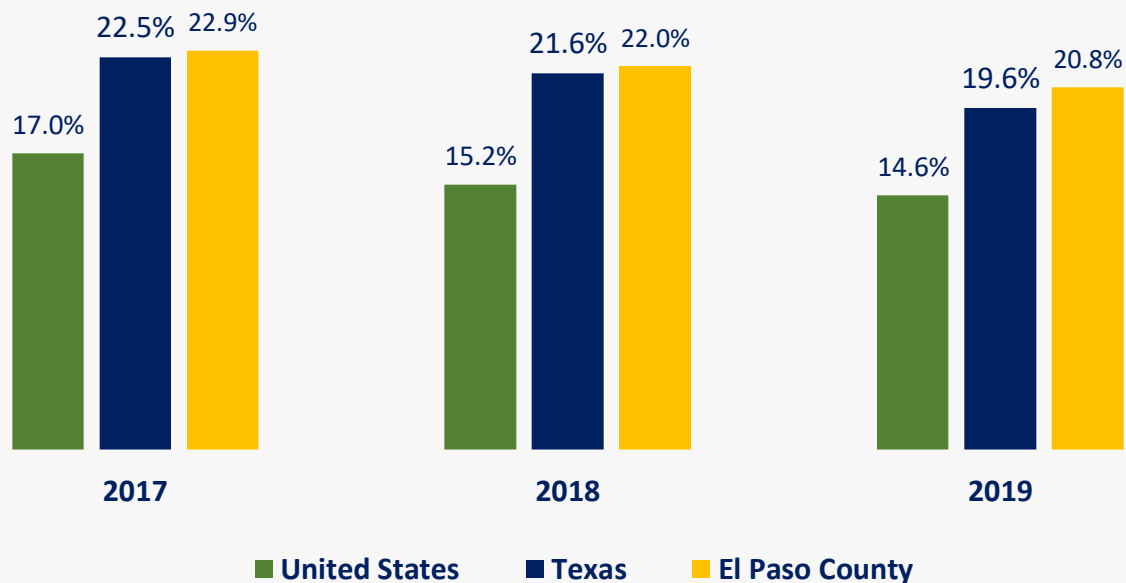
## Food Insecurity in El Paso County, Texas

El Paso County, Texas is a county that is uniquely affected by child food insecurity. As of 2019, an estimated one in five children faced food insecurity. At about 20.8%, the El Paso rate of child



food insecurity is slightly higher than the Texas rate at 19.6 percent and notably higher than the U.S. rate at 14.6 percent (Figure 3). While this rate has decreased steadily in the decade prior to the pandemic, it has consistently remained above national and state averages (Child Food Insecurity Rate, n.d.).

**Figure 3: Child Food Insecurity Rates from 2017-2019 (Pre-Pandemic)**



Source: [Map.feedingamerica.org](http://Map.feedingamerica.org)

\*Data was collected prior to the Covid-19 pandemic and does not reflect resulting changes in child food insecurity

### ***Household Income and Child Food Insecurity***

The primary driver of childhood food insecurity is household income. In 2016, low-income households were over 2.6 times more likely to experience food insecurity than the average American household (O'Neill Hayes, 2021). While parents of these household often try to shield their children from limited access to food, it is not always possible when income needs to be used for other unnegotiable necessities like housing and emergency medical care (Nord, 2013). The employment status of parents can also have an indirect impact on childhood food insecurity due to its significant contribution to household income (O'Neill Hayes, 2021).

While El Paso is a county that enjoys a relatively low cost of living compared to the state and national average, the average household salary is also lower. Nearly 20 percent of household incomes fall below the poverty line, and 1 in 3 children belong to a poverty-stricken household (Coulehan, 2021; Poverty in El Paso, Texas, n.d.). In addition to the high proportion of children

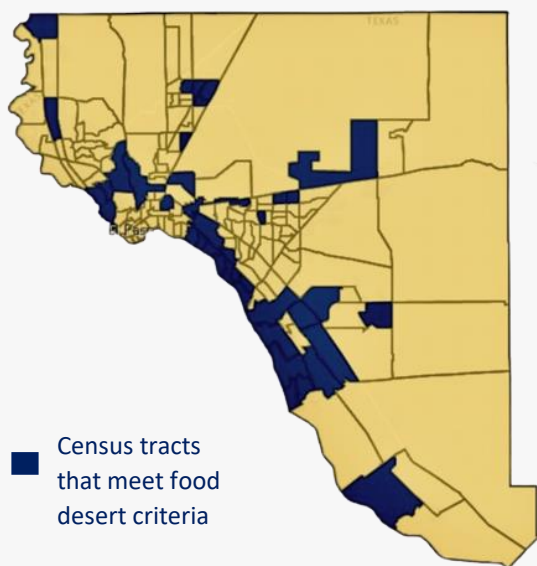
that belong to poverty-stricken households, approximately 33 percent of the households in El Paso are categorized as ALICE households (Research Center, Texas, 2021). ALICE stands for Asset Limited, Income Constrained, Employed and is used to describe households with incomes that are above poverty levels, but below the cost of living.

### ***Food Deserts and Child Food Insecurity***

Child food insecurity can also be a result of physical or logistical barriers that prevent households from obtaining adequate nutrition. According to the United States Department of Agriculture, census tracts can be defined as “food deserts” if it meets both low-income and low access criteria (Wright, 2021). Low-income describes tracts where the poverty rate is 20 percent or greater or tracts where the median family income is below 80 percent of the statewide median family income. Low-access tracts are those in which 33 percent of the

population lives more than one mile away from a supermarket or large grocery store (*Documentation*, n.d.).

**Figure 4: Food Deserts in El Paso County 2019**



Source: <https://www.ers.usda.gov/data-products/food-access-research-atlas/go-to-the-atlas/>

There are numerous neighborhoods throughout El Paso that qualify as food deserts based on low-income and low-access criteria (Figure 4). Households in these tracts are less likely to have access to markets for fresh produce but have easy access to fast food retailers and convenience stores. Without reliable transportation, many household members are unable to acquire adequate amounts of healthy and nutritious foods (O’Neill Hayes, 2021; Jin & Lu, 2021).

## **The Effects of Food Insecurity on Children**

As children in El Paso County are more likely to experience food insecurity compared to the average child in the United States or Texas, they are more likely to face the short-term and long-term consequences of the limited access to food.

## ***Health Consequences***

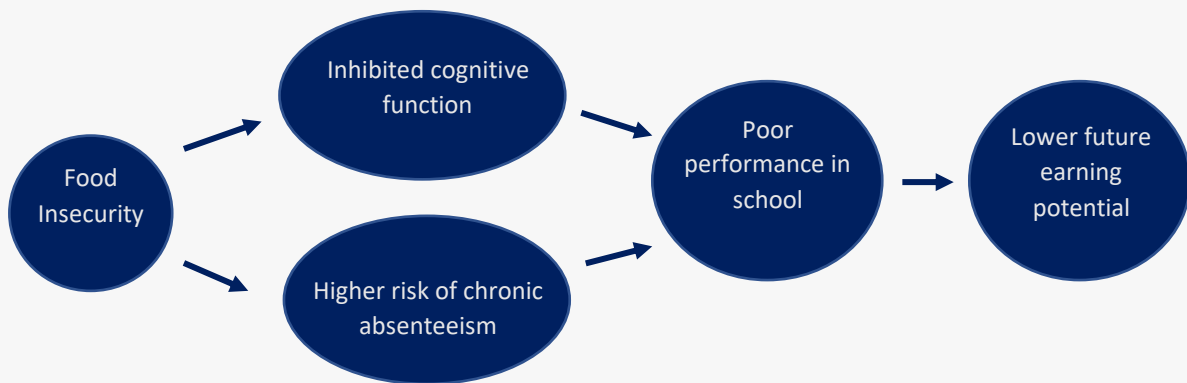
Children that suffer from food insecurity often face physical health consequences. In general, food insecure children are nearly twice as likely to have their health reported as “fair/poor” rather than “excellent/good” (Cook et. al., 2004). One of the most prevalent physical health conditions amongst food insecure children is iron deficiency anemia. Iron deficiency anemia causes a decreased number of red blood cells in the body, limiting the flow of oxygen. Food insecure children are 8 percentage points more likely than food secure children to be diagnosed with this condition (Skalicky et. al., 2005). Children that experience food insecurity are also about 50 percent more likely to suffer from asthma and are nearly 40 percent more likely to be overweight (Mangini, 2017, Kral et. al., 2017). In addition to physical health consequences, food insecure children are also at higher risk of mental health conditions. In a 2012 study, researchers found that children from food insecure households are twice as likely to display persistent hyperactivity and inattention (Melchior et. al., 2012).

## ***Educational Attainment Consequences***

It is clear that food insecurity has profound effects on educational performance and achievement. According to the Food Research & Action Center, children who had been food insecure in kindergarten experienced a 13 percent drop in reading and math test scores by third-grade compared to food-secure peers (Impacts of Hunger on Education, n.d.). There are many reasons for this disparity. Long periods of food insecurity and consistent hunger at an early age can hinder the development of critical brain processes. This causes problems with memory, attention, and behavior, all of which are vital to academic performance (Tanner & Finn-Stevenson, 2002). Food insecurity can also inhibit a student’s ability to learn by causing increased absences from school. Current research suggests that children who are food insecure are 57 percent more likely to be absent from school due to increased rates of illness as well as other social and emotional factors (Tamiru & Belachew, 2017). Even when they suffer from short periods of food insecurity, children struggle to stay awake in class to focus and learn (Meisenheimer, n.d.).

The effect that food insecurity has on academic performance is notably concerning considering that academic achievement is very strongly correlated with future earnings (Figure 5). Over time, the compounding effects of low-test scores, attention problems, and absences contributes to lower high-school graduation rates. This sets the stage for a lifetime of lower financial stability as high school dropouts can earn \$260,000 less in a lifetime than peers with a high school diploma (The True Cost of High School Dropouts, 2017).

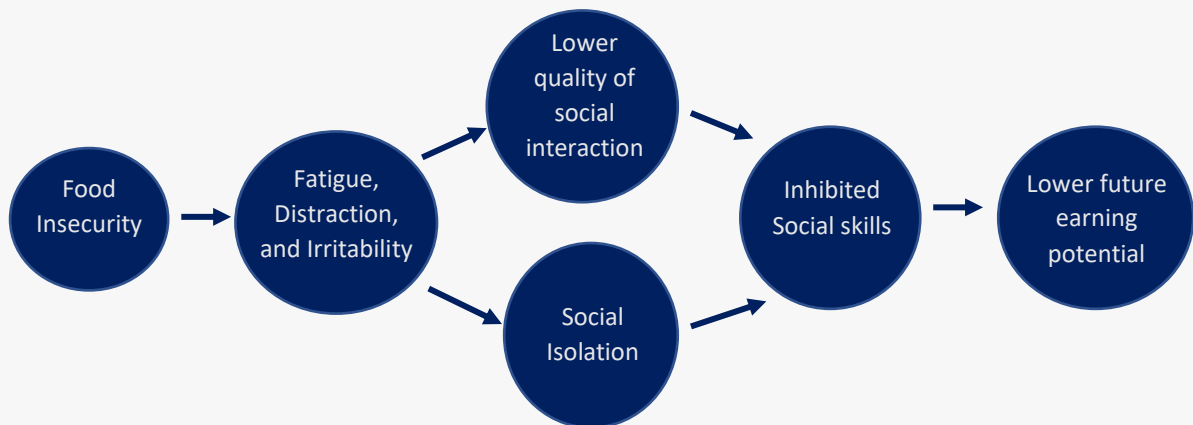
**Figure 5: Educational Attainment Consequences of Food Insecurity**



### ***Social Development Consequences***

In addition to having effects on health, food insecurity can affect the social-emotional development of children. Poor nutrition at any stage of a child's development has proven to cause lethargy, distraction, and irritability (Johnson & Markowitz, 2018; Tanner & Finn-Stevenson, 2002). This significantly reduces the amount of quality interaction that children have with their peers, caregivers, and families. It also discourages children from actively seeking interaction, which can lead to social isolation during an especially formative time in their social development (Johnson & Markowitz, 2018). As illustrated in Figure 6, limited social development can have long-lasting effects into adulthood as good social skills are necessary in jobs that allow individuals to have a higher earning capacity (Deming, 2017).

**Figure 6: Social Development Consequences of Food Insecurity**



## **Vulnerable Populations**

Child food insecurity and the consequences of child food insecurity do not have an identical effect on all populations. Certain groups such as people of color, children of single parents, and younger children are more vulnerable to food insecurity.

### ***Inequities Driven by Race***

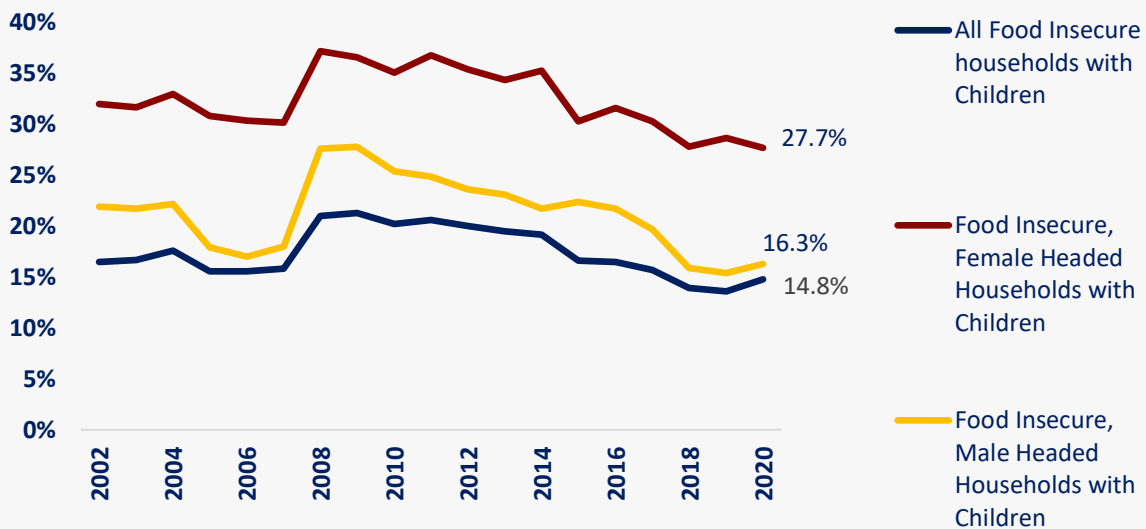
As a county on the border of the U.S. and Mexico, El Paso has a large Hispanic population. Over 80 percent of the population is Hispanic, a group that generally faces a disproportionately high rate of food insecurity (El Paso, Texas Population 2021, 2021). This is likely due to a lower median income that results from discrimination in the job market and lower-resourced schools found in communities of color (Solomon et. al., 2022; Darling-Hammond, 1998).

There are multiple reasons why households headed by people of color generally have lower incomes or are more likely to be unemployed. Racial discrimination in the job market is a factor that affects the income and access to food for many communities of color. People of color also are more likely to experience incarceration, which can also prevent them from seeking stable employment. Some communities of color also face information barriers that prevent them from being able to take advantage of government assistance programs (Hunger is a Racial Equity Issue, n.d.). Feeding America estimates that 1 in 5 Black, 1 in 6 Latino, and 1 in 4 Native American households were food insecure before the pandemic (Simmons & Kandlur, 2021.).

### ***Inequities Driven by Household Characteristics***

Children of single parents are also more susceptible to food insecurity as their household income is likely to be much lower than for a two-parent household. They often have to expend more income on childcare and bear a higher proportion of the costs of living. Children in single parent families are over 10 percent more likely to experience food insecurity (Mendes & Stutzman, 2021). As shown in Figure 7, households headed by single females are even more vulnerable to food insecurity compared to the average single-parent household (Hartline-Grafton, 2018). This is because 60 percent of the lowest paid workers in the United States are women, and they are 35 percent more likely to experience poverty, which is a factor that greatly contributes to food insecurity (Jorss, 2019). In El Paso, over 31 percent of households with children under the age of 18 are headed by single females, which is higher than the rate for Texas overall at 24 percent (U.S. Census Bureau, 2020). This prevalence of this risk factor may contribute to the higher vulnerability of El Paso children to food insecurity.

**Figure 7: National Food Insecurity Rates by Household Type**



Source: [https://www.census.gov/data/datasets/time-series/demo/cps/cps-supp\\_cps-repwgt/cps-food-security.html#cpssupps](https://www.census.gov/data/datasets/time-series/demo/cps/cps-supp_cps-repwgt/cps-food-security.html#cpssupps)

### ***Inequities Driven by Age***

Food insecurity also can have a greater impact on younger children. During infancy and early childhood, children have faster growth rates compared to older children. In consequence, their bodies have higher nutrient needs (Dewey, 2013). However, food insecure households often struggle to obtain foods with high nutrient densities due to the effects of food deserts and limited purchasing power. Older children have higher calorie needs, but require less nutrient dense foods. These needs are typically easier for households to meet. Older children are also more likely to be able to obtain food from outside of the household as schools are often used as a channel to provide children with free or reduced-cost meals (Schmeer & Piperata, 2016).

Younger children are also more susceptible to certain negative development outcomes resulting from nutrient deficiencies. As previously noted, iron deficiency anemia is a common health problem for food insecure children. At early ages that are critical to brain development, this is linked to deficits in cognition, attention, and behavior (Beard, 2008). Even after treatment, these negative developmental consequences can persist indefinitely (Lozoff et. al., 2000).

## Existing Efforts to Address Food Insecurity in El Paso County

Current efforts to mitigate child food insecurity in El Paso County have included government, community, and school-based programs.

### ***Federal Nutrition Programs***

El Paso's local government addresses child food insecurity through the administration of federal programs such as the Supplemental Nutrition Assistance Program (SNAP) and the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC).

SNAP is an important federal program that has helped over 150,000 residents of El Paso access higher qualities and quantities of food as of 2019 (SNAP Benefits Recipients, 2021). SNAP recipients receive a "Lone Star Card" that can be used like a credit card at participating retailers to buy food and garden seeds. This program is generally available to those who earn below a certain income threshold that is determined by household characteristics.

WIC is a state funded nutrition program for pregnant or breastfeeding women as well as families with children under 5 years of age (Apply for WIC, 2022). Those that fall under the age and income criteria are given, at no cost, nutritious foods to supplement their diet, referrals for health care, as well as information on healthy eating. While this program has been successful in helping alleviate food insecurity for families in El Paso, the Covid-19 pandemic has put an increased amount of economic stress on families and has increased the rate of child food insecurity (Gundersen et al., 2021).

It is also important to recognize the limitations presented by current nutrition assistance programs. Some food insecure households may lose their assistance from WIC once their children are older than five years old and be unable to qualify for SNAP based on household income (Table 1). They will likely experience sudden reduction of resources needed to acquire food for their children. For smaller households, the maximum monthly income to qualify for SNAP and WIC are also far below the estimated household income that is needed to live comfortably in El Paso, which is about \$4,200 (Claster, 2018).

**Table 1: Maximum Monthly Gross Household Income to Qualify for Government Feeding Programs in Texas**

Number of People in Household	SNAP	WIC
1	\$1,775	\$1,986
2	\$2,396	\$2,686
3	\$3,020	\$3,386
4	\$3,644	\$4,786
5	\$4,268	\$5,486

Source: <https://texaswic.org/apply>; <https://www.hhs.texas.gov/services/food/snap-food-benefits>

### ***School Meals***

Schools have been instrumental in helping El Paso children meet their nutritional needs due to the fact that school meal programs are easily accessible for children during the school year. The National School Breakfast and Lunch Program for Texas has provided free meals to children from families with incomes below 130 percent of Federal poverty levels and reduced-price meals to children from families with incomes between 130 and 180 percent of federal poverty levels (National School Breakfast and Lunch Program, n. d.). While, the El Paso Independent School District was recently able to secure additional funding from the United States Department of Agriculture to extend free meals to all students during the 2021-2022 school year, other independent school districts in El Paso County follow these eligibility criteria and are not able to offer free meals to all students (Reveles, 2021).

### ***Food Pantries***

Food pantries have also been instrumental in providing El Paso children and households with additional food resources at no cost. Since the beginning of the Covid-19 pandemic, the demand for their services have increased in response to higher levels of economic strain and the resulting severity of food insecurity. According to the Kelly Memorial Food Pantry, food distribution has nearly quadrupled since pre-pandemic conditions. A local food bank, El Pasoans Fighting Hunger, noted a similar pattern and reported that their level of food distribution increased by 430 percent in response to the crisis (Cuevas, 2021).

However, not all food insecure households take advantage of food pantries and food banks. In a study exploring the reasons why Hispanic and Latino populations may be deterred from utilizing food banks, some participants mentioned that transportation was a larger barrier because it was difficult to walk long distances while carrying heavy packages of food (Wright et. al., 2019). A separate study about the barriers to food pantries for low-income noted that nearly half of participants did not utilize food pantries because they did not have enough information about its existence or location (Fong et. al., 2016).

Even when people have access to food pantries, it does not guarantee that they will be able to meet ideal nutritional needs. Existing literature suggests that food pantry users often have a low intake in fresh produce and dairy. Many food pantry users also did not meet the recommendations for certain vitamins, iron, magnesium, and zinc (Simmet et. al., 2016; Eicher-Miller, 2020). Irregularity and lack of quality produce in food pantries can make it difficult for people to plan meals and consume better quality foods, but dependence on donations give pantries little control over the quality of food inventory (Khlstrom et. al., 2018; Rapaport, 2016).



## **Additional Alternatives to Address Child Food Insecurity**

Existing efforts have helped control the number of food insecure children in El Paso County, but the increased severity of the problem resulting from the Covid-19 pandemic demands even greater efforts. Possible policy alternatives to consider include school gardens, a food recovery program, and a volunteer initiative to expand mobile pantry operations.

Some of these alternatives provide benefits to households rather than directly to children. We assume that any increase in household food intake will also increase the food intake of children who belong to the household as parents generally attempt to shield their children from food insecurity when possible (Nord, 2013).

### ***School Gardens***

One alternative that could mitigate high rates of child food insecurity would be for the El Paso Department of Public Health to partner with the independent school districts to establish school gardens. Children from insecure households are more likely to have limited access to fresh produce than other less nutrient-dense foods. However, the nutrients from fresh produce are essential to their growth and development (Victoria Department of Public Health, n.d.). School gardens could supplement children's diets with fresh produce.

Individual schools will be able to choose the location of these gardens on school grounds as well as the type of garden (e.g., keyhole, traditional, hydroponic) based on individual needs and space limitations. These school gardens would include a variety of produce that can be harvested throughout the school year and need to be cared for by students and staff. Harvested produce can be used to supplement school lunches or be distributed amongst students.

While much of the work to implement school gardens requires cooperation from the school system, there are certain immediate actions that El Paso's Department of Public Health can take to facilitate implementation. The Department of Public Health can help identify the most needed nutrients and suggest crop schedule accordingly, introduce school administrators to possible sources of funding, as well as advocate for the value of providing children with fresh produce.

### ***Food Recovery Initiative***

Another alternative that could help mitigate child food insecurity in El Paso would be for the Department of Public Health to encourage food donations to community food banks and pantries. Local food banks as well as community pantries have been instrumental in helping

manage food insecurity in El Paso. However, many times, the services that food banks can offer to the community are limited to the quantity and nutritional quality of food donations.

The El Paso Department of Public Health could potentially facilitate a food donation initiative that closely resembles the “Take Out Hunger” initiative in Harris County, Texas. The Federal government provides general and enhanced tax incentives for food donations, but many businesses are not taking advantage of the opportunity to reduce food waste and reduce hunger. One of the barriers to food donations from restaurants and grocery stores is that these businesses are concerned about liability. However, protections against food donation law suits are granted at the federal level through the Bill Emerson Good Samaritan Food Donation Act and at the state level through the Texas Civil Practice & Remedies Code § 76.001—004.

Like the Harris County Department of Public Health, the El Paso Department of Public Health can help provide information to potential donors and recipients about the benefits of participating, administer a short course about food donation standards, and manage both donor and recipient applications.

### ***Volunteer Initiative to Expand Mobile Pantries***

A third policy alternative that the El Paso Department of Public Health could consider as a strategy to mitigate child food insecurity is a volunteer recruitment initiative to help expand an existing mobile food pantry. This mobile food pantry is operated by the local food bank, El Pasoans Fighting Hunger (EPFH), and uses refrigerated trucks to deliver free food resources to people who may face barriers to accessing traditional pantries. However, the number of different sites and residents that the program can reach is limited by the availability of volunteers. In order for a new mobile pantry site to exist, the site has to provide its own volunteers, and this has been a challenge (K. Galicia, personal communication, January 29, 2022).

The El Paso Department of Public Health could partner with the El Pasoans Fighting Hunger food bank and help recruit as well as organize volunteers across different sites throughout the county. This would allow mobile pantries to operate in additional locations and benefit more

#### **About the El Pasoans Fighting Hunger’s Mobile Pantry**



The El Paso Fighting Hunger’s client choice mobile pantry brings pantry services to underserved and unserved neighborhoods. Unlike many other food distribution programs, this mobile pantry allows individuals to choose products based on their individual needs rather than distributing pre-packed boxes of food.

Source: <https://elpasoansfightinghunger.org/our-programs>

people in need. The direct responsibilities of the Department of Public Health would be to create and distribute informational materials about the volunteer opportunity, secure permission to use sites for a mobile pantry, and coordinate mobile pantry dates. The El Paso Department of Public Health may be best positioned to assume these responsibilities due to existing relationships with different community organizations and access to existing communication channels to reach out to residents.

## **Evaluative Criteria**

Each of the three policy alternatives proposed by this report will be evaluated based on the same set of criteria. Participation and cost criteria were chosen based on administrative necessity. Likelihood of benefit to vulnerable populations and consistency of benefit criteria, were chosen based on perceived client values.

### ***Participation***

Participation describes the number of people that will directly be involved in the program. It will be evaluated on the following scale:

<b>Low</b>	Evidence suggests that there may not be enough participants in the program/initiative for successful implementation.
<b>Medium</b>	Evidence suggests that that there may be just enough participation to implement the program.
<b>High</b>	Evidence suggests that there will be a surplus of participants.

### ***Likelihood of Benefit to Vulnerable Populations***

The ability to benefit vulnerable populations examines the direct or indirect effects on populations that we have identified as especially vulnerable. They include children from low-income families, children from single parent households, children from communities of color, and younger/middle aged children. It will be evaluated based on the following scale:

<b>Unlikely</b>	Little evidence suggesting benefits to vulnerable groups. Vulnerable groups face major barriers to access.
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<b>Somewhat Likely</b>	Some evidence that vulnerable groups can access benefits with minor barriers.
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<b>Very Likely</b>	Strong evidence suggesting that vulnerable groups can access benefits with little to no barriers.
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### ***Consistency of Benefit***

The Consistency of Benefit criterion examines the ability of the policy alternative to continuously benefit children suffering from food insecurity throughout the year. It will be evaluated based on the following scale:

<b>Inconsistent</b>	Program/initiative cannot provide benefits during long periods of time throughout the year.
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<b>Somewhat Consistent</b>	Program/initiative can provide benefits throughout the year with the possibility of few minor interruptions.
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<b>Consistent</b>	Program/initiative can provide benefits throughout the year with no interruption.
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### ***Cost***

The Cost criterion describes the amount of financial resources that will be required to implement and sustain a policy alternative. Costs to the El Paso Department of Public Health to support partners as well as costs to partnering organizations to implement or expand the supported programs will be separately explored. However, the final score for the cost criterion will reflect both these costs. It will be evaluated based on the following scale:

<b>Very Costly</b>	Program/initiative requires high amounts of financial resources and does not have a cost-saving effect.
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<b>Somewhat Costly</b>	Program/initiative requires some financial resources to implement and has no cost-saving effect.
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<b>Not Costly</b>	Program/initiative requires very little cost to implement and may have a cost-saving effect.
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A “\*” following the score for cost indicates that external funding sources may be available. There are a number of grants available for school garden programs such as those awarded by the Texas Farm Bureau. These grants could be used to offset startup costs of school gardens.

## **Analysis: School Gardens**

The following section will analyze school gardens based on potential participation of schools, likelihood of benefit to vulnerable populations, consistency of benefits, and cost.

### ***Participation (Medium)***

This increasing popularity of school gardens appears to be a trend within El Paso Independent School District. In the past five years, school gardens have been implemented in a number of schools within El Paso Independent School District including Whittaker Elementary School, Zach White Elementary School, Crockett Elementary School, Bowie High School, and El Paso High School (Garden Descriptions, 2017). Recently in 2021, Bowie High School’s garden program was expanded. With support from the El Paso Independent School District Board of Trustees as well as a donation from the El Paso Del Norte Foundation, Bowie High School’s culinary arts program was able to include an outdoor kitchen where students can maximize the benefits of their on-campus garden (Babcock, 2022). Recent investments in school gardens throughout the El Paso Independent School District suggest that there is a reasonable amount of support for school gardens that already exists within El Paso County as well as the possibility that the El Paso Department of Public Health can encourage schools in other independent school districts to participate in similar gardening programs.

The El Paso Department of Public Health may also be able to support these gardens by lowering a barrier to implementation. In a 2017 study, researchers surveyed 99 school gardeners across 15 states to determine the barriers to successful school gardens. 54 percent of respondents indicated that a lack of funding was an obstacle and 34 percent of respondents indicated that they were unfamiliar with funding sources (Burt et. al., 2018). Other studies have also confirmed a lack of funding as well as unfamiliarity of funding sources as a major barrier (Hoover et. al., 2021; Loftus et. al., 2017; Landry & Logue, 2017). In theory, if the El Paso Department of Public Health could connect schools with sources of funding, a lack of funding will become less of a barrier and more schools would be able to build and maintain school gardens.

Trends in the popularity of school gardens in El Paso County suggests that additional advocacy from the El Paso Department of Public Health could result in more schools participating in school gardens throughout the county. However, participation could still be limited by factors that the Department of Public Health has little control over. A number of studies indicate time constraints and staffing needs as prominent obstacles to adopting school gardens (Burt et. al., 2018; Graham & Zidenberg-Cherr, 2005; Hoover et. al., 2021). Even though the Department of

Public Health may be able to raise participation by connecting schools to funding sources, time and staffing constraints are more difficult for the Department of Public Health to address and may continue to hinder participation.

### ***Likelihood of Benefit to Vulnerable Populations (Somewhat Likely)***

School gardens have the potential to benefit a vulnerable population, which is children who belong to communities of color. In a randomized control trial examining the LA Sprouts Nutrition, Cooking, and Gardening Program, researchers found that participants were more likely to consume important nutrients like dietary fiber and experience reduced risk of food insecurity-related health risks such as obesity and metabolic syndrome. Considering that the participants in this study were 90 percent Hispanic or Latino, it is reasonable to believe that benefits of similar school garden interventions will reach Hispanic and Latino communities (Gatto et. al., 2016).

On the other hand, one population that is especially vulnerable to food insecurity and its developmental effects includes young children under the age of 5. However, the benefits provided by school gardens exclude children in this younger age group. In Texas, the earliest age at which children are able to enroll in public school is at 5 years, which means that children who fall under this age requirement will have no access to the gardens and will therefore not be able to receive the benefits (State Education Practices, n.d.).

Another vulnerable population that may not receive as much benefit from school gardens is children from low-income households. Children from low-income households are more vulnerable to food insecurity and most in need of the increased intake of produce and associated benefits that school gardens can provide. However, they are also more likely to be absent from school due to behavioral and health problems (Zhang, 2003). High rates of absenteeism prevent regular access to school gardens, and could diminish the benefits of a school garden program. Other barriers that may prevent children from low-income households from receiving the benefits of school gardens is staffing requirements and space. Schools from low-income districts are more likely to suffer from staff shortages, making it less likely that these schools will be able to build and maintain school gardens (Lehrer-Small, 2021). Lower income is also associated with less access to green space, suggesting that low-income schools may not have enough land for these gardens to be constructed (Shukla et. al., 2020).

### ***Consistency of Benefits (Inconsistent)***

As is the case with most school-based programs, school gardens are unable to provide benefits during times when schools are not open. This includes weekends, holidays breaks, and during summer months. These are critical times when child food insecurity rates are the highest (Stewart et. al., 2018).

### ***Costs (Very Costly\*)***

Advocating for and supporting school gardens is not anticipated to require a large sum of financial resources from the El Paso Department of Public Health. Financial resources may be required to pay staff for the additional responsibilities that this partnership may require such as research, putting together presentation material, and meeting with the leaders of different independent school districts.

There will be considerable costs to independent school districts to build and maintain these gardens. These costs will include materials to build the physical infrastructure of the gardens, gardening supplies, plants/seeds, construction services, educational materials, and maintenance staffing. Start-up costs are estimated to total upwards of \$5,400 per school with recurring maintenance costs for staff labor and repairs (*See Appendix for more detailed start-up cost estimates*). While these costs are substantial the El Paso Department of Public Health could potentially alleviate these costs in their role as a partner by connecting schools with possible funding sources.

## **Analysis: Food Recovery Initiative**

The following section will analyze a food recovery initiative that collects excess food from businesses or other food suppliers and redirects it as a donation to local pantries. It will be evaluated based on potential participation of potential food suppliers, likelihood of benefit to vulnerable populations, consistency of benefits, and cost.

### ***Participation (Low)***

The theory behind a food recovery initiative modeled after the Take-Out Hunger program is that it may encourage businesses to donate excess food by lowering information barriers and serving as a third-party coordinator between donors and recipients. A 2014 survey conducted by the Food Waste Reduction Alliance found that 56 percent of large restaurants do not donate surpluses because of liability concerns and many businesses do not understand the legal protections that are available (Food Waste Reduction Alliance, 2016). Other barriers that this policy alternative can address include a lack of knowledge about how to properly prepare donations, a lack of knowledge about incentives, and challenges with coordinating between donors and recipients (Hecht & Neff, 2019). Businesses are more likely to be receptive to a program that allows them to reap the benefits of donating their excess food if the El Paso Department of Public Health was to provide this information using existing communication channels (website, mail, social media, etc.) as well as coordinate drop-off and pickup.

However, overcoming these challenges does not guarantee participation. The Take-Out Hunger initiative in Harris County was recently discontinued (J. Walzer, personal communication, February 26, 2022). The exact reasons were not provided during communications with the



program directors, but a possible explanation could be a lack of participation by restaurants, businesses, and other sources of excess food. On the other hand, Second Servings, another food recovery program in the Houston, Texas area has an extensive network of participants. Over 400 businesses in the Houston area including retailers, restaurants, distributors, hotels, and sports venues are donors of unsold food. This food is redirected to a network of 96 recipients that includes shelters, pantries, low-income housing sites, and other charities (B. Bronstein, Personal Communications, February 28, 2022).

It is important to note one significant difference between the Second Servings program and the Take-Out Hunger initiative, which is the extent to which the third-party lowers transportation barriers. While Second Servings provides transportation between donors and recipients, the Take-Out Hunger Initiative does not. It is reasonable to anticipate fewer participants in a program like the Take-Out Hunger initiative compared to a similar initiative that offers transportation.

### ***Likelihood of Benefits to Vulnerable Populations (Somewhat Likely)***

Access to improved quality and higher quantities of food pantry products is one effect of this program that has the potential to benefit populations that are especially vulnerable to food insecurity. There is no anticipated reason why households will be unable to receive benefits on the basis of race or household type. In fact, a recent study on food pantry utilization during the Covid-19 pandemic suggests that people of color are more likely to receive assistance from food pantries or food banks (Food Banks and Food Pantries Provide Protection, 2021). It is assumed that there is little to no language barrier given that over 70 percent of the El Paso population speaks Spanish and business is regularly conducted in both Spanish and English (M. Hawthorne, Personal Communications, March 1, 2022). Considering that increases in household food intake are often directed towards the youngest members of the family (Nord, 2013), it is also reasonable to assume that younger children will also receive benefits that result from a food recovery initiative.

One potential group that may still face barriers to accessing recovered food from food pantries include children from low-income households. Households from low-income households are generally more dependent on public transportation to access pantries and may not receive benefits if public transportation does not provide easy access to a participating food pantry (Anderson, 2020).

### ***Consistency of Benefits (Somewhat Consistent)***

This policy alternative has the potential to provide children with the benefit of recovered food throughout the year. This assumes that donor businesses and recipient food pantries consistently operate during regular business hours. This also assumes that donor businesses consistently have excess food that they are able to donate. Interruptions in this program can be caused by the unavailability of excess food or inability to successfully arrange transportation.



### ***Cost (Not Costly)***

This policy alternative is not anticipated to be costly to the El Paso Department of Public Health, but there will still be minor costs. Financial resources may be required to compensate Department of Public Health staff for additional responsibilities including coordinating transportation, providing information to potential participants, and managing applications. Other costs may include those required to produce informational and educational materials.

While this policy alternative may require some financial resources from the El Paso Department of Public Health, it may have a cost-saving effect on participating donor businesses and recipient pantry sites. Donors may have to pay the cost of arranging their own transportation, but these costs may be offset by savings from reduced garbage bills and tax deduction eligibility (Charity Donations, n.d.). Recipients may also have to assume some of the costs for transporting food but, these costs can be offset by decreasing the likelihood of inventory shortages and the need to purchase food using pantry funds.

## **Analysis: Volunteer Initiative to Expand Mobile Pantries**

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### ***Participation (Medium)***

A volunteer recruitment initiative has the potential to address challenges that prevent people from volunteering for programs like mobile food pantries. A common reason that people hesitate to volunteer is because they lack critical information about the opportunity. According to the Volunteer Center of Toronto, people are less likely to volunteer when any of the following conditions are met (Volunteer Center for Toronto, 2017):

- Unawareness that a position exists
- Self-screening from language materials
- Little understanding of what is required in the role
- Unclear screening process

Most of these questions can be addressed through the information sessions that the El Paso Department of Public Health can hold at different sites around the community and through the distribution of informational materials. Ideally, lowering the information barrier to volunteering will increase the number of volunteers who can help expand the mobile pantry program.

Existing evidence also suggests that people would be willing to volunteer in a mobile pantry program if they are approached through a volunteer recruitment initiative. In a 2008 study, researchers analyzed information from the CPS monthly survey regarding voluntary activity. Among the people who had engaged in volunteering, over 43 percent of respondents reported that they joined a volunteer organization because they were asked by the organization (Tang & Morrow-Howell, 2008). Another factor that suggests a moderately high willingness to

participate in a mobile food pantry is that food collection and distribution is one of the most popular volunteer activities. According to the Bureau of Labor Statistics, about a quarter of the people that engage in volunteering do so in food distribution and collection (Volunteering Statistics, 2021). The success of asking for volunteers along with the popularity of the volunteer activity suggest that an information session about mobile food pantries that directly ask people to volunteer and provides the necessary information would receive substantial participation.

Even though overcoming information barriers may have the potential to increase the number of volunteers to support a mobile pantry program, there are limitations that can hinder participation rates. Along with a lack of information, time constraints were a commonly cited barrier to volunteering (Sundeen et. al., 2007; Southby et. al, 2019). While a volunteer initiative can lower the information barrier, it can do little to address time constraints.

### ***Likelihood of Benefits to Vulnerable Populations (Very Likely)***

Supporting the expansion of mobile food pantries through a volunteer recruitment initiative also demonstrates the potential to benefit communities of color. In 2017, Silicon Valley initiated a mobile summer lunch program similar to EPFH's mobile pantry program. Quantitative results illustrated that most participants identified primarily as people of color (Bruce et. al., 2019). Another study examining the utilization of mobile pantries across the most food insecure populations in Maricopa County, Arizona had similar findings. It found that people of Hispanic ethnicity are 126 percent more likely to use a mobile food pantry than the Caucasian population (Villa et. al., 2022). This suggests that the mobile meal program may be especially effective in areas that have a high population of non-white residents, which is important considering the demographic composition of El Paso County.

The results from Villa et. al. also suggests that expanding a mobile meal program could benefit children in households that are headed by a single mother. According to this study, females are approximately 63.6 percent more likely to use a mobile pantry compared to traditional pantries (Villa et. al., 2022). This demonstrates that there are little to no barriers that may discourage female participation and benefits to female-headed households solely on the basis of gender or household composition. Assuming a consistent pattern of prioritizing younger children in the household when distributing food resources, it is reasonable to assume that the children in families that benefit from mobile food pantries will also receive benefits (Nord, 2013).

There is also evidence suggesting that the increase in volunteers to expand the mobile meal program will very likely provide benefits to low-income communities. According to the National Center of Mobility Management, transportation is a barrier that prevents people from accessing quality nutrition, especially amongst low-income families who are more likely to live in food deserts (Access to Healthy Food Choices, 2020). Expansion of a mobile pantry program through volunteer recruitment could lower this transportation barrier. In a clustered randomized control trial in North Carolina, researchers found that mobile markets were associated with statistically significant benefits in diet quality in low-income communities (Leone et. al., 2018). The mobile pantry program that the El Paso Department of Public Health

could help expand differs from the mobile market evaluated in this study in that the mobile pantry does not require participants to pay for food. Because of this, it is reasonable to suggest that mobile pantries will provide even greater benefits than mobile markets and have benefits that people who may still not be able to afford reduced cost produce.

### ***Consistency of Benefits (Somewhat Consistent)***

Ideally, a volunteer initiative to aid the El Pasoans Fighting Hunger's mobile pantry program can recruit enough volunteers to consistently maintain multiple additional pantry sites throughout the year. However, volunteers may not be able to devote time in a consistent manner. According to the Central Texas Food Bank, there is an increased demand of food bank and food pantry services during the summer months due to the inaccessibility for school-based programs (Volunteers Help Serve, n.d.). At the same time, the supply of volunteers tends to decrease or become inconsistent during hot summer months due to health concerns for older volunteers and vacation plans (Bateson, 2018; Covid-19 Article 6, 2020). If there are not enough volunteers at a particular site, the mobile pantry may have to suspend operations in that location.

### ***Cost (Somewhat Costly)***

There will be some costs to both the El Paso Department of Public Health as well as to El Pasoans Fighting Hunger, but these costs are not anticipated to be extremely high. The El Paso Department of Public Health may need to expend financial resources to provide staffing for information sessions and other informational materials. It may also require additional costs to coordinate volunteer activity between El Pasoans Fighting Hunger and the sites at which mobile pantries will be operating. Costs may also be incurred as EDPH staff meet with community organizations to discuss the possibility of hosting both information sessions and mobile pantries.

There will also be minor costs for El Pasoans Fighting Hunger. The EPFH food bank already owns refrigerated trucks, so additional fixed costs are not anticipated, but there will still be a need for additional expenditures on variable costs. The variable costs of expanding the mobile pantry program will include those necessary to provide additional food to stock the pantries, keep the trucks maintained, acquire the additional fuel for the increased use of the trucks.

## **Recommendation**

Based on the criteria of participation, likelihood of benefit to vulnerable populations, consistency of benefit, and cost, this report recommends that the El Paso Department of Public Health consider a **volunteer initiative to expand mobile pantries** to mitigate child food insecurity (Figure 8).

Compared to school gardens, a volunteer initiative to support mobile pantries is more likely to benefit populations such as low-income communities and children under the age of 5 years old. It would also be able to provide more consistent benefits throughout the year without the limitations of an academic calendar. A volunteer initiative to support mobile pantries is also estimated to be less costly than school gardens because it does not require high start-up costs.

While a volunteer initiative to support mobile pantries would probably not have cost-saving potential like a food recovery initiative, it is recommended due to a higher potential for participation. Without adequate participation, no program will be able to make a meaningful impact on lowering the rates of child food insecurity.

**Figure 8: Comparison of Alternatives**

		Evaluative Criteria			
		Participation	Likelihood of Benefit to Vulnerable Populations	Consistency of Benefit	Cost
Policy Alternatives	School Gardens	Medium	Somewhat Likely	Inconsistent	Very Costly *
	Food Recovery Initiative	Low	Somewhat Likely	Somewhat Consistent	Not Costly
	Volunteer Initiative to Support Mobile Pantries	Medium	Very Likely	Somewhat Consistent	Somewhat Costly

\*Indicates that external funding sources may be available

## Implementation

Maximizing the benefits of a volunteer initiative to support mobile pantries, requires successful implementation. The El Paso Department of Public Health may want to consider the following steps:

### 1. Reach out to El Pasoans Fighting Hunger to Establish a Partnership

The first step to implementing this policy alternative would be to establish a partnership between the El Paso Department of Public Health and the El Pasoans Fighting Hunger food bank to get more information about the mobile pantry program. Initial conversations should include:

#### **Goals:**

In order to effectively help the El Pasoans Fighting Hunger food bank expand the mobile pantry program through volunteer recruitment, the El Paso Department of Public Health should understand how many volunteers are required to operate in a new site.

#### **Volunteer Expectations:**

One important topic for discussion in the initial conversation with EPFH is about volunteer expectations and responsibilities because people are more likely to participate in volunteering if they have specific details about expectations (How to Overcome, 2019; Volunteer Center of Toronto, 2017) A study by Krajnakova et. al. conducted an online survey of 157 people about barriers to volunteering in sports, but these barriers are applicable in other types of volunteering such as in food distribution. According to this study 30.1 percent of people identifies that a lack of information about time commitment prevents them from volunteering because they are unable to plan routines or adjust their schedules for volunteering. In the same study 23 percent of respondents reported that unclear communication of responsibilities is a barrier to volunteering (2018).

#### **Application Process:**

The El Paso Department of Public Health should also discuss the application process in order to relay that information to potential volunteers.

### 2. Support the development of informational materials about volunteering with the mobile food pantries

Informational materials such as flyers and brochures about the opportunity to volunteer with the mobile food pantry is the primary way to communicate information to potential volunteers. A study about persuasive messaging suggests that certain messaging strategies

are particularly good at attracting volunteers. Some of these messaging tactics include anticipating and countering abstract barriers to volunteering as well as providing concrete reasons to participate (Claiy et. al., 1994). Figure 8 demonstrates that while abstract reasoning may include general appeals to values that are open to interpretation, concrete reasoning is more specific and less ambiguous.

**Figure 8: Abstract vs. Concrete Reasons for Volunteering**

Abstract:

- Everyone should do their part
- Fulfil a duty to help people in need
- Humanitarian values
- Self-improvement

Concrete:

- Fulfil school requirements
- Make friends
- Development of social skills
- Benefit resume
- Chance to take a break from work and school

*Source: Claiy et. al., 1994*

**3. Determine locations that will potentially attract the most volunteers and can serve as pantry sites**

After establishing a partnership with El Pasoans Fighting Hunger and gathering information about volunteer expectations and program needs, the Department of Public Health would need to determine locations that could potentially attract the most volunteers. Two locations that can be considered include churches and schools.

**Churches and Religious Institutions:**

Local churches or religious organizations may be a promising place to recruit new volunteers. Existing research has shown that religiosity is associated with higher rates of volunteer work (Yeung; 2018). This likelihood of participation also increases when the volunteer opportunity takes place at a religious institution (Johnston, 2013). Therefore, an effort to recruit volunteers at a religious institution such as a church may yield the most participation.

**High Schools:**

Another place that the El Paso Department of Public Health may want to consider recruitment efforts for mobile pantries is at local high schools. Some independent school districts require their students to participate in community service in order to graduate high school. In El Paso County, these districts include the El Paso Independent School

District as well as Yselta Independent School District. Others in the county encourage their students to participate in volunteer activities to get special graduation distinctions.

The El Paso Department of Public Health may want to consider maximizing the benefits of the mobile pantries by concentrating efforts in areas that are considered to be food deserts. People in these areas are more likely to be in need of the food resources that a mobile pantry can provide.

#### **4. Establish a partnership with relevant community organizations that may be able to provide a new mobile pantry site as well as volunteers**

For successful implementation of this policy alternative, the El Paso Department of Public Health will also need to receive cooperation from local community organizations. One of the main implementation responsibilities of the Department of Public Health would be to get permission to both distribute informational materials at these sites to recruit volunteers and use the site as a new mobile pantry location. Considering that the El Paso Department of Public Health seems to have established existing relationships with multiple community partners through other programs, they may be in the best position to encourage cooperation.

#### **5. Distribute Informational Materials**

Informational materials can be distributed through multiple communication channels. Flyers and other promotional materials can be posted in community organizations around the county. The El Paso Department of Public Health can also use existing communication channels to reach a more general population. Places like churches and high schools, where there is a high concentration of potential volunteers, may even benefit from an in-person visit from a Department of Public Health staff member.

#### **6. Coordinate new mobile pantry dates and locations**

Once there are enough new volunteers, the El Paso Department of Public Health can help coordinate dates for mobile pantries with site leaders and El Pasoans Fighting Hunger.

#### **7. Update the community about new mobile pantry sites**

When new mobile pantry sites and dates have been confirmed, the El Paso Department of Public Health will have a critical role in relaying this information to the public. They can use existing messaging platforms such as their website, social media pages, or other notification systems.

#### **Additional Considerations:**

Due to multiple factors like a lack of perceived impact, a lack of recognition, and a lack of empowerment, there is a possibility that volunteers may decide to discontinue participation (Cho et. al., 2020). The problem of volunteer retention is especially prominent in summer

months due to vacation plans and weather-related health concerns for older volunteers (Bateson, 2018; Covid-19 Article 6, 2020). While it may be unreasonable to believe that the challenge of volunteer turnover can be completely avoided, this problem can be mitigated through early interventions by the El Paso Department of Public Health. A study by Unkefer suggests that formal recognition and an understanding of their impact can motivate volunteers to continue volunteering (Unkefer, 2018). The El Paso Department of Public Health can provide formal recognition by naming a “volunteer of the month” in newspapers, websites, or other media outlets. The El Paso Department of Public Health can also keep data on the number of families that use mobile pantry sites and the amount of food distributed. This information can be sent out in a monthly newsletter to volunteers in order to highlight their impact in the community and motivate them to continue volunteering.



1

Create partnership with El Pasoans Fighting Hunger



2

Create informational Materials



3

Determine best locations for volunteer recruitment and/or pantry sites



5

Distribute informational materials to members of the community



4

Create partnership with leaders of these locations



6

Coordinate Pantry locations and dates with volunteers, site leaders, and El Pasoans Fighting Hunger



7

Inform the public about new mobile pantry sites and dates



## Conclusion

Even though there is no “perfect” solution that can put an immediate end to child food insecurity in the County of El Paso, Texas, the El Paso Department of Public Health can take important steps to mitigate the problem. In addition to connecting food insecure children with much needed food resources, a volunteer initiative to help El Pasoans Fighting Hunger expand their mobile pantry program to new sites has the potential to encourage future cooperation between the local government and other community organizations. Child food insecurity is a persistent problem that has profound impacts on the entire community of El Paso, and it will take effort from the entire community to help these children access the nutrition that they need to reach their full potential.

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## Appendix: Cost Estimates for School Gardens

In this cost calculation, totals are given based on a raised-bed garden made up of three garden beds with the following dimensions:



\*Image is not to scale

The dimensions and quantities of garden beds are based on the recommendation of a similar elementary school garden project that was implemented by students from the Brandeis University Rich/Collins Community Leadership Impact Fellowship (Brandeis University Department of Community Service, n.d.).

Start-up costs will vary depending on the size of the garden and recurring costs will vary depending on a multitude of factors that may influence the quantity of materials required. The total prices are for implementation in a single elementary school with children Kindergarten- 5<sup>th</sup> Grade. The following cost projections were adapted from the Rich/Collins Community Impact Fellowship Elementary School Garden Project and the *Monterey County School Garden Materials and Resource Guide* (Brandeis University Department of Community Service, n.d.; Watershed Institute, 2007)

Start-Up Costs	Quantity Needed	Lower Estimate per Single Unit	Lower Cost/Unit X Quantity Needed	Upper Estimate per Single Unit	Upper Cost/Unit X Quantity Needed
Garden Bed	3 ct.	\$100	\$300	\$140	\$420
Soil	6 yds.	\$35/yd.	\$210	\$50/yd.	\$300

<b>Seeds</b>	30 packets	\$1.50/packet	\$45	\$3/packet	\$90
<b>Hand Trowel</b>	5 ct.	\$7	\$35	\$9	\$45
<b>Rake</b>	2 ct.	\$25	\$50	\$30	\$60
<b>Gloves</b>	10 pairs	\$4	\$40	\$8	\$80
<b>Landscape Designer</b>	N/A	\$3,200	\$3,200	\$3,700	\$3,700
<b>Education Materials</b>	One Lesson plan for each grade level K-5	\$55/grade level	\$330	\$90/grade level	\$540
<b>Shed</b>	1	\$150	\$150	\$200	\$200
<b>Total:</b>			\$4,360		\$5,435