

BUILDING SOCIAL AND COMMUNITY CONNECTIONS TO ADDRESS FOOD  
INSECURITY IN CHILDREN UNDER 18 IN BURKE COUNTY PUBLIC SCHOOLS

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## ABSTRACT

Vanessa Akosah, Caroline Collie, Isabella Dearing, Phillip Nette and Makenna Thuringer  
Building Social and Community Connections to Address Food Insecurity in Children Under 18  
in Burke County Public Schools

(Under the direction of Dr. William Oscar Fleming),

Addressing the complex nature and interplay of social and community factors, this paper offers recommendations to alleviate the issue of very low food security in children under eighteen in Burke County, North Carolina. A holistic approach was employed, emphasizing the social and community context and the critical influence of social determinants of health on food insecurity. By focusing on collaborative strategies and leveraging community resources, our paper aims to develop and provide sustainable solutions to improve food security outcomes for individuals under 18. Key components include enhancing access to nutritious foods, advocating for policy changes to address systemic barriers, and promoting community engagement. By synthesizing our research findings and practical insights, this project offers actionable recommendations for community partners and policymakers to advance efforts toward eliminating very low food insecurity among children and teens under 18 in Burke County, North Carolina.

**Key Words:** Social Determinants of Health (SDOH), very low food insecurity, food insecurity, built environment, social and community context

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## **Social Determinant of Health Analysis and Goals: Social and Community Context**

The Social Determinant of Health (SDOH) domain "Social and Community Context" is recognized by Healthy People 2030 as one of the five key areas affecting health outcomes. This domain emphasizes the influence of social interactions on an individual's health (Healthy People 2030, n.d.). Critical issues within this context, such as violence, discrimination, and neighborhood safety, can profoundly impact the physical and psychological health of young populations, but positive relationships at home, school, and work can help mitigate these negative effects (Office of Disease Prevention and Health Promotion, n.d.) Our focus is narrowed to eliminating very low food security, as defined by the United States Department of Agriculture (USDA), among children under 18 within Burke County Public Schools (BCPS) (USDA, n.d.). This proposal focuses on food insecurity among school-aged children to illustrate how the county could improve health by enhancing the social and community context. We aim to propose how the commissioners can address food insecurity through this lens, preventing the associated negative health outcomes (Gunderson & Ziliak, 2015; Ashiabi, 2005).

## **Contextual Analysis**

Food insecurity in Burke County affecting school-aged children, is a complex problem (Vermaas & Pesch, 2020). There are multiple factors that perpetuate food insecurity, such as stigma associated with food assistance programs and reduced social support systems for families. Addressing the social determinants of health is essential to effectively reducing food insecurity and promoting health equity (Campanera et al., 2023). By implementing policies and interventions addressing underlying systemic issues such as poverty, education disparities,

unemployment, and structural inequalities, communities can foster environments that support access to affordable and nutritious foods for all residents of Burke County.

The aim of this project is to improve the process of provision of nutrition education to children [and their families] and food accessibility while simultaneously holding agencies accountable to provide, implement, and evaluate these resources or services to ensure they best serve their community. The list of potential community partners to this project includes the BCPS, Burke United Christian Ministries (Food Bank), Burke County Health Department, local grocery stores. The community partners also include the children and families in the BCPS district and the broader community of Burke County (Refer to Appendices A3.1). Partners each have goals and aspirations for change in the community and, as a collective, can work to provide tangible solutions and actionable goals to help the population's health.

The United States relies heavily on public schools to ensure children have access to healthy meals. These efforts thrive on the connections and relationships among agencies to ensure their success (Long & Litvinov, 2021). One of the major programs within Burke County that addresses food insecurity in children is the free and reduced lunch program. Some agencies that work with BCPS are important to mention including the Burke County Health Department, Chartwells K12; and the BCPS food service provider (BCPS 2023; Burke County, 2024). The Community Eligibility Provision in the BCPS system ensures that all students receive free meals at school (NC DPI, n.d.). This measure helps reduce the stigma associated with free meals, promoting a closer sense of community among BCPS students. Leveraging the existing infrastructure of these programs will be beneficial in improving food security among children under 18 within the public school system.

Both formal and informal policies already in place significantly affect the issue of food insecurity within the social and community context. One such policy is the State Action Plan for Nutrition Security by the North Carolina Department of Health and Human Services. This plan leverages a network called NCCARE360, coordinating various state health initiatives and community organizations that help provide comprehensive services addressing food insecurity (Thomas & Ferguson, 2019). County leaders can encourage community partners to enroll in NCCARE 360, enabling a community-oriented strategy to effectively meet the needs of Burke County residents. Programs such as NCCARE360 and the Community Eligibility Provision demonstrate the importance of integrating broad and targeted strategies to address social and community factors influencing food insecurity, as emphasized by Healthy People 2030 (NCDHHS, n.d.; BCPS, n.d.).

We propose a collaborative approach that engages diverse leaders in goal setting and expanding services to increase access to resources and funds. This will help create long-term sustainable goals for the county. The connection between social and community context is reflected in the relationships between community partners and food-insecure children within BCPS. An overarching goal is to recommend that county commissioners leverage resources from community partners and strategically direct these resources to children in need.

### **Recommendations for Action**

The current collaborations among community partners to address food insecurity in children under 18 in the BCPS offer an opportunity to strengthen existing partnerships and create new alliances, effectively and sustainably promoting food security. We observed three areas for recommendation that offer avenues for exploration and harnessing the value of these relationships to mitigate food insecurity. These are described below.

## **Educating and Engaging Community Partners**

The creation of a steering committee with the leaders of current and prospective agencies currently tackling food insecurity is a step to provide community partners the opportunity to learn about existing organizations combating food insecurity. The steering committee should be an elected group of individuals from various levels of the organization, including lower, middle, and upper management. The purpose is to foster characteristics within the coalition structure that promote collaboration and innovation while ensuring member engagement, satisfaction, and diverse representation to strengthen community partnerships. Additionally, through Gemba walks<sup>1</sup>, community partners can engage with other work environments to learn firsthand about their workflow and processes (Enterprise Institute, 2022). This increases partner engagement and will help spark ideas for solutions (American Society for Quality, 2024).

## **Expansion of Food Availability Programs**

Beyond food banks and free and reduced-price school lunches, one of the recommendations we are providing to the county commissioners is to build a community garden in Burke County. This program aims to establish community gardens within the BCPS to address food insecurity and promote community engagement, education, and sustainable food practices. These gardens would help provide BCPS students access to fresh, nutritious produce, all while fostering social connections and enhancing neighborhood resilience. In the BCPS, students can engage and learn about cultivating healthy food options as they connect with each other and other community members.

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<sup>1</sup> Gemba (現場) is the Japanese term for “**actual place**,” often used for the shop floor or any place where value-creating work actually occurs. A gemba walk is a management practice for grasping the current situation through direct observation and inquiry before taking action.



## **Co-Design and Policy Review**

The integration of currently siloed efforts to address food insecurity requires co-designing innovative approaches to improving community connections to address food insecurity among children under the age of 18 in the BCPS. Co-design efforts would convene all community partners with their valuable expertise and lived experience to deliberate, engage, and offer innovative solutions for improving food security within BCPS by reviewing existing policies. By employing engagement methods like needs assessment workshops and community focus groups, current and future policies can be reviewed to ensure effectiveness through training and capacity building, facilitating alignment of BCPS's efforts with the community's health objectives.

## **Conclusion**

Social and Community Context speaks to the influence of social interactions and their impact on an individual's well-being. To complete the county commissioners' request, this proposal demonstrates how health could be improved by addressing an SDOH, namely, the social and community context, to address childhood food insecurity. Recognizing that leadership and accountability form the backbone of our initiative, creating a steering committee will ensure progress is tracked and efforts remain focused on community needs. Furthermore, continuing to emphasize community assets in our engagement process to expand on existing initiatives and policies to address this issue sustainably. By embracing collaboration and innovation, we aim to create a resilient and self-sustaining framework for addressing food insecurity among school-aged children in Burke County.

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# APPENDICES

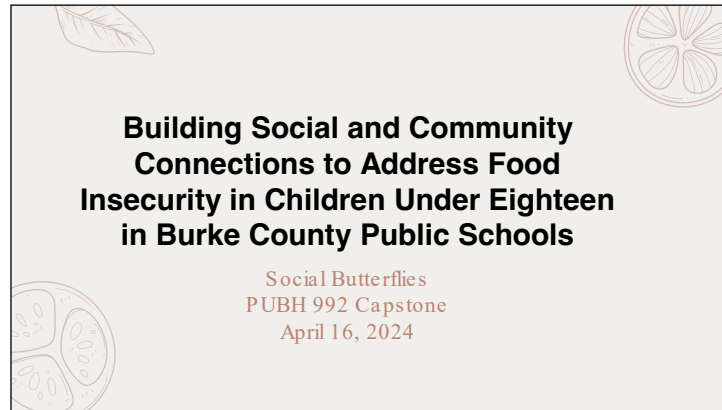
## Appendix A: Team

### Appendix A1: Rich Picture



## Appendix A2: Final Proposal Presentation


Slide 1



### **CAROLINE**

Good afternoon all - our team wants to thank you for taking the time to be here today. We are the Social Butterflies my name is Caroline and I am joined by my colleagues *Vanessa, Bella, Aaron and Makenna*.

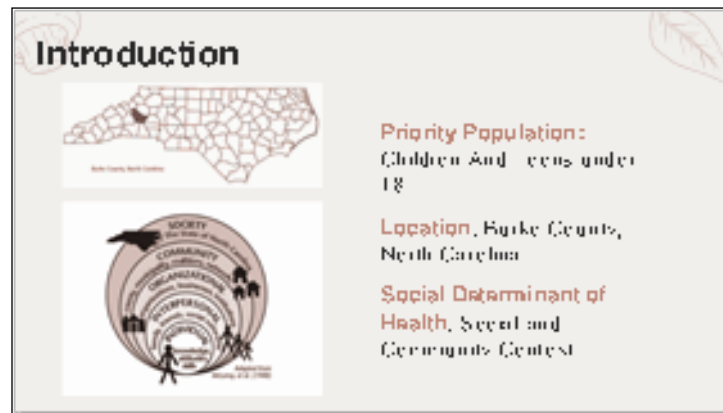
Today we will be discussing how we propose to build social and community connections in order to address food insecurity in children under the age of eighteen in Burke County Public Schools (or BCPS).

Order of Presentation		
	01.	Introduction
	02.	Rich Picture
	03.	SDOH
	04.	Overview
	05.	Methods
	06.	Engagement Leadership Recommendations
	07.	Conclusion

## ISABELLA

The order of our presentation will be as follows...a brief introduction to Burke County and our population of interest, we will share our rich picture, and SDOH... We will also discuss an overview of Burke County statistics, county assets and areas of improvement. Followed by the methods section where we will discuss our Quadruple “E”-M approach. Then we will conclude by discussing some of our strategies for engagement, leadership and potential recommendations for action and policy development before holding a Q&A portion at the end.

## Slide 3



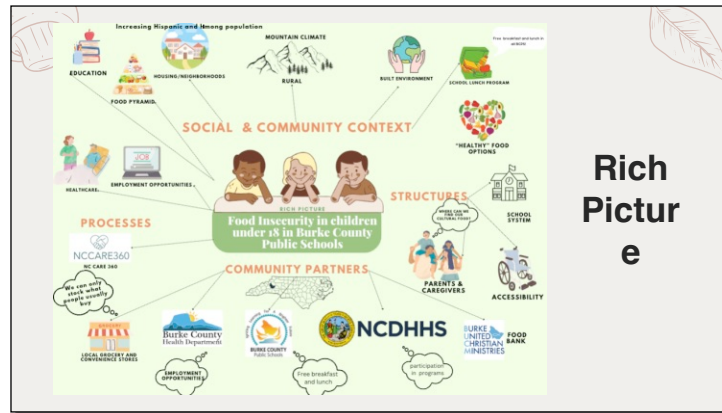
## ISABELLA

According to 2015 statistics from the UNC School of Government, a quarter of children in Burke County experienced food insecurity, and there was a notable underuse of available nutritional programs

Our team plans to investigate available data within Burke County Public Schools (BCPS) to identify and enhance policies and strategies in the social and community context to improve food security among our priority population, with the larger goal of fostering health equity and preventing long-term health issues through nutrition.

Addressing the social determinants of health is an essential part of effectively reducing food insecurity and promoting health equity (Campanera et al., 2023). By implementing policies and interventions that address these underlying systemic issues such as poverty, education disparities, unemployment, and structural inequalities, communities can foster environments that support access to affordable and nutritious foods for all residents of Burke County, North Carolina.

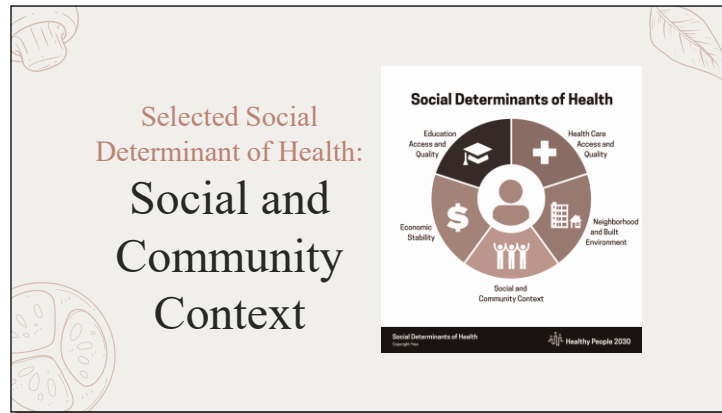
Slide 4



**ISABELLA**

This is our group’s rich picture, this is a visual depiction of the intricate connections that captures many aspects of this complex situation that is food insecurity in children under 18 in Burke County Public Schools





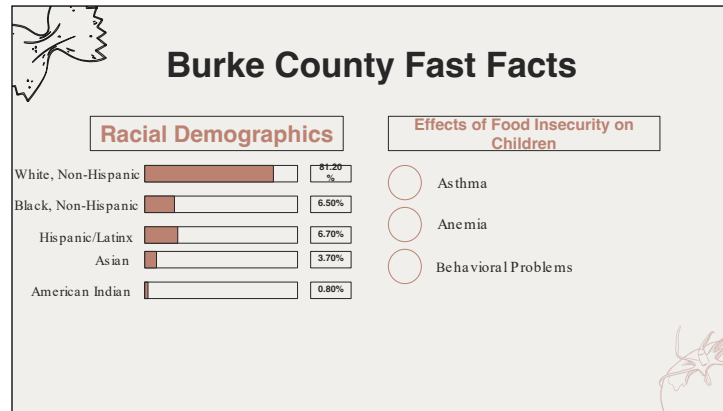
## ISABELLA

Social determinants are nonmedical factors that profoundly influence an individual's health, well-being, and quality of life (CDC, 2022). The selected Social Determinant of Health (SDOH) by our team is "Social and Community Context," which is recognized by Healthy People 2030 as one of the five key areas affecting health outcomes. This determinant emphasizes the influence of social interactions through human connections, on an individual's health.

In Building Social and Community Connections to Address Food Insecurity in Children Under Eighteen in Burke County Public Schools It is imperative to understand the importance of how the SDOH directly impacts county health and well-being.

Our team's focus is in eliminating very low food security, as defined by the United States Department of Agriculture, among children under eighteen within the Burke County Public Schools.

We aim to address the associated multifaceted health consequences, such as nutritional deficits, physical health issues, and mental stress, which can result in chronic health conditions and hinder academic and social development. the social and community context is a domain of the social determinants encompassing the relationships, networks, and interactions among individuals within their living, social, and occupational environments (Healthy People 2030, 2021)



## MAKENNA

Burke County resides in North Carolina's west central mountain region and has a total population of 13,340 people, (14.9% of the county population) of which are food insecure (Burgess, 2020).

According to the 2022 Burke County Community Health Assessment, it currently consists of 13 townships and seven municipalities with a total population of around 90,418 (BCHD & UNC – BR, 2022).

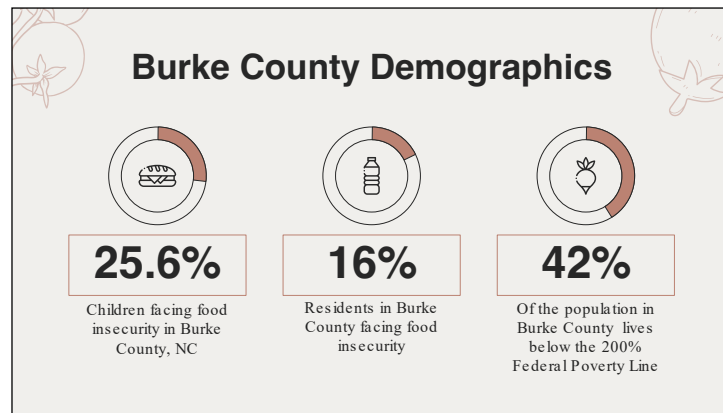
The breakdown of Burke County racial distribution includes the following:

81.20% white, non-hispanic,  
6.50% black, non-hispanic,  
6.70 % hispanic/latinx,  
3.70% asian,  
and 0.80% american indian (BCHD & UNC – BR, 2022).

According to Feeding America, research has found that food insecurity has detrimental effects on children's development, some of these effects include:

“risk of chronic illnesses like asthma and anemia; and behavioral problems like hyperactivity, anxiety and aggression in school-age children” (Feeding America, 2024).


Slide 7



**MAKENNA**

- Currently 25.6 percent of children face food insecurity in Burke County.
  - (Food Insecurity Statistics in NC, n.d.)
- The total population of food insecure people stands at 16%
  - (NCDHHS, n.d.)And
- 42% of the population in Burke County Lives below the 200% Federal Poverty Line
  - (Burke County Health Department, 2022)

**Overview**



- Community Assets
  - Community organizations
  - Nonprofits
  - Government agencies
  - Policies
- Areas to Build upon
  - Education and Awareness
  - Policy Advocacy for Structural Change
  - Streamlined Communication for Organizations
  - Addressing Economic Disparities
  - Community Engagement and Empowerment

Source: Slideshare Slides

## MAKENNA

Currently Burke County has many community assets that currently help in decreasing Food Insecurity in Children Under Eighteen in Burke County Public Schools.

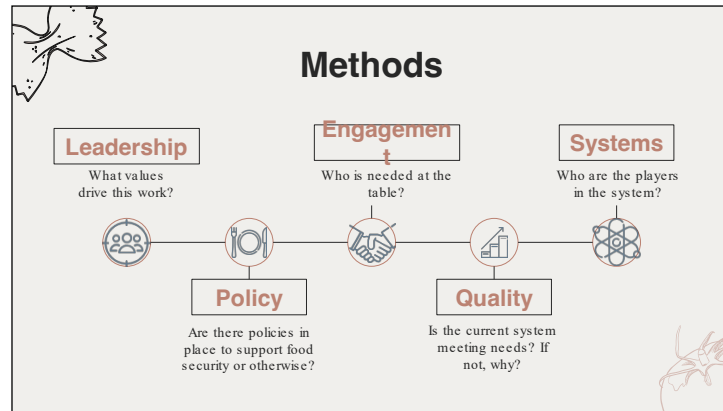
Some of these assets include community organizations, non profits, governmental agencies as well as a variety of policies that aim at actively working to combat food insecurity.

Areas that burke county can build upon include:

- Increasing education and awareness of food insecurity
- Advocate for policies to enact structural change
- Streamline communication across community assets
- Address the economic disparities currently happening in the county

And continue to provide more food resources for children through community engagement initiatives and programs

## Slide 9



### VANESSA

- In view of the commissioners' request, our project team according to our areas of expertise conducted research to understand better existing the challenges for leveraging social and community connections to address food insecurity within our population of interest.
- We did this from an asset-based approach; acknowledging the existing structures especially community connections and collaborations that have so far been leveraged in the county
- 5 areas were considered in arriving at our base evidence and recommendations for moving forward
  - Leadership- what values drive the work of reducing food insecurity?
  - Engagement- Who is needed at the table?
  - Systems- who are the players in the system, what are their worldviews and perceptions
  - Policy- Are there policies in place to support food security or otherwise?
  - Quality- Is the current system meeting needs? If not, why?

**Methods**

Children under 10 in the Public Schools?

- Current process in addressing the need
- Opportunities to be leveraged

Quadruple “E”-M approach

- Education and engagement
- Expansion
- Examination and execution
- Monitoring and Evaluation

.....

**VANESSA**

So why are children under 18 in public schools the target population?

The United States relies heavily on public schools to help ensure that children have some form of access to healthy meals. These efforts thrive on the connections and relationships among agencies to ensure success (Long & Litvinov, 2021). This is true in Burke County. There are a diverse number of organizations as illustrated by our rich picture that are working to mitigate food insecurity among children in the public schools.

With the current success and existing structures in place to ensure the provision of healthy food in for children in the public schools, further improvement could be achieved by leveraging the cohesion and connectedness among the community partners.

**The Quadruple “E”-M approach we coined represents 5 opportunities for the development of insights and recommendations. It involves:**

- Educating and engaging community partners
- Expand the reach of food availability programs
- Examination and execution of policies to tackle food insecurity
- Monitoring and Evaluation of tracking systems

**Insights & Recommendations**



**Community Partners**

- *Burke County Public Schools Administration*
- Health Department
- NC State Extension
- Outreach Center
- Burke County United Way
- Burke United Christian Ministries Food Pantry
- The Outreach Center Food Assistance
- Local Grocery Stores

**AARON**

Our insights and recommendations will focus on our key partners, our leadership strategy, and policy and engagement strategies that may help address the issue of food insecurity among our priority population . Here is our list of community partners that would be beneficial to include in the conversation. Our key partner is the Burke County Public School Administration.



### SDOH Leadership Strategy

Establishing a steering committee comprising various organizational levels and community members.

Creating measures of success using a participatory based evaluation approach and fostering collaboration, innovation, and diverse representation to strengthen community partnerships.

Source: Michigan HHS Instagram @michiganhhs


Social Determinants of Health Strategy: Food Security

**AARON**

"Leadership and accountability form the backbone of our initiative. We'd like to establish a steering committee that bridges various stakeholders from the Burke County community, including Burke County Public schools administrators, local businesses, and families. This committee will not only measure our progress but also ensure that our efforts remain aligned with the community's needs. Our goal is to create a resilient and self-sustaining framework for addressing food insecurity among children in Burke County.



## Policies and Engagement Strategies



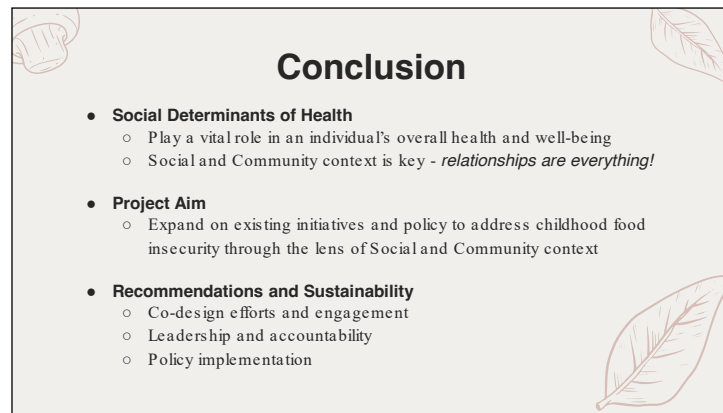
Policy options: Community Garden in partnership with Burke County Public Schools

Three part engagement strategy with Burke County Public Schools focusing on addressing the broader social determinants of health.

### AARON

Our approach to addressing food insecurity includes a multi-faceted policy and engagement strategy. We propose the creation of community gardens in partnership with Burke County Public Schools. This measure will allow the schools to not only provide nutritious foods to the students, but will be an opportunity for community building, encourage student engagement, and educate students on the importance of nutrition from a young age. By focusing on the issue through the lens of social and community context, we aim to not only meet students' immediate nutritional needs but also address underlying community factors contributing to food insecurity.

Our engagement strategy includes three methods to address the barriers and facilitators that drive engagement from the Burke County Public School administration. Our first method, the needs assessment workshop will help raise awareness of the problem and align objectives for the project. The second method will be a community focus group among students, parents, BCPS administrators, and other key stakeholders to provide qualitative and quantitative data on the effectiveness of the program. Lastly, we hope to sustain and scale our efforts by engaging our partners in training and providing additional resources



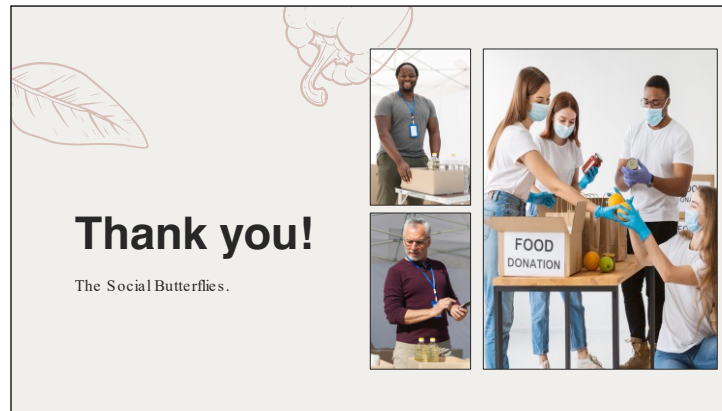
## CAROLINE

In conclusion, we want to reiterate how...

### **Social Determinants of Health**

- Play a vital role in an individual's overall health and well-being, especially during childhood development
- Our chosen determinant - Social and Community context
  - ...is recognized by Healthy People 2030 as one of the five key areas affecting health outcomes.
  - This determinant emphasizes the strong influence of social interactions through human connections, on an individual's health.
- **Project Aim**
  - Expand on existing initiatives and policy to address childhood food insecurity through the lens of Social and Community context
    - Emphasizing community assets, existing relationships and their role in creating a sustainable solution
- **Recommendations and Sustainability**
  - Co-design efforts and engagement with a diverse group of community partners
  - Leadership and accountability could be driven by a steering committee who ensures community needs are met and that the initiative(s) remain on track...
  - Policy implementation *through methods such as the community garden initiative*

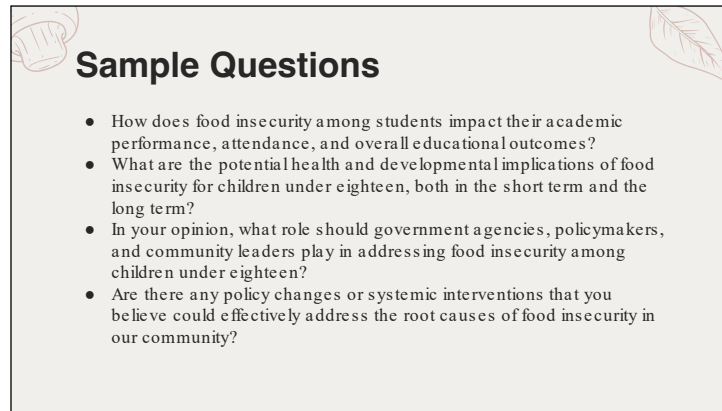
In short...“By embracing collaboration and innovation, we aim to create a resilient and self-sustaining framework for addressing food insecurity among children in Burke County”



## **CAROLINE**

Our team wants to thank you for taking the time out of your day today to listen to our presentation. We are very appreciative and welcome any feedback you may provide as we recognize this audience is more attuned to specific community needs.

We look forward to future collaborative efforts to work alongside the community within Burke County, NC.



**Sample Questions**

- How does food insecurity among students impact their academic performance, attendance, and overall educational outcomes?
- What are the potential health and developmental implications of food insecurity for children under eighteen, both in the short term and the long term?
- In your opinion, what role should government agencies, policymakers, and community leaders play in addressing food insecurity among children under eighteen?
- Are there any policy changes or systemic interventions that you believe could effectively address the root causes of food insecurity in our community?

## CAROLINE

Now we will move into the Q&A portion of the presentation...


We have created a list of potential questions that we would be happy to expand on if you are having difficulty coming up with your own question(s). Alternatively, please feel free to ask any remaining questions or clarifications you may have and we will try our best to answer them.

### **1 ALL - Answer similarly to 2**

**2 (Caroline)** - “Children who are impacted by food insecurity may be at an increased risk for a variety of negative health outcomes, surprisingly including obesity (*Food Insecurity*, n.d.). Research demonstrates an association between food insecurity and delayed development especially in young children; risk of chronic illnesses like asthma and anemia; and behavioral problems like hyperactivity, anxiety, and aggression in school-age children (*Tough choices. Devastating consequences*, n.d.).” - from individual SDOH Analysis

**3 (Vanessa)** - Leverage Burke County Collaborations ( give examples) and creating open spaces for public comments and opinions (elaborate)

**4 (ALL)** - **Defer to Insights and Recommendations and elaborate**



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Appendix A3: Engagement Table

Stakeholder	Potential Partners	Level of power/influence	Role In addressing Food Insecurity	Method of engagement
Schools and educators	Burke County Public Schools Administration	Moderate to High (Education, influence on families)	Implement school-based programs, engage parents, provide education	Parent-teacher meetings, workshops, school events, community gardens
Local Government	<ul style="list-style-type: none"> <li>• County Commissioners</li> <li>• Health Department</li> <li>• Social Services Department</li> <li>• Education Board</li> </ul>	High (Policy decisions, resource allocation)	Develop and implement policies, allocate resources, coordinate programs	Public hearings, policy forums, collaborative workshops
Nonprofit Organizations	<ul style="list-style-type: none"> <li>• The Outreach Center</li> <li>• Burke County United Way</li> </ul>	Moderate to High (Advocacy, service provision)	Service delivery, advocacy, community engagement	Partnerships, community forums, outreach programs

Parents and Caregivers	Parents and Caregivers	Moderate (Direct influence on children)	Engage in community programs, access resources, advocate for needs	Parent support groups, community meetings, workshops
Food Pantries/Food Banks	<ul style="list-style-type: none"> <li>• Burke United Christian Ministries Food Pantry</li> <li>• The Outreach Center Food Assistance</li> <li>• (Burke County Distribution)</li> <li>• Local Church Food Pantries</li> </ul>	Moderate (Critical food resource providers)	Distribute food resources, collaborate on community programs	Volunteer engagement, community partnerships, awareness campaigns

	<ul style="list-style-type: none"> <li>• Community Volunteer Groups</li> <li>• Second Harvest Food Bank of Metrolina</li> </ul>			
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\*\*\*Highlights are the primary stakeholders for this project



## **Appendix B: Akosah**

### Appendix B1: Social Determinant of Health Analysis

#### **Social Determinant of Health: Social and Community Context**

##### ***Background***

Healthy People 2030 describes social and community context as the relationships and interactions with family, friends, co-workers, and community members that significantly impact health and well-being (Healthy People 2030, 2020). Similar connections and collaborations are perceived to exist among agencies and organizations in communities to drive improvement.

When collaboration is less or does not exist, it impacts the success of achieving positive health outcomes (Alderwick et al., 2021). Unfortunately, children are more vulnerable to negative health outcomes due to their dependence not only on adults but also on systems that protect their wellbeing, including their access to nutritious foods (UNICEF, n.d). For instance, persons in Latino communities are twice as likely to experience food insecurity and Latino children are twice as likely to face hunger (Feeding America, 2024). This reflects one in three Latino children who do not regularly have access to food.

In the short term, children may grow up without the necessary food, shelter, and support to grow physically and mentally. This affects their ability to thrive in life and may eventually affect their success in school and general life (UNICEF, n.d). Considering that children become the adults of tomorrow, it is imperative to pay attention to the environment that is created for them to live in, play in, and be supported in.

In more recent times, there has been an influx of the Hispanic populations which has led to the prioritization of linguistic inclusivity by the health department and community partners in

the county (Public Health Accreditation Board, 2023). There is also a sense of community involvement and partnerships through the collaborative work observed in the 2022 Community Health Assessment (Burke County, 2022).

### ***Geographical and Historical Context***

Located in the foothills of the Blue Ridge Mountains in Western North Carolina, Burke County has about 90,418 persons, an increase from 88,898 in 2019 (Public Health Accreditation Board, 2023). About 42.7% of the population lives in a low population density area where about 500 or fewer people per square mile and less than 2500 people live (County Health Rankings and Roadmaps, 2023). There are seven municipalities within the county and Morganton, as the county seat, is the largest of the 13 townships within the county (Burke County, 2022).

The county covers about 514 square miles in land mass and its highest peak is 4,300 feet above sea level (Burke County, 2022). It historically has been home for thousands of years to hundreds of Indigenous nations (County Health Rankings and Roadmaps, 2023). The current composition of the county does not reflect this with 85.9% of the population being white (United States Census Bureau, 2022).

However, in recent years, the racial profile of the county reveals that there is a gradual increase in the population of Hispanic and Hmong families migrating into the county (Public Health Accreditation Board, 2023).

### **Priority Population & Measures of Occurrence**

As of 2023, Burke County ranks 70<sup>th</sup> out of the 100 counties in North Carolina according to the County Health Rankings when considering positive health outcomes as well as the factors that impact health. (County Health Rankings and Roadmaps, 2023).

Even though the population is predominantly white, the highest rates of poverty are experienced by Hispanic populations (64%), followed by American Indians (54%) and then African Americans (52%) compared to 31% in the White population (Appendix B).

Almost one out of five persons in the county is a child (United States Census Bureau, 2022). Between 2017 and 2020, 42% of the total population lived under 200% of the Federal Poverty Line exceeding the state average at 36.8% (Burke County, 2022). Approximately 12.6% of the population in the county currently live in poverty (United States Census Bureau, 2022). However, 20% of children in the county live in poverty, with this figure surpassing both the state and national percentages (County Health Rankings and Roadmaps, 2023). In 2022, the highest percentage of individuals in Burke who live below 100% of the Federal Poverty Level are children aged 5 (Appendix A).

### **Rationale/Importance**

From the above information, it can be recognized that children are at a higher risk of experiencing food insecurity with a consequent impact on their physical growth and social development (UNICEF, n.d). Children of families in the minority population may be more likely to experience food insecurity due to the deepened level of poverty. There have been measures by the county to improve access to food in the public school to curb food insecurity such as free and reduced-price lunches (Burke County Public Schools, 2023). This has been possible due to the collaboration between the school system, the health department and a Chartwells K12, the Burke County Public Schools food service provider (Burke County Public Schools, 2023; Burke County, 2024). With existing programs like these, it will be beneficial to leverage existing infrastructure to improve food insecurity among children under 18 in the public school system.

Additionally, there has been a substantial effort towards improving the living experiences of families who do not speak English as a first language, particularly the increasing number of migrating Hispanic/Latino populations in the county (Burke County, 2022). With the growing level of Spanish-speaking populations within the county, the health department has begun a program to educate and train its staff in conversational Spanish to improve interactions and meet the population where they are (Public Health Accreditation Board, 2023). The WIC (Women, Infants and Children) program within the county also provides healthy feeding resources and referrals for health and social services in both English and Spanish. (Burke County, 2024).

Though there is a high level of food insecurity in the county compared to state levels, the assets mentioned above provide a foundation for leveraging collaboration to mitigate this challenge in the county (County Health Rankings and Roadmaps, 2023).

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## APPENDICES

### Appendix B1-A:

#### Poverty by Age

The U.S. monthly child poverty rate increased from 12.1% in December 2021 to 17% in January 2022, the highest rate since the end of 2020.<sup>6</sup> The highest percentage of individuals in Burke who live below 100% of the FPL are children aged 5.



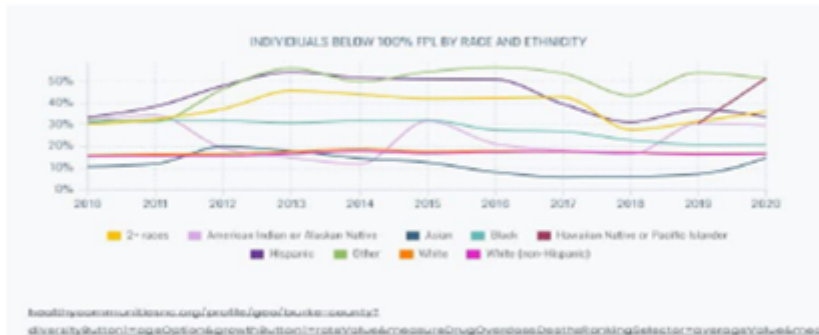
Graph 5 displays the percentage of individuals below the 100% FPL in Burke County by age in 2020. In 2020, the highest percentage of individuals below the 100% FPL by age were 5 years (46%). The lowest percentage of individuals below 100% FPL by age were 65-74 years (8.61%).

Source: Burke County. (2022). *2022 Burke Community Health Assessment*. burkenc.org.  
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## Appendix B1-B:

### Poverty by Race and Ethnicity

In North Carolina, half of American Indians (52%) and African Americans (51%) and 64% of Hispanic individuals have incomes below 200% of the FPL, compared to 31% of Whites.<sup>6</sup>



The graph above shows the percentage of individuals below 100% of the FPL in Burke County by race and ethnicity from 2010-2020.

Source: Burke County. (2022). *2022 Burke Community Health Assessment*. burkenc.org.  
<https://www.burkenc.org/DocumentCenter/View/2666/2022-Community-Health-Assessment>

## Appendix B2: Concentration Deliverable 1 (Systems)

### **Background: Overview of the social and community context within Burke County**

Social determinants are the nonmedical factors that influence and shape an individual's health, well-being, and quality of life they can have (CDC,2022). These determinants have been shown to have a major influence on health status with variation in these determinants accounting for significant health disparities (CDC, 2022; World Health Organization, 2024). A crucial component of the social determinants of health is the social and community context (Healthy People 2030, 2021).

Social and community context refers to the relationships, connections, and interactions existing among family, friends, co-workers, community, and institutions within the settings where people live, play, and work, which can have major impacts on health and well-being (Healthy People 2030, 2021; The Network for Public Health Law, 2020). The institutions could be social, religious, cultural, and occupational and provide the structure to offer the space for a sense of cohesion and connectedness among the members of the community (The Network for Public Health Law, 2020). Thus, for members of the community who are particularly vulnerable and dependent on families and social systems within the community to thrive, such as children, these relationships have a significant influence on health (Healthy People 2030, 2021).

For children to grow properly (physically, developmentally, and cognitively), proper nutrition is required (Feeding America, 2020). However, households with children across the United States experience the worst form of food insecurity (Appendix C; U.S Department of Agriculture, 2023). Additionally, in households where a parent is missing (commonly known as single-parent households), Black and Indigenous families, and rural and immigrant families,



there is also a higher burden of food insecurity (Long, 2021; USDA Economic Research Service, 2023). In Burke County, 32.6 % of households with children under 18 are single-parent households (St Louis Fed - Economic Data, 2023). Latino persons are twice as likely to experience food insecurity, and Latino children are twice as likely to face hunger (Feeding America, 2024). The negative impact of lower incomes in these population groups and the effect of weakened family systems have produced poorer outcomes for food security among children under 18 (Appendix D).

North Carolina has a child food insecurity rate of 17.1%, ranking ninth among all states in the country (Stacker, 2022). However, that rate increases in Burke County, exceeding state and national averages (Stacker, 2022). Between 2016 and 2017, there was a 1% reduction in the number of children who lived in households in Burke County, to 21.4% in children who are in Burke County, exceeding state and national averages (Stacker, 2022). Between 2016 and 2017, there was a 1% reduction in the number of children who lived in households in Burke County that were food insecure (from 23.5% to 22.5%) (Stacker, 2022).

The United States relies on public schools to help ensure that children have some form of access to healthy meals (Long & Litvinov, 2021). In the 2019/2020 academic year, K-12 public schools served 29.6 million lunches and 14.77 million breakfasts each day with 75% of those meals being free or reduced price (Long & Litvinov, 2021). School-based programs have contributed to modest reductions in food insecurity; a one percent decrease between 2016 and 2017 (Stacker, 2022). However, to leverage the potential of community connections for even greater impact, a careful look at the nature and range of complex community relations is useful. This will enable a deeper dive into addressing the issue of food insecurity among Children under

18 in public schools living with food insecurity and strengthen the long-term impact of existing strategies.

Addressing food insecurity thrives on the connections and relationships among agencies to ensure success (Long & Litvinov, 2021). This is certainly true in Burke County. The Outreach Center is a community-based non-profit organization in Burke County with a focus on hunger relief especially in children (The Outreach Center, n.d). The Center has successfully utilized the strength of community involvement to address food insecurity (The Outreach Center, n.d).

### **Description of the System and Area of Concern**

#### *The System to promote Food Security in Burke County for Children under 18 in Public Schools*

For the purposes of this project, the particular area of concern is weak community and social support for families. The overarching goal is to provide an enabled social and community context for these families so that obstacles in addressing food insecurity in children under 18 in public schools can be overcome. Food insecurity within Burke County affecting children under 18 within the Burke County Public Schools (BCPS) is a complex/wicked problem. It is characterized as the symptom of another problem and having no immediate solution test. This is evident in the multiple factors such as stigma associated with food assistance programs, social support systems for families, and a culturally competent social service workforce in the county. These factors can impact the prevalence of food insecurity among children of interest.

In recent years, there has been a gradual increase in the population of Hispanic and Hmong families migrating into Burke County (Public Health Accreditation Board, 2023). This population group would mostly present with suboptimal social support systems, experience the most isolation, and have increased risks for experiencing food insecurity as a result. (Artiga &

Pham, 2019). Their presence in a new environment with cultural differences and without social networks are likely to pose challenges for community relationships. Moreover, some undocumented migrant populations who are unable to make use of programs due to fears surrounding deportation may steer themselves and their children into poverty and subsequently food insecurity. In almost every county (across the state), Latinos experience a higher rate of food insecurity than other populations (Feeding America, 2024).

Burke County Public Schools has 26 schools with 11,632 pupils and students, 64% of whom are on free or reduced-priced lunch (Leon, 2022; U.S. News and World Report, 2024). White children constitute the majority (63.8%) whilst Hispanic children constitute the next majority (19.3%) (U.S. News and World Report, 2024). From 2020 till the summer of 2022, school lunch was free for all students in BCPS, courtesy of a federal waiver (Leon, 2022). However, upon expiration, parents were once again responsible for paying for school lunches while the school provided lunch one Friday every month (Leon, 2022). In 2023, BCPS and DHHS worked together to introduce free breakfast and lunch to all students and reduce stigma by eliminating the free meal application (Burke County Public Schools, 2023). Through the collaboration between Burke County Public Schools and the Department of Health and Human Services, such direct services can be provided (Burke County Public Schools, 2023).

With an increasing migrant population who may particularly be fearful of deportation, there is an increased propensity to forgo access to food assistance programs that may require some form of legal documentation. However, for those who may be documented but, in the minority, the challenge may be access to equal opportunities for employment ensuing from language and cultural barriers.

An archetype displayed in this system is success to the successful. With public acceptance and engagement of the current WIC program, more resources are channeled to promoting the program. However, without a proper acknowledgment of the different cultures within the county, it is possible to overlook the need for food security through an inadequacy of cultural competency among providers in the program.

Across the US and in Burke County, the COVID-19 pandemic resulted in job loss for some parents and caregivers making it challenging to meet basic needs such as food and shelter (Center on Budget and Policy Priorities, 2024). With these compounding expenses at the forefront, families began to experience hunger for the very first time, and school and childcare-based feeding programs were the lifelines in many areas of Burke County (Keith-Jennings et al., 2021). Consequently, a spike was observed in the prevalence of food insecurity and very low food security among US households, particularly in Black and Hispanic families (Appendix B; Appendix C). The consequent shame and risk for anxiety and depression also grew, leading to an increased level of mental illness associated with food insecurity during that period (Fang et al., 2021). In fact, the relative risk of mental illness resulting from being food insecure was almost three times that of losing a job during the pandemic (Fang et al., 2021). The attendant isolation and negative impact on relationships and community creation soared deepening the risk of perceived and actual weakened support systems for those experiencing food insecurity (Wang et al., 2018).

### **The Case for Transformation**

Creating an environment where children and families can thrive is crucial to mitigating food insecurity. From the causal loop diagram (Refer to Appendix A) several entry points for the

development of solutions to food insecurity in Burke County can be identified. Each is described below.

- Information flow

Implementing a transformative approach to information flow involves ensuring that accurate and up-to-date information about available resources, programs, and initiatives reaches community partners. This could involve the development of a centralized online platform or mobile application where families can easily access information about food assistance programs, community resources, and nutrition education materials.

Additionally, leveraging data analytics and community feedback mechanisms can help identify areas of need and track the effectiveness of interventions over time to make informed decisions and allocate resources more effectively.

- System Infrastructure

Food assistance programs generally within the county operate individually and are siloed. The anticipated synergy that can be achieved by connecting and increasing the capacity of these programs and the relationships they have with the community can break down the silos and improve food security for the population. At this time, there is not much data on the social and community context in addressing food insecurity in Burke County. Collaboration with families to foster trust is crucial for ensuring that programs are relevant and accessible.

- Organizing Principles

In the recent public health department accreditation, an unmet need identified was that although the local health department had documents on cultural competency training, there was no evidence that all staff had undergone the training (Public Health

Accreditation Board, 2023). There is a need for accountability to ensure that staff are prepared to meet the needs of the diverse community within the county through documented training. Establishing a multi-sectoral task force across the community is particularly important for inclusive participation in documenting and executing of the training. Through the training, effective implementation of strategies to support family systems in a bid to address food insecurity can be sustained..

- Mindsets

Similarly, in terms of mindsets, an awareness of the increasingly diverse culture is imperative to create a culturally competent workforce that can attend to the needs of the dynamic population. Also, reframing and a challenge of assumptions of community partners is required to foster a mindset of empathy and remove biases surrounding food insecurity within the family system. This will slowly but surely reduce food insecurity in families and subsequently children under 18 and create the foundational social support system for families with children; immigrant or otherwise.

### **Insights: Strengths and Limitations Within the System**

From the causal loop diagram, a great leverage point will be developing and increasing awareness of the cultural dimension of food and its relation to the diversifying population in the county. There is a myriad of challenges that directly and indirectly lead to food insecurity in the priority population. However, they cannot all be addressed at once. The county has a firm and open leadership that is willing to support these challenges (Public Health Accreditation Board, 2023). Channeling some of that support will be necessary to garner community support which is crucial in determining the most suitable innovation. Some of the challenges would require financial investment and that may be a limitation.

The diverse organizations working together to provide support for children living in food insecurity are also a great asset to the county. However, the complexity of the issue must be acknowledged, and family systems placed in the forefront in attempting to address food insecurity.

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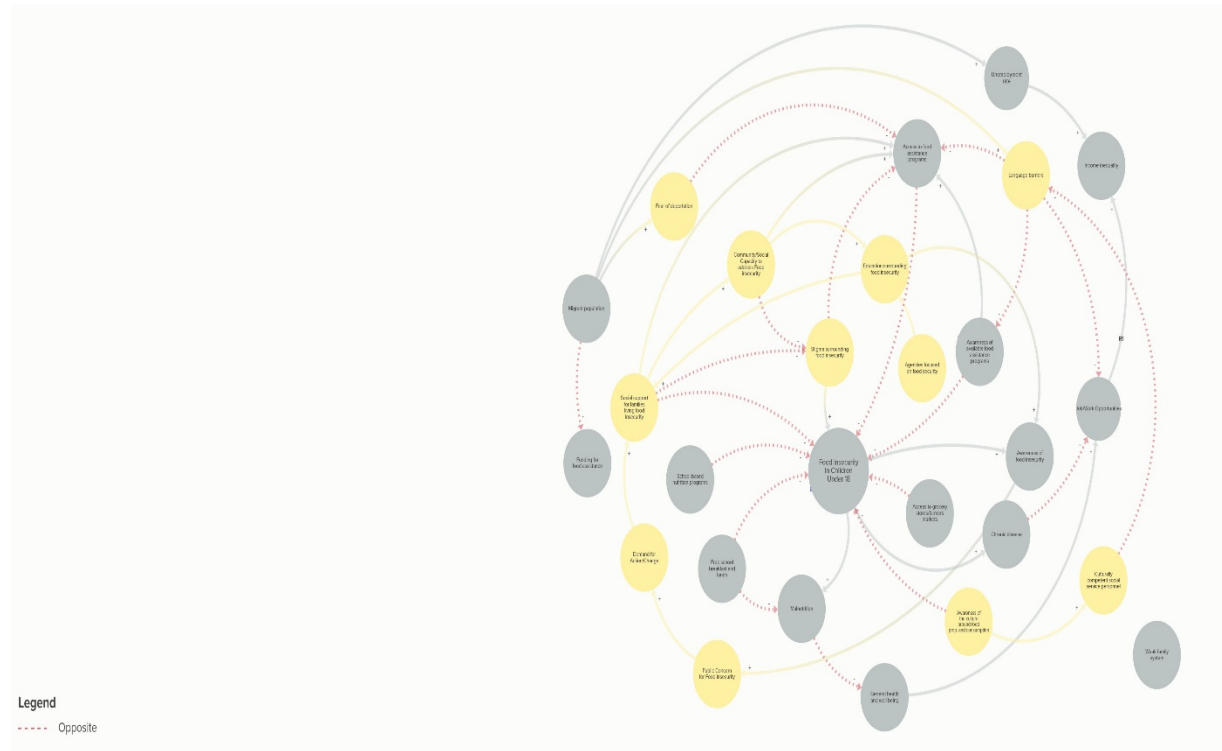
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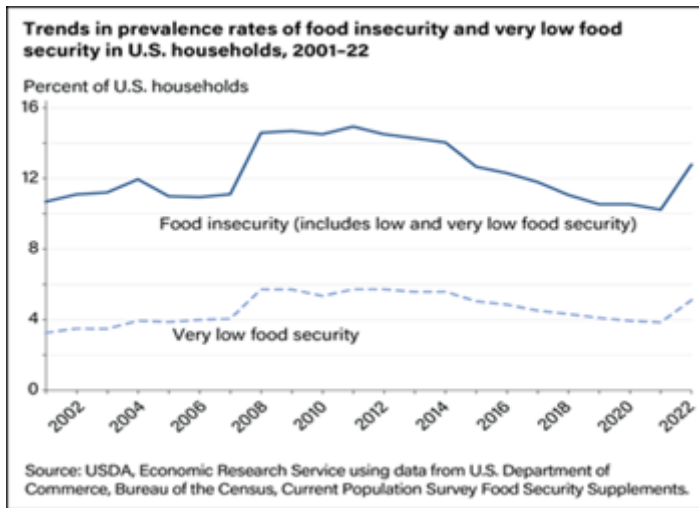
# APPENDICES

## Appendix B2-A: Causal Loop Diagram

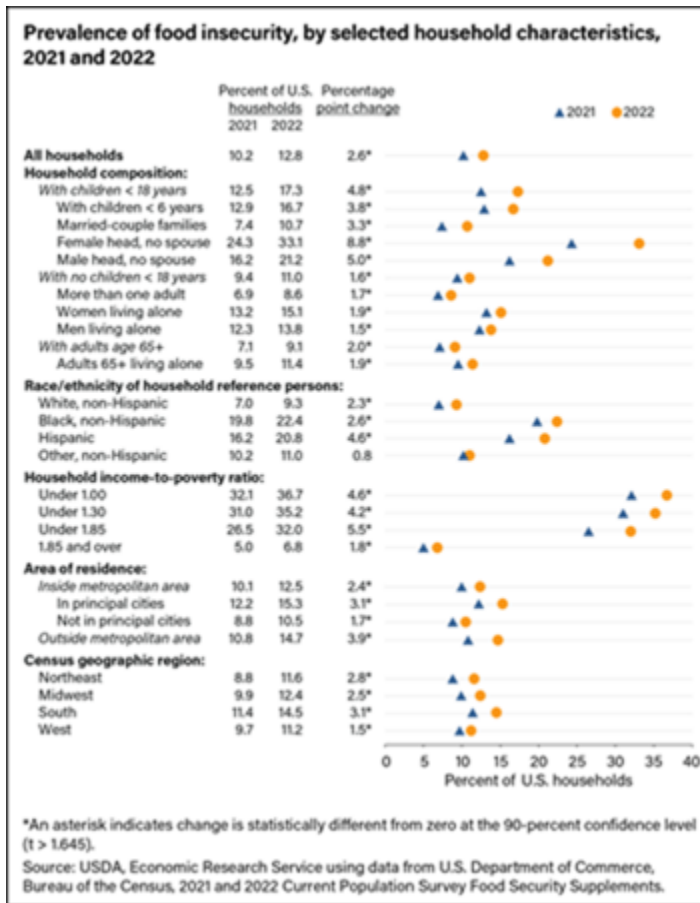


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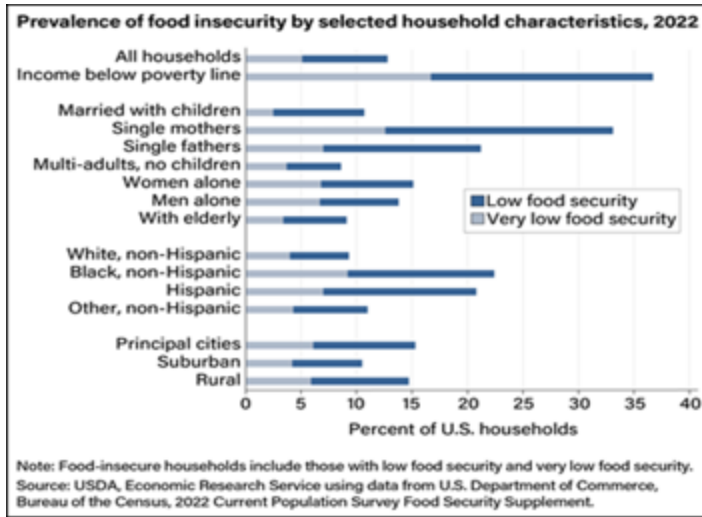
Appendix B2- B:



Appendix B2- C:



Appendix B2-D:



## Appendix B3: Concentration Deliverable 2 (Quality)

### **The Value of Reaccreditation of Local Health Departments and Continuous Quality Improvement**

Social determinants are nonmedical factors that profoundly influence an individual's health, well-being, and quality of life (CDC, 2022). The social determinants of health play a pivotal role in shaping health outcomes, with disparities further worsening these outcomes (CDC, 2022; World Health Organization, 2024). The social and community context is a domain of the social determinants encompassing the relationships, networks, and interactions among individuals within their living, social, and occupational environments (Healthy People 2030, 2021). Whether social, religious, cultural, or occupational, institutions within these contexts provide structures that hinder or foster cohesion and connectedness among community members (The Network for Public Health Law, 2020). For vulnerable community members reliant on familial and social support systems, such as children, these relationships are particularly influential in shaping health outcomes (Healthy People 2030, 2021).

In Burke County, where 32.6% of households with children under 18 are single-parent households, the community context directly influences the prevalence of food insecurity (St Louis Fed - Economic Data, 2023). Moreover, disparities in food security are exacerbated among marginalized groups, such as Black, Indigenous, rural, and immigrant families (Long, 2021; USDA Economic Research Service, 2023). Latino communities, for instance, face heightened rates of food insecurity, impacting children disproportionately (Feeding America, 2024). Despite efforts to mitigate food insecurity, Burke County faces challenges, with child food insecurity rates exceeding state and national averages (Stacker, 2022). However, community-based organizations, like The Outreach Center, are pivotal in leveraging community involvement and addressing food insecurity (The Outreach Center, n.d).

Public schools serve as critical hubs in addressing food insecurity, with millions of meals served daily; a substantial portion of which are provided free or at reduced prices (Long & Litvinov, 2021). These efforts underscore the importance of community collaboration and institutional support in combating food insecurity among children. As communities diversify, understanding the complex dynamics of community contexts becomes imperative for developing sustainable solutions. By recognizing and addressing the social and community context underlying food insecurity, community partners can work together toward fostering healthier environments and improving the well-being of children and families in Burke County.

### **Background of Chosen Unmet Need and Strategic Plan of the Burke County Health Department**

The unmet activity targeted in this section is Number 10.2. It states, "*The local health department shall carry out or assist other agencies in the development, implementation, and evaluation of health promotion/disease prevention programs and educational materials targeted to groups identified as at-risk in the community health assessment*" (Burke County, n.d). During the reaccreditation process, site visitors did not find any evidence from the local health department of evaluation of educational materials developed and targeted to an at-risk group identified in the Community Health Assessment (Burke County, n.d). According to Section 5 of the 2022 Burke County Community Health Assessment, the impact of COVID-19 on food insecurity was enormous (Burke County, 2023). The school closures and changed attendance patterns caused by COVID revealed the high rates of food insecurity which were partially hidden when students were receiving food at school (Burke County, 2023). There was an approximately 10% increase in students eligible for free lunch in 2023 from the pre-pandemic period (Burke County, 2023). The students in the county's public schools, thus, became even more at-risk post-pandemic.

A majority of students in the Public Schools are from Hispanic families and are most likely to endure food insecurity (Feeding America, 2024). With the increased number of Hispanic immigrants in recent years in Burke County, the likelihood of children who may be eligible for free lunches may increase (Public Health Accreditation Board, 2023).

The Rich picture shows a noticeable collaboration between the North Carolina Department of Health and Human Services and the Burke County Public Schools (BCPS) (Appendix A). This collaboration aided the reinstatement of free and reduced lunches for eligible students and parents in the county's public schools (Burke County Public Schools, 2023). As such, it is fitting that in Quality 1, the value of this collaboration is highlighted to increase the reach and quality of services provided.

As part of the Burke County Health Department Strategic Plan (Fiscal Years 2024-2029), the first goal is to establish a culture of dignity, love, and respect for employees, patients, and the community (Burke County, n.d.). This intention and commitment of the Health Department to uphold the community values are explained further in Appendix C. The plan contains strategies aimed at destigmatization and increasing engagement with underserved and underrepresented populations (Burke County, n.d.). The result of this engagement will provide opportunities to address food insecurity in children under 18 within the Burke County Public Schools and is expected to achieve a patient satisfaction rate of 85% or higher (Burke County, n.d.).

This paper focuses on improving the quality of nutritional education to children and families and opening up opportunities for food access. This vision is possible by creating a heightened sense of community and culture among families with children experiencing food insecurity and students in the county's public school system. Finally, an encouraging atmosphere



of collaboration that goes beyond agencies as system owners to include the population of interest as system users is critical to implementing and evaluating the programs.

### **Tool Utilization for Change Concept Generation**

From the root causes identified in the Fishbone Diagram, it can be determined that, while various entities are working in some silos to promote food security in Burke County, there is an inadequacy of educational materials and workshops on childhood nutrition and food accessibility to address childhood food insecurity (Appendix E). There is also a lack of processes to evaluate the impact of educational programs for at-risk populations (Public Health Accreditation Board, 2023). Three tools are particularly helpful in generating change concepts for this project due to the siloing of services and the diversity of community partners involved. First, a representative group of all the community partners (internal and external customers) (Appendix A) may be split into two groups. One can engage in a GEMBA<sup>2</sup> walk in a WIC clinic to observe the clinic's processes for educating mothers and children on nutrition, while the other group can also conduct a separate GEMBA walk in the local public health department for similar purposes (Excellent, 2023; Lean Enterprise Institute, 2022). The findings will be used to improve the access to such services for families thereby interrupting the cycle of food insecurity for children in the BCPS.

The second is brainstorming to creatively think through and develop change concepts (American Society for Quality, 2024). With the current data trends in the county, it is evident that population diversification is occurring. Therefore, it will be necessary to bring the families

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<sup>2</sup>Gemba (現場) is the Japanese term for “**actual place**,” often used for the shop floor or any place where value-creating work actually occurs. A gemba walk is a management practice for grasping the current situation through direct observation and inquiry before taking action.

of children under 18 in Burke County Public Schools experiencing food insecurity to the table with agencies that have previously worked to improve food insecurity. The deliberation will be on what culturally appropriate educational materials can be developed and distributed, how they will be developed and distributed, and how progress will be measured. These families can feel heard, and the group can bring their experiences and expertise to the table. Available yet underutilized resources within the county may be exposed following community public hearings and focus group discussions with all community partners. Additionally, opportunities for collaboration to improve efficiency can be revealed. The SCAMPER method can be used as a structured form of brainstorming to arrive at potential change concepts for the existing health department nutritional program (Serrat, 1970; Cox, 2020). This process will enable the team to gather the information needed to employ a third tool, an Impact-Effort Matrix, to select a valuable and sustainable solution (Croft, 2023).

### **Design and Implementation of Continuous Quality Improvement**

The action steps outlined in the first goal of the Strategic Plan are to develop an outreach strategy for mobile services and develop an equity council that will make recommendations to the Board of Health (Burke County, n.d.). These 2024 action steps align with the Process Metrics and Outcomes developed in the Quality 1 Assignment and would have been the focus of the GEMBA walks earlier mentioned. **(Appendix E)**

Of all these change ideas, one that resonates with the primary goal to increase engagement with families and children under 18 in Burke County Public Schools that experience food insecurity would be to develop an outreach strategy for mobile services. Progress can be measured by identifying populations, areas, and communities for mobile outreach over the 2024

fiscal year with quarterly monitoring. A population would initially be selected as a pilot – Hispanic immigrant families with children under 18 in the Burke County Public Schools. The information retrieved will answer the questions within the Institute for Healthcare Improvement Model for improvement (Appendix D) and allow the change idea to be tested in quarterly Plan-Study-Do-Act cycles. Pareto charts, histograms, and scatter plots can also be used to interpret and understand data received from the quarterly PDSA cycles and progress on this change idea (Schenck, 2023).

### **Scaling and Sustainability**

Scaling may be done in two ways- by implementing change ideas in another population or by increasing the deliverable within the same site where the change was initially implemented (IHI, 2023). Recommendations on implementing at scale would include agreeing on what components of the mobile services to the Hispanic immigrant families with children under 18 in the public school system should be scaled. Some options may include broadening the population served to African American families with children in similar situations or increasing the number of mobile trucks from 1 to 3. Scaling is site-dependent (Schenck,2023). This means that the roll-out of a program depends on where the scaling will be done. Secondly, it is resource-dependent (Schenck,2023). There should be an answer to the question: Are there enough resources to expand? The human resources, data collection, and reporting systems, and learning systems within the agreed scale-up should be considered before scaling. If another mobile truck would be agreed upon to serve another population or area of the county, the services should be standardized to produce equal opportunity for the populations of interest (Schenck,2023).

Leadership quality and the commitment of other community partners are key to ensuring sustained improvement (Schenck,2023). Should the above scale-up be deemed successful, the Director of the Health Department would benefit from meeting with the community partners and those who work in the mobile trucks to deliver the services. The primary reason would be to share the improvement with all partners, keep them current, and highlight the successes. Secondly, this provides an opportunity to seek funding from funding or more support from partner organizations. Finally, staff, patients, and the community would benefit significantly from continuous training to continually develop skills and increase value (Schenck, 2023).

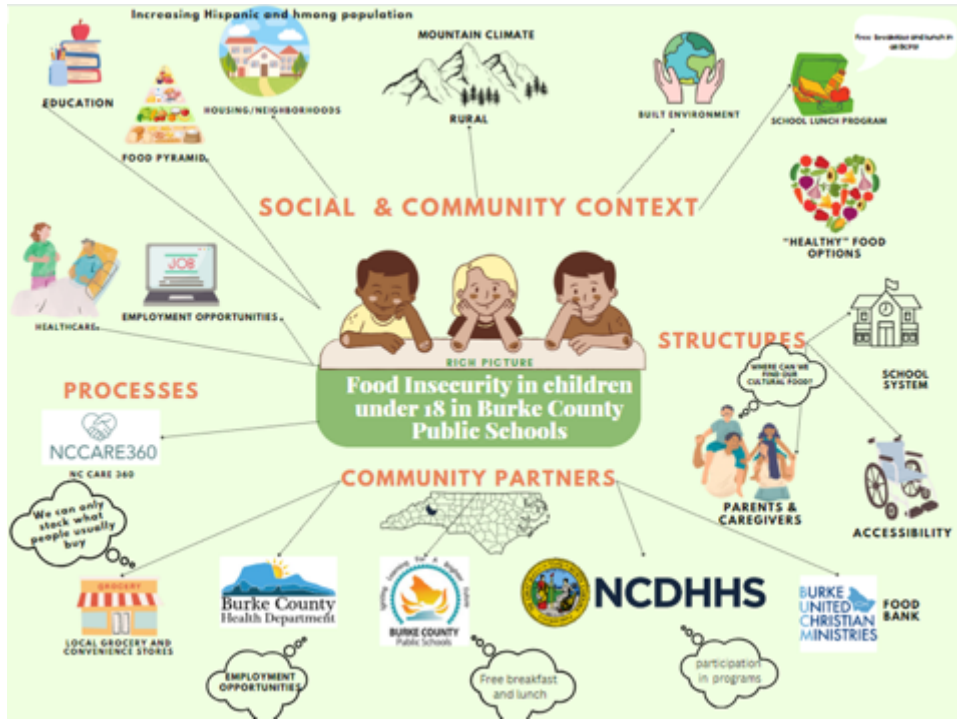
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# APPENDICES

## Appendix B3-A: Rich Picture



Appendix B3-B: Tools for Change Concept Generation

SCAMPER method of Brainstorming		
S	Substitute	Substitute a part of the current program with something else.
C	Combine	A combination of options
A	Adapt	Adapting the current program to meet a new demand
M	Modify	Enlarging the scope of the program
P	Put to another use.	Can we put the current program to another use in the hopes that it will yield more results?
E	Eliminate	Can we eliminate a portion of the program to reduce waste or improve inefficiencies?
R	Reverse	Change the program's delivery method or the process's traditional order.

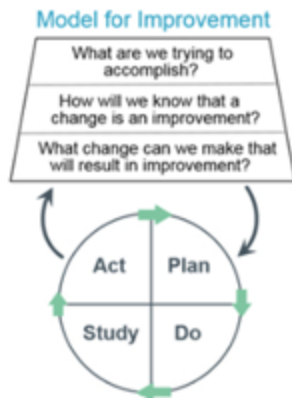


Appendix B3-C: Goal #1 of Burke County Health Department Strategic Plan FY 2024-2029

Strategies	Challenges & Capacity Needs	Partners
1. Enhance internal and external stakeholder experience through culturally competent and trauma aware customer service	<ul style="list-style-type: none"> <li>- Staff capacity</li> <li>- Time limitations</li> <li>- Funding</li> </ul>	<ul style="list-style-type: none"> <li>- MAHEC</li> <li>- Agency/Community Partners</li> </ul>
2. Proactively & safely respond to emotionally charged situations using conflict resolution and de-escalation techniques	<ul style="list-style-type: none"> <li>- Staff Capacity</li> <li>- Time Capacity</li> <li>- Funding</li> </ul>	<ul style="list-style-type: none"> <li>- MAHEC</li> <li>- Community Partners</li> <li>- LME/MCO</li> </ul>
3. Increase engagement with underserved and under-represented populations	<ul style="list-style-type: none"> <li>- Staff Capacity</li> <li>- Funding</li> </ul>	<ul style="list-style-type: none"> <li>- Training organizations</li> </ul>

Source: Burke County. (n.d.). *BCHD strategic plan 2021-2024 - Burke County, NC*. BurkeCounty.org. <https://www.burkenc.org/DocumentCenter/View/1729/BCHD-STRATEGIC-PLAN--FY2021-2024>

## Appendix B3-D: Model for Improvement Diagram



Source: IHI. (2023). *How to improve: IHI*. Institute for Healthcare Improvement. Retrieved April 28, 2023, from <https://www.ihi.org/resources/Pages/HowtoImprove/default.aspx>

### **Summary of the Social Determinant of Health - Social and Community Context**

*Healthy People 2030* references how an individual’s relationship and interactions with family, friends, co-workers, and broader community members have the potential to impact one’s health and well-being (*Social and Community Context*, n.d.). “Many people face challenges and dangers they can’t control – like unsafe neighborhoods, discrimination, or trouble affording the things they need” (*Social and Community Context*, n.d.). A challenge in Burke County is that many people, including children, have trouble accessing (or affording) food, also known as food insecurity. Food insecurity can be defined as a household-level economic and social condition of limited or uncertain access to adequate food (*Food Insecurity*, n.d.). The issue of food insecurity can be influenced by a number of factors such as income, employment, race/ethnicity, and disability (*Food Insecurity*, n.d.). Within a social and community context there are additional factors such as stigma, social isolation, availability of in-school support programs such as free-and-reduced lunch, and overall accessibility to resources impacting a child’s susceptibility of becoming food insecure. It is important to evaluate current availability of resources within this community as well as the possible intervention efforts to address the issue in the county.

### **Project Details: Title, Problem Statement and Aim**

The overarching project title is *Food Insecurity in Children Under 18 in Burke County Public Schools*. Currently in this community, 21.7% of the children in Burke County are considered food insecure or at risk for being food insecure (*Counties with the highest rate of food insecurity in North Carolina*, 2022). Food insecurity was highlighted as a concern in the 2022 Burke [County] Community Health Assessment, with COVID-19 pandemic drawing further attention to the issue. “Prior to the pandemic, 56.5% of BCPS students were eligible for free

lunch, that number now sits at 65% students being eligible for the 2022-2023 year” (2022 Burke Community Health Assessment, n.d.). One of the strategies to address this was that during the remote learning period, BCPS provided breakfast and lunch pick-up and delivery to students in need, serving 6,000 breakfasts and 7,000 lunches each school day (2022 Burke Community Health Assessment, n.d.). The recent Burke County Accreditation Report indicates a problem that despite positive efforts in identifying at risk groups in the CHA and providing educational workshops/materials “site visitors found that the department was unable to provide any evidence of evaluation of educational materials developed and targeted to an at-risk group identified in the CHA” (Burke County Accreditation Report, n.d.). We can assume that issues with COVID-19 have also impacted the capacity for the health department to fulfill its’ responsibilities such as providing healthcare services, creating resources for the community and evaluate interventions, etc. Therefore, there is a need to address the public health issue of food security through a community context lens by holding responsible agencies, like the department, accountable for evaluating and providing necessary resources related to nutrition and food accessibility. The aim of this project will be to improve the process of providing education to children [and their families] about nutrition and food accessibility while simultaneously holding agencies accountable to provide, implement and thus evaluate these resources or services to ensure they best serve their community and are up to date.

### **Internal Customers, External Customers and Process Improvement Impacts**

The list of potential internal customers of this project include the Burke County Public School System, Burke United Christian Ministries (Food Bank), Burke County Health Department, Local Grocery Stores, etc. On the other hand, potential external customers include

the children and families located in the Burke County Public School district as well as the broader community of Burke County.

An improvement of the process overall would impact all of the customers by enhancing community efforts focused on food insecurity as well as improve the current evaluation practices of the health department to better serve the community through education. Arguably, the external customers are considered the primary beneficiaries of this program, these students and families will be impacted in that their knowledge of nutrition will be expanded. Furthermore, educational efforts and a more focused community effort to target childhood nutrition and [food] security will hopefully bring about a broader array of food accessibility and resource availability in the county. Burke County Health Department is impacted in this project progress in that there will be further opportunities for health educators to participate in nutritional programs and an expanded effort in evaluating the knowledge and resources available for childhood nutrition across the school system. The school system benefits from the project by fostering relationships with other local agencies such as the Burke County Health Department and Burke United Christian Ministries. This brings more awareness to various student needs even across the county school district. Burke United Christian Ministries, the local food bank, are active internal customers and will be brought to attention more through this project. In turn, hopefully the number of donations and available volunteers for the food bank will become available through this process. Finally, local grocery stores benefit from the potential increase in business from local customers.

## **Project Measures**

See Appendix A below for a table representation of various project measures including key outputs, process measures, [expected] outcomes, and balancing measures related to the project focus, food insecurity in Burke County Public School children.

## **Ishikawa/Fishbone/Cause and Effect Diagram**

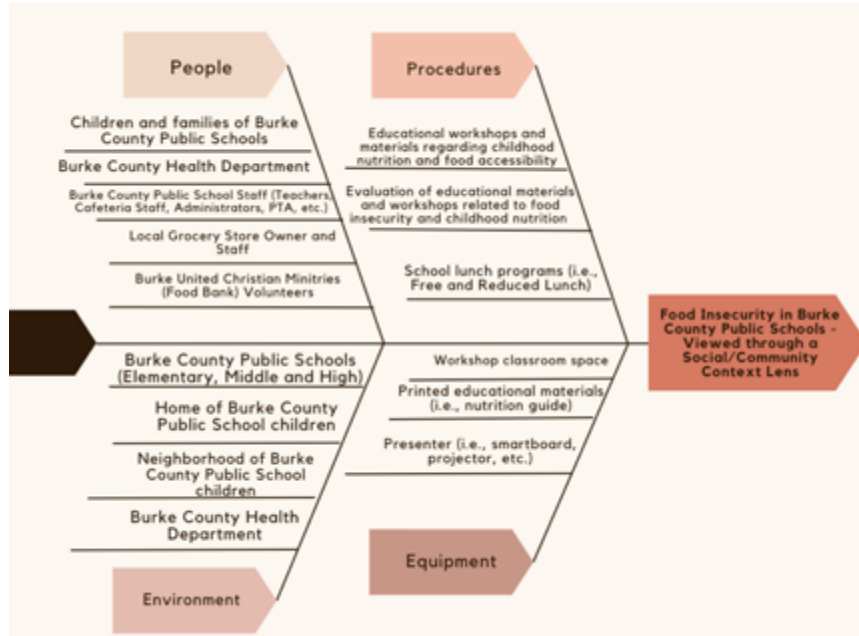
See Appendix B below for a visual representation of an Ishikawa (or Fishbone) diagram. This representation contains the categories people, procedures, environment and equipment necessary to carry out an intervention to address unmet activity 10.2 in the Burke County Accreditation Report (Burke County Accreditation Report, n.d.).

## Sub-Appendices

### A. Table of Measures

Key Outputs	<ol style="list-style-type: none"> <li>1. Number of children reached by educational workshops/materials</li> <li>2. Number of children eligible to receive food through programs such as free and reduced lunch</li> <li>3. Number of children who utilize resources related to food-insecurity provided by the health department</li> </ol>
Process Metrics	<ol style="list-style-type: none"> <li>4. Number of educational workshops conducted</li> <li>5. Number of relevant materials/resources dispersed in educational workshops</li> <li>6. Number of trained “professionals” who will teach workshops and create materials</li> <li>7. Number of evaluators who will review the educational workshops and utilization of resources post-presentation</li> </ol>
Outcomes	<ol style="list-style-type: none"> <li>8. Increased education about nutrition and healthy food options</li> <li>9. Increased awareness of local resources related to food insecurity</li> <li>10. Increased number of children enrolled and utilizing programs such as free and reduced lunch</li> </ol>
Balancing Measures	<ol style="list-style-type: none"> <li>11. Associated costs in creating educational materials and conducting workshops</li> <li>12. Staff availability (public school, health department workshop leaders, etc.)</li> </ol>

B. Ishikawa/Fishbone/Cause and Effect Diagram



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## **Appendix C: Collie**

### **Appendix C1: Social Determinant of Health Analysis**

As stated in *Healthy People 2030*, individual's relationships and interactions with their family, friends, co-workers and community members can have a major impact on one's overall health and well-being (*Social and Community Context*, n.d.). Challenges in community or social relationships may impact health and safety, factors such as living in an unsafe neighborhood or household, experiencing discrimination, or experiencing trouble affording the things that you may need are examples of this (*Social and Community Context*, n.d.). One of the specific determinants related to social relationships is food insecurity. Food insecurity is defined as a household level economic and social condition of limited or uncertain access to adequate food (*Food Insecurity*, n.d.). Food insecurity may be long-term or temporary. It may be influenced by a number of factors including income, employment, race/ethnicity, and disability (*Food Insecurity*, n.d.). Within a social and community context there are other factors such as social isolation, stigma, language barriers, in-school support programs (or lack of), and overall community accessibility to resources that can impact a child's susceptibility to becoming food insecure. Children who are impacted by food insecurity may be at an increased risk for a variety of negative health outcomes, surprisingly including obesity (*Food Insecurity*, n.d.). Research demonstrates an association between food insecurity and delayed development especially in young children; risk of chronic illnesses like asthma and anemia; and behavioral problems like hyperactivity, anxiety, and aggression in school-age children (*Tough choices. Devastating consequences*, n.d.).

### **Geographic and Historical Context**

Burke County is located in the western, mountainous region of North Carolina and was founded in 1777 from the existing Rowan County area (*Burke County*, n.d.). The economy in this

area today is considered diversified. Industrial products include furniture, chemicals, machine parts, and textiles (*Burke County*, n.d.). The area is also home to a significant agricultural processing industry and has the highest proportion of state government employees outside of the capital of Raleigh (*Burke County*, n.d.). Similar to other western regions of the state, Burke County is known for its abundance of natural resources and parklands, which contribute to a thriving tourism industry (*Burke County*, n.d.).

The majority of the population (85.9%) in Burke County is White (or Non-Hispanic) according to the recent 2020 census (*U.S. Census Bureau QuickFacts: Burke County, North Carolina*, n.d.). Followed by approximately 7% of the population identifying as Hispanic or Latino, 6.5% Black or African American, 3.8% Asian, 2% two or more races, 1% American Indian or Alaskan Native and 0.7% Native Hawaiian and Other Pacific Islander (*U.S. Census Bureau QuickFacts: Burke County, North Carolina*, n.d.). The census also reveals that the median household income in the county is around \$53,732 and 12.6% of the population living in poverty (*U.S. Census Bureau QuickFacts: Burke County, North Carolina*, n.d.). In recent years there has been an influx in the number of Hispanic or Latino individuals in this area (*Burke County, NC*, n.d.). As this population advances in in this area the need to address inequities or language barriers in these populations is necessary.

In recent years the Burke County Health Department and other community partners have made an effort to focus on equity training. The Burke Wellness Initiative (or BWI) was formed with a vision to promote health equity for all residents while remaining updated on relevant health statistics and addressing health in a holistic manner (*Burke Wellness Initiative*, n.d.). The BWI member agencies/community consist of groups such as the county board of commissioners, the health department, public schools, law enforcement, United Way, faith-based organizations,

etc. However, according to Morganton news networks there have been new commissioners that have questioned this training and its importance, railing against Marxism, critical race theory (CRT) and communism (Mcbrayer, 2023). These actions have perpetuated existing inequities and inhibit any progress to address them.

The health department is an essential asset to this community, their webpage provides a community resource page with a link to 4 resources related to food insecurity; (local) food banks, soup kitchens, the WIC program, and meals and nutrition assistance for elders (*Burke County Community Resource List*, n.d.). As children are the primary population of this analysis it is important to be able to easily access information for the Women, Infants and Children (WIC) program. Hyperlinked on the department's webpage is a resource for online nutrition education classes (*Health Department - Public Health*, n.d.). While this is helpful, it is uncertain if those living in poverty or other circumstances may have ready access to this webpage. However, despite accessibility varying among the population the ability to have these resources available creates a solid foundation for future efforts to fight against perpetual food insecurity.

### **Priority Population**

Burke County in North Carolina is of particular interest as it has a population of approximately 17.8% children or people under the age of 18, with 4.6% under the age of 5 (*U.S. Census Bureau QuickFacts: Burke County, North Carolina*, n.d.). Within the Burke County Public School System there are around 12,000 students dispersed between 27 schools (*Food Insecurity Statistics in NC*, n.d.). Of those 12,000 students, around 8,129 students are eligible for free and reduced school meals (*Food Insecurity Statistics in NC*, n.d.). However, only about 80% of those students are actually receiving this type of assistance for lunch and only 30% for breakfast (*Food Insecurity Statistics in NC*, n.d.). It is important to note that this could be due to

a variety of factors such as funding, voluntary participation, lack of knowledge or education surrounding the program, etc.

### **Measures of Social Determinant of Health**

According to the 2023 County Health Rankings for Burke County, 42.7% of the population is considered to be in a rural setting and 16% are food insecure (*HNC 2030 scorecard: Burke County 2022-2025*, n.d.). A comparison tool approximates that the 16.4% of food insecure individuals equates to about 14,770 total impacted (population). This estimate is 50.5% higher than the national average which is concerning (*Counties with the highest rate of food insecurity in North Carolina*, 2022). More specifically, 21.7% of children in Burke are considered food insecure which equates to 3,690 total, this estimate is approximately 48.6% higher than the national average (*Counties with the highest rate of food insecurity in North Carolina*, 2022). Another resource states that 28.8% of children live in food insecure homes within Burke County (*Food Insecurity Statistics in NC*, n.d.). See Appendix A below to see additional information on federal spending and overall trends related to food insecurity in Burke County.

### **Rationale and Importance**

There is a significant portion of the population in Burke County that is either food insecure or considered at risk. Children are particularly vulnerable to the physical and mental effects of food insecurity both in the short and long-term. Addressing this public health concern in this county would be beneficial to not only the children in this area but their families as well. Accessibility to food and nutrition-related information and resources is imperative to ensuring success in this area. Addressing the social and community factors that influence food security

requires a multi-faceted approach that focuses on food relief but also educates the community as a whole.

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## APPENDIX

### Appendix C1-A:

Overall percent of population who are food insecure	19
Number in population who are food insecure	16,790
Number of children eligible for free and reduced price school meals	8,129
<b>But of those, how many actually get the meals?</b>	
Percent of eligible children actually getting free and reduced price school lunch	80
Percent of eligible children actually getting free and reduced price school breakfast	30
Percent of eligible children actually getting free summer meals	2
Amount of Federal money available for free and reduced price school lunches but NOT accessed due to children not participating	10,574
Amount of federal money available for free and reduced price school breakfast but NOT accessed due to children not participating:	4,825
Amount of federal money available for free summer lunch but NOT accessed due to children not participating	27,055
<b>County Non-profit Partner Resources</b>	
Food Bank	Second Harvest Food Bank of Metrolina, Charlotte, NC
Food Bank Partner Agencies	Drexel First Baptist Church Drexel East Burke Christian Min. Hildebran BUCH/Soup Kitchen Morganton Burke County Red Cross Morganton Burke United Christian Min. Morganton Options Morganton Phoenix Home for Girls Morganton Pleasant View Baptist Church Morganton St. Charles Borromeo Church Morganton Abernathy Mem UN/Wright's FP Rutherford College
Infant Mortality Rate (per 1,000 live births)	9
Obesity Rate	15

## Appendix C2: Concentration Deliverable 2 (Quality)

### **Summary of the Social Determinant of Health - Social and Community Context**

*Healthy People 2030* references how an individual's relationship and their interactions with family, friends, co-workers and broader community members has the potential to impact one's health and well-being (*Social and Community Context*, n.d.). "Many people face challenges and dangers they can't control – like unsafe neighborhoods, discrimination, or trouble affording the things they need" (*Social and Community Context*, n.d.). A challenge in Burke County is that many people, including children have trouble accessing (or affording) food, also known as food insecurity. Food insecurity can be defined as a household level economic and social condition of limited or uncertain access to adequate food (*Food Insecurity*, n.d.). The issue of food insecurity can be influenced by a number of factors such as income, employment, race/ethnicity, and disability (*Food Insecurity*, n.d.). Within a social and community context there are additional factors such as stigma, social isolation, availability of in-school support programs such as free-and-reduced lunch, and overall accessibility to resources impacting a child's susceptibility of becoming food insecure. It is important to evaluate current availability of resources within this community as well as the possible intervention efforts to address the issue in the county.

### **Project Details: Title, Problem Statement and Aim**

The overarching project title is *Food Insecurity in Children Under 18 in Burke County Public Schools*. Currently in this community, 21.7% of the children in Burke County are considered food insecure or at risk for being food insecure (*Counties with the highest rate of food insecurity in North Carolina*, 2022). Food insecurity was highlighted as a concern in the 2022 Burke [County] Community Health Assessment, with COVID-19 pandemic drawing further



attention to the issue. “Prior to the pandemic, 56.5% of BCPS students were eligible for free lunch, that number now sits at 65% students being eligible for the 2022-2023 year” (2022 Burke Community Health Assessment, n.d.). One of the strategies to address this was that during the remote learning period, BCPS provided breakfast and lunch pick-up and delivery to students in need, serving 6,000 breakfasts and 7,000 lunches each school day (2022 Burke Community Health Assessment, n.d.). The recent Burke County Accreditation Report indicates a problem that despite positive efforts in identifying at risk groups in the CHA and providing educational workshops/materials “site visitors found that the department was unable to provide any evidence of evaluation of educational materials developed and targeted to an at-risk group identified in the CHA” (Burke County Accreditation Report, n.d.). We can assume that issues with COVID-19 have also impacted the capacity for the health department to fulfill its’ responsibilities such as providing healthcare services, creating resources for the community and evaluate interventions, etc. Therefore, there is a need to address the public health issue of food security through a community context lens by holding responsible agencies, like the department, accountable for evaluating and providing necessary resources related to nutrition and food accessibility. The aim of this project will be to improve the process of providing education to children [and their families] about nutrition and food accessibility while simultaneously holding agencies accountable to provide, implement and thus evaluate these resources or services to ensure they best serve their community and are up to date.

### **Internal Customers, External Customers and Process Improvement Impacts**

The list of potential internal customers of this project include the Burke County Public School System, Burke United Christian Ministries (Food Bank), Burke County Health Department, Local Grocery Stores, etc. On the other hand, potential external customers include

the children and families located in the Burke County Public School district as well as the broader community of Burke County.

An improvement of the process overall would impact all of the customers by enhancing community efforts focused on food insecurity as well as improve the current evaluation practices of the health department to better serve the community through education. Arguably, the external customers are considered the primary beneficiaries of this program, these students and families will be impacted in that their knowledge of nutrition will be expanded. Furthermore, educational efforts and a more focused community effort to target childhood nutrition and [food] security will hopefully bring about a broader array of food accessibility and resource availability in the county. Burke County Health Department is impacted in this project progress in that there will be further opportunities for health educators to participate in nutritional programs and an expanded effort in evaluating the knowledge and resources available for childhood nutrition across the school system. The school system benefits from the project by fostering relationships with other local agencies such as the Burke County Health Department and Burke United Christian Ministries. This brings more awareness to various student needs even across the county school district. Burke United Christian Ministries, the local food bank, are active internal customers and will be brought to attention more through this project. In turn, hopefully the number of donations and available volunteers for the food bank will become available through this process. Finally, local grocery stores benefit from the potential increase in business from local customers.

### **Project Measures**

See Appendix A below for a table representation of various project measures including key outputs, process measures, [expected] outcomes, and balancing measures related to the project focus, food insecurity in Burke County Public School children.

### **Ishikawa/Fishbone/Cause and Effect Diagram**

See Appendix B below for a visual representation of an Ishikawa (or Fishbone) diagram.

This representation contains the categories people, procedures, environment and equipment necessary to carry out an intervention to address unmet activity 10.2 in the Burke County Accreditation Report (Burke County Accreditation Report, n.d.).

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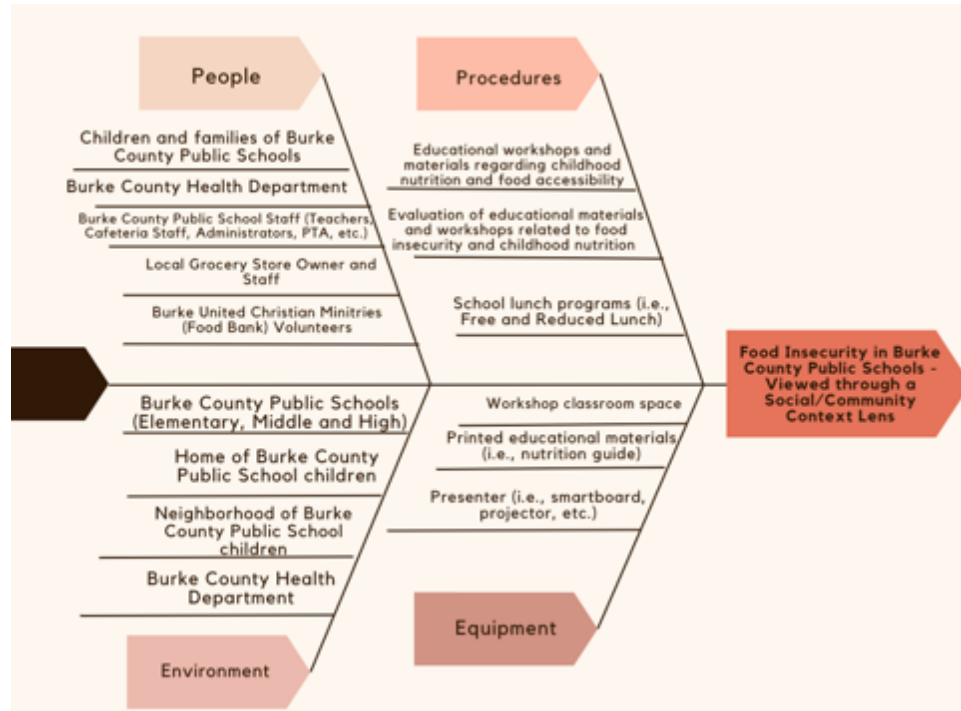
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## APPENDICES

Appendix C2-A: Table of Measures

Key Outputs	<ol style="list-style-type: none"> <li>1) Number of children reached by educational workshops/materials</li> <li>2) Number of children eligible to receive food through programs such as free and reduced lunch</li> <li>3) Number of children who utilize resources related to food-insecurity provided by the health department</li> </ol>
Process Metrics	<ol style="list-style-type: none"> <li>1) Number of educational workshops conducted</li> <li>2) Number of relevant materials/resources dispersed in educational workshops</li> <li>3) Number of trained “professionals” who will teach workshops and create materials</li> <li>4) Number of evaluators who will review the educational workshops and utilization of resources post-presentation</li> </ol>
Outcomes	<ol style="list-style-type: none"> <li>1) Increased education about nutrition and healthy food options</li> <li>2) Increased awareness of local resources related to food insecurity</li> <li>3) Increased number of children enrolled and utilizing programs such as free and reduced lunch</li> </ol>
Balancing Measures	<ol style="list-style-type: none"> <li>1) Associated costs in creating educational materials and conducting workshops</li> <li>2) Staff availability (public school, health department workshop leaders, etc.)</li> </ol>

Appendix C2-B: Ishikawa/Fishbone/Cause and Effect Diagram



## Appendix C3: Concentration Deliverable 2 (Systems)

### **Background: Overview of the SDOH and County Context**

Social determinants of health (SDOH) are the nonmedical factors that may impact health outcomes and an individual's overall quality of life (CDC, 2022). Healthy People 2030 discusses how an individual's relationship and their ongoing interactions with family, friends, co-workers and broader community members has the potential to significantly impact one's health and well-being (Social and Community Context, n.d.). "Many people face challenges and dangers they can't control – like unsafe neighborhoods, discrimination, or trouble affording the things they need" (Social and Community Context, n.d.). In Burke County, North Carolina residents including young children have trouble accessing (or affording) food, an issue also referred to as food insecurity. Food insecurity can be defined as a household level economic and social condition of limited or uncertain access to adequate food influenced by various factors such as income, employment, race/ethnicity, and disability (Food Insecurity, n.d.). Within a social or broader community context there are additional factors such as stigma, social isolation, availability of in-school support programs such as free-and-reduced lunch pricing, and overall accessibility to resources impacting a child's susceptibility of becoming food insecure. As mentioned in Appendix E, within Burke County Public Schools there are over 11,600 students, 64% of whom are enrolled in free and reduced lunch pricing or programs (Leon, 2022; U.S. News and World Report, 2024).

Children who are impacted by the issue of food insecurity may be at an increased risk for a variety of negative health outcomes, surprisingly including obesity (Food Insecurity, n.d.). Research demonstrates an association between food insecurity and delayed development especially in young children; risk of chronic illnesses like asthma and anemia; and behavioral

problems like hyperactivity, anxiety, and aggression in school-age children (Tough choices. Devastating consequences, n.d.). As child health concerns impacts community health and well-being as well as wealth and earning potentials, it is important for the county commissioners to join these efforts to evaluate current availability of resources within Burke County. Furthermore, intervention efforts to address food insecurity in the community is paramount.

### **Co-Design Process, Scope and Objectives: Community Partner List, Principles and Approach**

- I. Community Partner List (also represented in Appendix A):
  - a. Children and Families in Burke County Public Schools
  - b. Burke County Health Department Director
  - c. Burke County Public School System Administration
  - d. Burke United Christian Ministries Volunteer Manager
  - e. Local Grocery Store Managers (i.e., Food Lion, Ingles)

The co-design process in addressing food insecurity in the children of Burke County will be modeled based on the Evidence-based Co-Design approach. This specific co-design process is relevant as it would be a participatory approach of the design process that could involve a wide variety of potential community partners (and perspectives). It would be important to gather and review data focused on food insecurity through the lens of social and community contextual factors in this region. Utilizing the local health department as a resource, it would be beneficial to disperse informational materials to educate the community on stigma, social isolation, existing support programs related to food insecurity (i.e., free and reduced lunch), and general accessibility to health grocery stores, farmers markets, etc. An important step to include the community perspective would be to host a brainstorming session with potential community partners to discuss:



1. What factors inhibit individuals from accessing healthy foods or enrolling in support programs? Availability? Education? Transportation? Other responsibilities?
1. How do we ensure programs related to food insecurity are accessible to the community?
2. How do relationships within the community play a role in food insecurity? How could they negatively and positively impact the issue.

Following the brainstorming session, team members and key partners can collaborate to discuss data that has been collected and analyzed. Discussions could then focus on how resources will be provided and how further educational efforts such as workshops could be implemented in the community to address food accessibility and childhood nutrition. There are several guiding principles to focus on during the co-design process which include equalizing power relations, supporting mutual learning among community partners and building infrastructure for long-term relationships (Co-design: Collaborative Shaping of the Design Problem, 2023). These specific principles are important as equalizing power dynamics and emphasizing mutual learning allows parties both on the beneficiary and “providing” end of the spectrums to understand one another and mutually benefit from any proposed change. Moreover, it is important to encourage long-term relationships and ongoing communication between interested community partners to ensure resources remain up to date and relevant to community needs.

### **Personas, User Stories, Needs and Quality Characteristics**

Addressing the SDOH of food insecurity through a social and community contextual perspective will be an immediate benefit to a large portion of the Burke County population. Specific community member examples include Suzie and Joshua (both students) and Eleanor a high-school administrator in Burke County (see Appendix B for photos). Suzie is a 2<sup>nd</sup> grade elementary student at Drexel Elementary who is eligible but not currently enrolled in the free-

and-reduced lunch program at school (*Drexel Elementary School Homepage, n.d.*). Suzie's family, including her parents and 3 siblings reside in Morganton, NC where they struggle to afford monthly groceries. The collective monthly income of Suzie's parents qualifies her for the free-and-reduced meal pricing in North Carolina, however the family is not aware. Robert L. Patton High School sophomore Joshua is receiving offers for a track scholarship (*Robert L. Patton High School Homepage, n.d.*). He knows how important nutrition is for college athletes and tries to be conscious of his eating habits. Joshua lives with his single mother and younger sister who he often watches as his mom works multiple jobs. His mother, Jennifer, is able to buy groceries each week but is very limited on healthy food options due to their family budget. In order to help with cost and try to eat healthy, Joshua has been trying to make extra money by mowing lawns, washing car, etc. Eleanor is an administrator at Robert L. Patton who also volunteers to support to the athletic department. She recognizes how important nutrition is for both mental and physical child development. Eleanor commutes from just outside of Morganton, NC and notices how despite the size of Morganton being relatively small, just outside of the smaller downtown are even fewer nutritional options available. See Appendix C below for an empathy map for Burke County resident Eleanor.

Statements that exemplify a system users' (or impacted community members') thoughts and emotions are referred to as "user stories". In this scenario, Suzie may find herself wondering, "as an elementary student, I want to be able to enjoy my lunch with my friends in the school cafeteria". As opposed to Joshua's concerns about receiving enough nutritious value to perform in track. He shares these thoughts with his mother often, "as a high school athlete, I want to be able to make nutritious food choices". Lastly, administrator Eleanor is concerned about her students, "as a high-school administrator, I want my students to have access to nutritious food

options that fuel their learning”. Appendix D below prioritizes user needs in the format of the Kano Model.

Quality characteristics could be monitored throughout the co-design process and intervention to evaluate if proposed solutions impacted the existing system. Examples of these characteristics may include number of healthy food options offered in the cafeteria meal, how many sections of adolescent nutrition are taught in health and P.E. classes, etc. Other indicators that the co-design efforts are successful is potentially evaluation student academic performance measures pre versus post intervention. However, this would require further funding and evaluation to create an intervention in addition to the co-design brainstorm session.

### **Design Brief**

Understanding community and user needs in the co-design process allows future efforts or interventions to be tailored to this audience. As children and families of the Burke County Public School system are a valued partner in this process, stories similar to Suzie and Joshua can be heard by other community groups such as the Burke United Christian Ministries or grocery stores who may be able to get involved in the issue of food accessibility for these local children.

Co-designing efforts in Burke County will remain focused on social and community factors that can impact the issue of food insecurity within the public school system of this area. The objective will be to bring various community members with different perspectives into a public meeting space to brainstorm ideas on how to address food accessibility and childhood/adolescent nutrition. As previously mentioned, it will be important to prioritize mutual learning and ensure power dynamics are as equalized as possible. Creating a foundation of these relationships as well as fostering an environment of ongoing communication will be essential to ensuring change is sustainable within the community.

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# APPENDICES

## C3-A: Social and Community Context Rich Picture

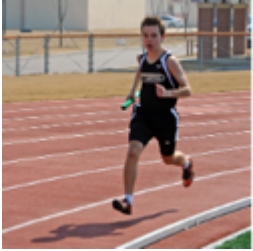


C3-B: Persona Photos

a. Suzie



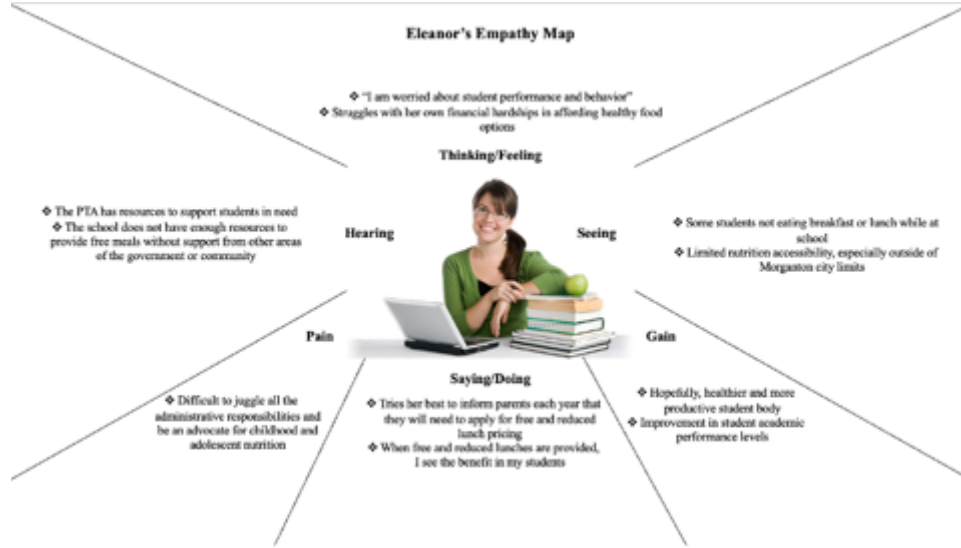
b. Joshua



c. Eleanor



## C3-C: Empathy Map



### C3-D: Kano Model

User	User Story	Need Category
Suzie, 2 <sup>nd</sup> grade elementary student at Drexel Elementary School	"As an elementary student, I want to be able to enjoy my lunch with my friends in the school cafeteria".	Basic
	"As an elementary student, I want to learn easy recipes I can make at home with my parents' help"	Delighter
	"As an elementary student, I want my pantry at home to have multiple snack options"	Performance
Joshua, sophomore track athlete at Robert L. Patton High School	"As a high school athlete, I want to be able to make nutritious food choices".	Basic
	"As a high school student, I want high school athletes to have access to specific nutritious programs in school similar to those present in colleges and universities (i.e., nutrition courses, availability of healthy snacks and drinks for students, etc.)"	Delighter
	"As a high school student, I want my health course to include a section of course content on adolescent nutrition and development"	Performance
Eleanor, high-school administrator at Robert L. Patton High School	"As a high-school administrator, I want my students to have access to nutritious food options that fuel their learning".	Basic
	"As a high-school administrator, I want to improve vending machine and other food options in our school system"	Delighter
	"As a high-school administrator, I want to provide a physical space for families to converse about our cafeteria options and other nutrition-related aspects of our school community"	Performance



### C3-E: Systems 1: Systems Complexity Analysis

#### **Background: Overview of the social and community context within Burke County**

Social determinants are the nonmedical factors that influence and shape an individual's health, well-being, and quality of life they can have (CDC,2022). These determinants have been shown to have a major influence on health status with variation in these determinants accounting for significant health disparities (CDC, 2022; World Health Organization, 2024). A crucial component of the social determinants of health is the social and community context (Healthy People 2030, 2021).

Social and community context refers to the relationships, connections, and interactions existing among family, friends, co-workers, community, and institutions within the settings where people live, play, and work, which can have major impacts on health and well-being (Healthy People 2030, 2021; The Network for Public Health Law, 2020). The institutions could be social, religious, cultural, and occupational and provide the structure to offer the space for a sense of cohesion and connectedness among the members of the community (The Network for Public Health Law, 2020). Thus, for members of the community who are particularly vulnerable and dependent on families and social systems within the community to thrive, such as children, these relationships have a significant influence on health (Healthy People 2030, 2021).

For children to grow properly (physically, developmentally, and cognitively), proper nutrition is required (Feeding America, 2020). However, households with children across the United States experience the worst form of food insecurity (Appendix C; U.S Department of Agriculture, 2023). Additionally, in households where a parent is missing (commonly known as single-parent households), Black and Indigenous families, and rural and immigrant families, there is also a higher burden of food insecurity (Long, 2021; USDA Economic Research Service,

2023). In Burke County, 32.6 % of households with children under 18 are single-parent households (St Louis Fed - Economic Data, 2023). Latino persons are twice as likely to experience food insecurity, and Latino children are twice as likely to face hunger (Feeding America, 2024). The negative impact of lower incomes in these population groups and the effect of weakened family systems have produced poorer outcomes for food security among children under 18 (Appendix D).

North Carolina has a child food insecurity rate of 17.1%, ranking ninth among all states in the country (Stacker, 2022). However, that rate increases in Burke County, exceeding state and national averages (Stacker, 2022). Between 2016 and 2017, there was a 1% reduction in the number of children who lived in households in Burke County, to 21.4% in children who are in Burke County, exceeding state and national averages (Stacker, 2022). Between 2016 and 2017, there was a 1% reduction in the number of children who lived in households in Burke County that were food insecure (from 23.5% to 22.5%) (Stacker, 2022).

The United States relies on public schools to help ensure that children have some form of access to healthy meals (Long & Litvinov, 2021). In the 2019/2020 academic year, K-12 public schools served 29.6 million lunches and 14.77 million breakfasts each day with 75% of those meals being free or reduced price (Long & Litvinov, 2021). School-based programs have contributed to modest reductions in food insecurity; a one percent decrease between 2016 and 2017 (Stacker, 2022). However, to leverage the potential of community connections for even greater impact, a careful look at the nature and range of complex community relations is useful. This will enable a deeper dive into addressing the issue of food insecurity among Children under 18 in public schools living with food insecurity and strengthen the long-term impact of existing strategies.

Addressing food insecurity thrives on the connections and relationships among agencies to ensure success (Long & Litvinov, 2021). This is certainly true in Burke County. The Outreach Center is a community-based non-profit organization in Burke County with a focus on hunger relief especially in children (The Outreach Center, n.d). The Center has successfully utilized the strength of community involvement to address food insecurity (The Outreach Center, n.d).

### **Description of the System and Area of Concern**

#### *The System to promote Food Security in Burke County for Children under 18 in Public Schools*

For the purposes of this project, the particular area of concern is weak community and social support for families. The overarching goal is to provide an enabled social and community context for these families so that obstacles in addressing food insecurity in children under 18 in public schools can be overcome. Food insecurity within Burke County affecting children under 18 within the Burke County Public Schools (BCPS) is a complex/wicked problem. It is characterized as the symptom of another problem and having no immediate solution test. This is evident in the multiple factors such as stigma associated with food assistance programs, social support systems for families, and a culturally competent social service workforce in the county. These factors can impact the prevalence of food insecurity among children of interest.

In recent years, there has been a gradual increase in the population of Hispanic and Hmong families migrating into Burke County (Public Health Accreditation Board, 2023). This population group would mostly present with suboptimal social support systems, experience the most isolation, and have increased risks for experiencing food insecurity as a result. (Artiga & Pham, 2019). Their presence in a new environment with cultural differences and without social networks are likely to pose challenges for community relationships. Moreover, some

undocumented migrant populations who are unable to make use of programs due to fears surrounding deportation may steer themselves and their children into poverty and subsequently food insecurity. In almost every county (across the state), Latinos experience a higher rate of food insecurity than other populations (Feeding America, 2024).

Burke County Public Schools has 26 schools with 11,632 pupils and students, 64% of whom are on free or reduced-priced lunch (Leon, 2022; U.S. News and World Report, 2024). White children constitute the majority (63.8%) whilst Hispanic children constitute the next majority (19.3%) (U.S. News and World Report, 2024). From 2020 till the summer of 2022, school lunch was free for all students in BCPS, courtesy of a federal waiver (Leon, 2022). However, upon expiration, parents were once again responsible for paying for school lunches while the school provided lunch one Friday every month (Leon, 2022). In 2023, BCPS and DHHS worked together to introduce free breakfast and lunch to all students and reduce stigma by eliminating the free meal application (Burke County Public Schools, 2023). Through the collaboration between Burke County Public Schools and the Department of Health and Human Services, such direct services can be provided (Burke County Public Schools, 2023).

With an increasing migrant population who may particularly be fearful of deportation, there is an increased propensity to forgo access to food assistance programs that may require some form of legal documentation. However, for those who may be documented but, in the minority, the challenge may be access to equal opportunities for employment ensuing from language and cultural barriers.

An archetype displayed in this system is success to the successful. With public acceptance and engagement of the current WIC program, more resources are channeled to

promoting the program. However, without a proper acknowledgment of the different cultures within the county, it is possible to overlook the need for food security through an inadequacy of cultural competency among providers in the program.

Across the US and in Burke County, the COVID-19 pandemic resulted in job loss for some parents and caregivers making it challenging to meet basic needs such as food and shelter (Center on Budget and Policy Priorities, 2024). With these compounding expenses at the forefront, families began to experience hunger for the very first time, and school and childcare-based feeding programs were the lifelines in many areas of Burke County (Keith-Jennings et al., 2021). Consequently, a spike was observed in the prevalence of food insecurity and very low food security among US households, particularly in Black and Hispanic families (Appendix B; Appendix C). The consequent shame and risk for anxiety and depression also grew, leading to an increased level of mental illness associated with food insecurity during that period (Fang et al., 2021). In fact, the relative risk of mental illness resulting from being food insecure was almost three times that of losing a job during the pandemic (Fang et al., 2021). The attendant isolation and negative impact on relationships and community creation soared deepening the risk of perceived and actual weakened support systems for those experiencing food insecurity (Wang et al., 2018).

### **The Case for Transformation**

Creating an environment where children and families can thrive is crucial to mitigating food insecurity. From the causal loop diagram (Refer to Appendix A) several entry points for the development of solutions to food insecurity in Burke County can be identified. Each is described below.

- Information flow

Implementing a transformative approach to information flow involves ensuring that accurate and up-to-date information about available resources, programs, and initiatives reaches community partners. This could involve the development of a centralized online platform or mobile application where families can easily access information about food assistance programs, community resources, and nutrition education materials.

Additionally, leveraging data analytics and community feedback mechanisms can help identify areas of need and track the effectiveness of interventions over time to make informed decisions and allocate resources more effectively.

- System Infrastructure

Food assistance programs generally within the county operate individually and are siloed. The anticipated synergy that can be achieved by connecting and increasing the capacity of these programs and the relationships they have with the community can break down the silos and improve food security for the population. At this time, there is not much data on the social and community context in addressing food insecurity in Burke County. Collaboration with families to foster trust is crucial for ensuring that programs are relevant and accessible.

- Organizing Principles

In the recent public health department accreditation, an unmet need identified was that although the local health department had documents on cultural competency training, there was no evidence that all staff had undergone the training (Public Health Accreditation Board, 2023). There is a need for accountability to ensure that staff are prepared to meet the needs of the diverse community within the county through

documented training. Establishing a multi-sectoral task force across the community is particularly important for inclusive participation in documenting and executing of the training. Through the training, effective implementation of strategies to support family systems in a bid to address food insecurity can be sustained..

- Mindsets

Similarly, in terms of mindsets, an awareness of the increasingly diverse culture is imperative to create a culturally competent workforce that can attend to the needs of the dynamic population. Also, reframing and a challenge of assumptions of community partners is required to foster a mindset of empathy and remove biases surrounding food insecurity within the family system. This will slowly but surely reduce food insecurity in families and subsequently children under 18 and create the foundational social support system for families with children; immigrant or otherwise.

### **Insights: Strengths and Limitations Within the System**

From the causal loop diagram, a great leverage point will be developing and increasing awareness of the cultural dimension of food and its relation to the diversifying population in the county. There is a myriad of challenges that directly and indirectly lead to food insecurity in the priority population. However, they all cannot be addressed at once. The county has a firm and open leadership that is willing to support these challenges (Public Health Accreditation Board, 2023). Channeling some of that support will be necessary to garner community support which is crucial in determining the most suitable innovation. Some of the challenges would require financial investment and that may be a limitation.

The diverse organizations working together to provide support for children living in food insecurity are also a great asset to the county. However, the complexity of the issue must be acknowledged, and family systems placed in the forefront in attempting to address food insecurity.



## **Appendix D: Dearing**

### Appendix D1: Social Determinant of Health Analysis

Food insecurity is one aspect of the social determinants of health that relates to access to an adequate and nutritious food supply (NC Department of Health and Human Services, 2023). Poverty and income inequality are the main social determinants of food insecurity. Food insecurity in children means that households do not have enough food for each family member to lead a healthy life (No Kid Hungry, 2022). According to the latest estimates, as many as 13 million children living in the United States live in “food insecure” homes (No Kid Hungry, 2022). According to the NCDHHS, about 10.9% of North Carolina’s population, or 1.2 million people, are experiencing food insecurity (History of the county, n.d.). 25.6% of children in Burke County live in food insecure homes (Jones & Parker, 2013).

In January 2021, a resolution to address food insecurity, states “whereas the North Carolina Association of County Commissioners (NCACC), under the direction of President Ronnie Smith will be leading a task force to address food system, resiliency to help counties take actions to ensure the resources we have are getting to the people in need” (Burke County North Carolina, 2021).

Inequities in food insecurity are based in the unequal distribution and access to an adequate, healthy, nutritious, and reliable food supply. Inequities in food supply can be due to income disparities, geographical disparities, racial and ethnic disparities, educational disparities, environmental factors, among others. Low-income households face many challenges when trying to afford an adequate quantity and quality of food for their families (Feeding America (n.d.)). Food deserts disproportionately affect marginalized and low-income communities (Feeding America (n.d.)). In rural areas, access to grocery stores may be extremely limited, and urban

areas may lack fresh produce (NCDHHS, 2023). 47.9% of Burke County is classified as rural. Marginalized racial and ethnic groups are more likely to experience food insecurity as compared to their white counterparts (Feeding America (n.d.)). Burke county is 81.2% white, 6.7% Latinx, 6.5% Black, non-Hispanic, 3.7% Asian, and 0.9% American Indian (Stacker, 2023). Limited education regarding nutrition can exacerbate food insecurity (Feeding America (n.d.)). There are growing concerns regarding climate change and access to food. These environmental challenges will exacerbate already existing food insecurity, especially in low income and rural communities (World Bank Group, 2022).

### **Geographic and Historic Context – Burke County**

Burke County, established in 1777, is in the state of North Carolina. Burke county is named after Thomas Burke, a delegate to the Continental Congress and governor of the state (1781-1782) (Bangdma, 2006). Burke County has a rich historical background. Burke has been through various social and economic transformations over the years. Geographically, it is in the western part of the state, consists of diverse geography and is in the foothills of the Blue Ridge mountains (2022 Burke Community Health Assessment). Burke county consists of some of the Appalachian Mountains and the Catawba river.

After the civil war, the development of the Southern Railroad through Burke County led to increased contact with the rest of the state and region (Bangdma, 2006). It brought industrial development to the county's smaller communities as well (Bangdma, 2006). Burke county currently has the third largest concentration of state employees in North Carolina (Stacker, 2023).

## **Priority Population**

The focus population, or the priority population, consists of children under 18. We are focusing on children under 18 who have, will, or are experiencing food insecurity in Burke County, North Carolina. Burke county was home to significant events during the revolutionary war and played a role in shaping the development of the region (North Carolina Archives. (n.d.)). Over time, as the economy developed and evolved, the county became a central hub for manufacturing, agriculture, and forestry (North Carolina Archives. (n.d.)).

Despite Burke County's historical context and significance, Burke County faces many challenges, one of which is food insecurity. The physical health of children who face food insecurity is at risk due to inadequate nutrition. Not having sufficient nutrition or access to essential nutrients can lead to malnutrition which compromises growth and development (World Bank Group, 2022). Food insecurity can also hinder children's academic performance (World Bank Group, 2022). The psychological well-being of children who face food insecurity is also at stake (World Bank Group, 2022).

## **Measures of Social Determinants of Health**

The percentage of individuals living under 200% of the Federal Poverty Line (FPL) in Burke County, has remained on average around 42% (Burke County Health Department, 2022). Almost half of the population. The highest percentage of individuals in Burke who live below 100% of the FPL are children aged 5 (Burke County Health Department, 2022). Burke county had a 3.0% unemployment rate, which is lower than the most recent state percentage of 3.9% (Burke County Health Department, 2022). From 2013-2017, 19.6% of residents of Burke County spent 30% or more of their household income on housing costs (Feeding America (n.d.)). The

percentage of those uninsured in Burke County is 12.1% (Burke County Health Department, 2022).

### **Rationale/Importance**

Burke County has various issues relating to the social determinants of health they are working on. One of which is food insecurity, specifically for children under 18. Food insecurity in children means that households do not have enough food for every member of the family to live a healthy life (No Kid Hungry, 2022). Food insecurity in Burke County is a significant challenge, reflecting a greater issue within the community. Many families struggle to provide consistent and nutritious meals for their children due to various economic factors. Numerous factors including limited access to affordable meals and healthy food options, combined with financial constraints, contribute to this alarming situation (Feeding America (n.d.)). Food insecurity can affect children's overall health, outside of immediate hunger. Food insecurity can affect academic performance and long-term well-being (Feeding America (n.d.)). Addressing this issue requires a collaborative effort from the local government, community-based organizations, as well as residents in the county, to implement sustainable solutions that promote a more equitable and healthier future for Burke County's children.

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## Appendix D2: Concentration Deliverable 1 (Leadership)

### **Background**

Social determinants of health are the conditions in which people are born, live, work, age, and grow (Campanera et al., 2023). Social determinants of health have a significant impact on health outcomes, including food insecurity. Several key social determinants influence food insecurity. These factors are income and employment, access to education, housing and neighborhood conditions, social support networks, racial and ethnic disparities, healthcare access, and policy and government support (Campanera et al., 2023).

Low income, unstable employment, or lack of employment can make it difficult for families and individuals to afford an adequate supply of nutritious foods (Campanera et al., 2023). Individuals living in poverty often deal with difficulties facing trade-offs between paying for necessities and paying for food. Limited education can have an impact on job opportunities and earning potential. This can lead to financial constraints which contribute to food insecurity. Access to education can also influence one's knowledge about nutrition, budgeting skills, and meal planning. Individuals living in neighborhoods with limited access to grocery stores, food pantries/farmers markets, and affordable healthy food options may experience barriers in their search for nutritious foods. Food deserts, characterized by a lack of nearby grocery stores, can exacerbate food insecurity, particularly in rural areas (Campanera et al., 2023). Social isolation and lack of support can also increase one's vulnerability to food insecurity (Campanera et al., 2023).

Racial and ethnic minorities are disproportionately affected by food insecurity (Odoms-Young & Bruce, 2018). This is due to systemic inequalities which include employment discrimination, limited access to quality healthcare and education, and housing segregation.

Structural racism contributes to the disparities we see in income, food access, and wealth which further perpetuates cycles of poverty and deprivation (Odoms-Young & Bruce, 2018).

Limited access to healthcare services can exacerbate food insecurity (Campanera et al., 2023). This can look like limited access to preventative care, mental health support, and chronic disease management. These factors can increase food insecurity by increasing healthcare expenses causing reduced savings, usually budgeted for food purchases. Government policies and programs play critical roles in addressing food insecurity. These programs can help low-income individuals and families. Programs such as SNAP (Supplemental Nutrition Assistance Program), WIC (Special Supplemental Nutrition Program for Women, Infants, and Children), and school meal programs can help alleviate food insecurity by providing access to healthy, and nutritious foods for these vulnerable populations (Insolera et al., 2022).

Addressing the social determinants of health is an essential part of effectively reducing food insecurity and promoting health equity (Campanera et al., 2023). By implementing policies and interventions that address these underlying systemic issues such as poverty, education disparities, unemployment, and structural inequalities, communities can foster environments that support access to affordable and nutritious foods for all residents of Burke County, North Carolina.

**Partnership:**

*Burke United Christian Ministries (BUCM):* Located in Morganton, North Carolina, BUCM operates food pantries and provides emergency food assistance to families and individuals in need throughout Burke County (Hunger relief: Burke United Christian ministries). BUCM may hold considerable influence within the community. This is due to their longstanding

presence in the community and their reputation for providing essential services, including food assistance, to families and individuals in need. As a faith-based organization, BUCM may also have strong connections with local churches, donors, and volunteers. This can enhance their capacity to mobilize resources and support for food insecurity initiatives.

*Burke County Public Schools:* Partnering with the local school district can help provide opportunities to address childhood hunger. This can be done through backpack programs (providing food for weekends and holidays), school meal programs, and summer meal programs for students who rely on school provided meals throughout the academic year (Hanson & Connor, 2017). Burke County Public Schools serve as a key institutional partner in addressing food insecurity among students and their families. The school district holds considerable influence in shaping policies, programs, and interventions to address hunger and promote nutrition education within the community. This is due to their access to a wide network of families, students, and staff.

*Local Farmers and Farmers' Markets:* Partnering with local farmers and farmers' markets can increase access to locally grown and fresh produce for residents experiencing food insecurity. Local farmers play a critical role in promoting food security. They can help supply fresh, locally grown produce to residents in Burke County. While farmers may have a more limited organizational power as compared to other larger institutions, they can provide valuable expertise, resources, and agricultural knowledge. This can help to contribute to sustainable food production, distribution, and access initiatives.

*Faith-Based Organizations:* churches and religious organizations in Burke County actively engage in efforts to address food insecurity. They do this by operating food pantries,



supplying community meals, and outreach programs. Partnering with faith-based organizations in Burke County can expand our outreach effort and provide additional support to vulnerable populations.

*Healthcare Providers and Community Health Organizations:* Healthcare professionals and community health organizations are essential in addressing food insecurity. By collaborating with healthcare providers, families and individuals facing food insecurity can be supported through screenings, referrals, and health education. Hospitals, clinics, and community health centers have a role in tackling food insecurity as part of efforts to enhance health outcomes and reduce disparities. Leveraging their expertise, patient data, and community health assessments, healthcare providers can advocate for policy changes and screen patients for food insecurity and connect them with food assistance programs and social services.

By fostering partnerships and collaborating with these organizations and community partners, we can leverage resources, expertise, and community support to develop holistic approaches in addressing food insecurity in Burke County, North Carolina. Collaboration and collective action are essential in creating sustainable solutions and promoting food access and security for all residents of Burke County.

When it comes to power dynamics each community partner will bring their strengths, resources, and viewpoints. These factors play a role in shaping how collaboration unfolds and impacts the decision-making processes within the coalition. Some organizations may hold power or financial resources while others may rely on grassroots support and community ties. To effectively navigate power dynamics and foster fair partnerships it's crucial to prioritize communication, mutual respect and collective decision making among all partners involved. By

acknowledging and appreciating the contributions of each party the coalition can harness their combined strengths to create inclusive, sustainable solutions that address the underlying issues of food insecurity and advance justice, in Burke County, North Carolina.

### **Accountability**

Establishing accountability with the community partners is crucial for ensuring effective communication and collaboration while working towards achieving shared goals in addressing food insecurity in Burke County, North Carolina. To establish accountability, we must clearly define each party's roles, responsibilities, and expectations. This would include developing a written agreement, or a memorandum of understanding (MOU), outlining the specific commitments, deliverables, and timelines for action. Accountability can be established by maintaining open lines of communication with each partner. This can be done through holding regular meetings and providing updates and progress reports. Additionally, data collection and monitoring must be created. We must implement systems for collecting, analyzing, and monitoring data related to food insecurity, program outcomes, and community impact indicators. The team can track key performance metrics such as food distribution rates, participant satisfaction, and nutritional outcomes to evaluate progress and identify areas for improvement.

### **Vision and Goals for success**

The vision is to create a burke county where every individual in the community has access to nutritious food. To foster a community where hunger is eliminated, and all residents thrive. The goals include expanding and increasing access to nutritious foods for individuals and families facing food insecurity. The goal is to expand the reach of food pantries, food banks, and community gardens. This can be done by working with farmers, food suppliers, and local

businesses to secure a more sustainable and diverse supply of essential food items and fresh produce.

Additionally, another goal is to concentrate on educating and engaging the community. This involves teaming up with schools, religious institutions, and community hubs to create educational material, and workshops. Another objective is to advocate for changes in policies related to the issue. The aim is to push for policy alterations at state and national levels to tackle underlying problems contributing to food insecurity such as joblessness, poverty and inadequate social safety nets. This would involve working with community leaders, lawmakers, and advocacy organizations to advance our objectives and vision. One suggested action is securing funding for programs like the Supplemental Nutrition Assistance Program (SNAP) and school meal initiatives. It is also crucial for the team to introduce efforts that encourage food practices like community gardens programs reducing food wastage and urban agriculture projects. Collaboration and forming partnerships lie at the heart of our goals and endeavors in this project. The team will strive towards establishing connections with government bodies, businesses, nonprofit organizations, and faith-based groups to combine resources effectively for impact.

Lastly, the team must establish robust monitoring and evaluation systems to track the progress of these initiatives towards reducing food insecurity. This could include analyzing metrics such as nutritional outcomes, food distribution rates, and community engagement levels. The team should solicit feedback from the community to constantly improve services and adapt practices based on the evolving needs and priorities of the community. By pursuing these goals and striving to embody the visions of the group, they can work towards alleviating food insecurity in Burke County, while building a stronger community

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## Appendix D2-A: Memorandum of Understanding

Memorandum of understanding:

Subject: Addressing Food Insecurity in Burke County, North Carolina

Date: 2/13/2024

Parties:

- 1.
- 2.
- 3.
- 4.
- 5.

### **Background:**

### **Purpose:**

The purpose of this MOU is to formalize partnerships with the undersigned parties in order to implement effective initiatives and strategies to work to alleviate food insecurity in Burke County, North Carolina, and to improve access to nutritious and affordable food for every resident.

### **Terms of Agreement:**

- Collaborative planning: Each party agrees to collaborate in the development and implementation of strategies and programs to address food insecurity in Burke County.
- Program Implementation: Each party shall contribute to the implementation of initiatives outlines in the engagement plan, thus leveraging their respective strengths, skills, and resources.
- Resource Sharing: Each party agrees to share resources, expertise, and information to optimize the impact of initiatives addressing food insecurity.
- Evaluation and monitoring: Each party shall establish mechanisms to evaluate the effectiveness of the initiatives and monitor the progress towards shared goals and objectives.

### **Amendments:**

Any amendments to this MOU shall be done in writing and signed by each party.

### **Signatories:**

[party 1] [Date]

[party 2] [date]

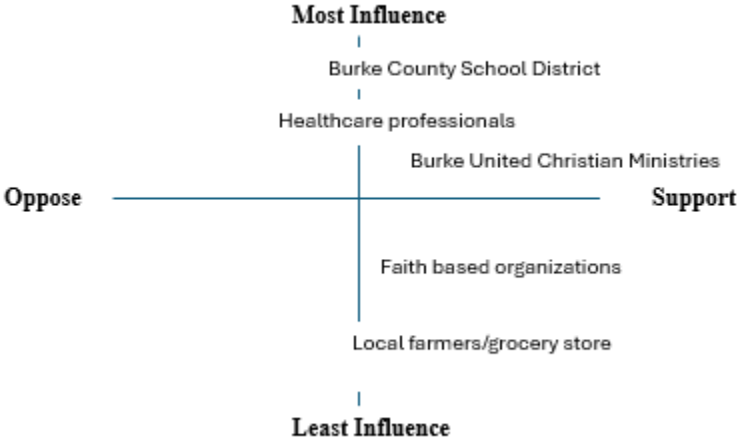
[party 3] [date]

Etc...

Appendix D2-B: RASCI Analysis/Matrix

RASCI Levels	Project Goals		
<b>Who is...</b>	<b>Goal #1:</b> Establish community gardens, urban farms, and agricultural cooperatives to increase access to fresh produce.	<b>Goal #2:</b> Improve food access and equity by expanding distribution networks and increasing the availability of nutritious food options.	<b>Goal #3:</b> Build food literacy and promote healthy eating behaviors through comprehensive education, culinary skills training, and nutrition education programs for individuals and families
<b>Responsible</b>	BUCM, Local farmers	Local farmers, local grocery stores, faith-based organizations	Burke County School District, local farmers
<b>Accountable</b>	Local farmers	Local farmers, local grocery stores	Burke County School District
<b>Supportive</b>	Burke County Public Health Department Burke County School District	Burke County Public Schools, Faith Based Organizations,	Burke County School District, families
<b>Consulted</b>	school district, local farmers	Burke County School District, Local farmers and grocery stores	School District, local farmers, health care providers
<b>Informed</b>	Children and families	Children and families	Children and families

Appendix D2-C: Stakeholder Matrix





### Appendix D3: Concentration Deliverable 2 (Policy)

Household food insecurity and other social determinants of health (SDOH) are increasingly recognized as playing key roles in etiologies and prevention of obesity and other chronic diseases, particularly impacting disproportionately burdened populations (Woo et al., 2022). *Healthy people 2030* discusses how an individual's relationships and interactions with family, friends, colleagues, coworkers, and members of the broader community impact one's health and wellbeing (Office of Disease Prevention and Health Promotion, 2020). The social and community context of where someone lives, works, plays, grows, and ages is important to understand in working towards creating an equitable and fulfilling life for all (Office of Disease Prevention and Health Promotion, 2020). Challenges in social relationships, or within the community, may impact one's health and safety (*Food Insecurity*, n.d.). This includes factors such as living in an unsafe neighborhood or household, experiencing financial insecurity in affording basic needs and necessities, as well as experiencing discrimination (Office of Disease Prevention and Health Promotion, 2020). The specific determinant of health related to social and community context we are focusing on is food insecurity in children under 18 in Burke County, North Carolina. Food insecurity is when people cannot access the foods, they need to live their fullest lives (*Food Insecurity*, n.d.). Food insecurity is influenced by numerous factors such as income, employment, race/ethnicity, and disability (Food Insecurity, n.d.). Children impacted by food insecurity are at an increased risk of negative health outcomes (*Food Insecurity*, n.d.). Economic instability and high poverty rates contribute significantly to food insecurity in Burke County. Inadequate access to grocery stores, fresh food retailers, and supermarkets in rural and low-income neighborhoods contribute to food insecurity. Limited access to nutritious food exacerbates health disparities, particularly among vulnerable populations such as children,

seniors, individuals with disabilities, and those with chronic health conditions (Hartline-Grafton & Hassink, 2021). Social isolation, lack of social support networks, and stigma associated with seeking food assistance may prevent individuals and families from accessing available resources (Hartline-Grafton & Hassink, 2021). Strengthening social connections and building community resilience while reducing stigma around food insecurity through advocacy, outreach, and peer support can help individuals overcome barriers to accessing nutritious food and supportive services.

The first policy option to reduce food insecurity in Burke County, North Carolina, is to implement a mobile food market program. It would be driven to areas based on need, on a regular basis, providing access to fresh produce and other grocery items. This would be a local level policy. The first step would be to allocate funding. Funding and resources are necessary to purchase and retrofit vehicles for use as mobile food markets. The implementation team would collaborate with local farmers, food distributors and community organizations to source nutritious and affordable food products. The team would establish designated stops in rural and urban communities based on need and accessibility. Then, they would conduct outreach and promotional campaigns to raise awareness, as well as regularly evaluating effectiveness through regular assessments and community feedback, adjusting routes as needed. One advantage is that mobile food pantries can provide immediate relief to children and families facing food insecurity. Offering access to fresh and nutritious food items at convenient locations throughout the community (Villa et. al., 2022.). Mobile food pantries can help reach underserved rural areas and communities facing limited transportation options. This can help bridge the gap between food resources and vulnerable populations (Villa et. al., 2022.). One disadvantage is that sustaining this type of program requires ongoing funding, logistical support, and coordination

among various community partners. This may pose a challenge in resource-constrained environments.

The second policy option is to implement a food recovery and redistribution policy to divert the excess and surplus food from grocery stores, restaurants, institutions, and farms towards local food banks, shelters, community organizations, among other means, serving individuals and families in need. To implement this, one would need to enact legislation or local ordinances to provide liability protection for food donors. As well as establish guidelines for safe handling and distribution of recovered food. The implementation team would create a centralized “hub” or network to facilitate the collection, distribution, and storage of surplus food to community partners and organizations. The team would need to invest in refrigeration, storage facilities, and transportation infrastructure. This is necessary to maintain the quality and safety of recovered food during storage and transportation. It is important to develop and create partnerships and agreements with food donors, recipient agencies, and volunteers. This is needed to streamline the food recovery process and ensure efficient operations. An advantage to this policy is, collaborations with local businesses, schools, and nonprofit organizations can facilitate the collection, distribution, and storage of surplus food items, maximizing resource utilization and community resilience (Mousa & Freeland-Graves, 2017). By redirecting edible food that would otherwise be discarded, food recovery initiatives can increase the availability of nutritious food options for food insecure households, fostering food security and wellbeing (Mousa & Freeland-Graves, 2017). A disadvantage is that coordinating logistics, storage facilities, and transportation networks for food recovery and redistribution efforts requires ongoing investment, infrastructure development, and regulatory compliance, which may strain limited organizational capacity and financial resources (Mousa & Freeland-Graves, 2017).

The third policy option is to establish a community garden in Burke County, North Carolina. This policy initiative aims to establish a community garden(s) to address food insecurity and promote community engagement, education, and sustainable food practices. This garden would help provide residents access to fresh, nutritious produce, all while fostering social connections and enhancing neighborhood resilience. First, the team would need to conduct a comprehensive assessment of local food access, community resources, and resident interest to identify garden locations to prioritize areas with the greatest need. The team would then collaborate with community partners and residents to garner support and gather input in building partnerships for this initiative. Then, funding and resources would be needed to develop essential infrastructure. Including raised beds, composting, irrigation systems, fencing, storage, and signage to support the garden and ensure accessibility. Implementing mechanisms for ongoing monitoring, evaluation and feedback will be necessary in assessing the impact of the garden on food access, social cohesion, and environmental stability, to inform continuous improvement efforts. One of the greatest advantages of the community garden, besides providing food for residents, is social cohesion. Gardening fosters social connection, intergenerational relationships, and community pride. It promotes a sense of belonging and collective ownership in a shared public space (Carney et al., 2011). One disadvantage would be the intensive need for time and labor from residents or volunteers. Establishing and maintaining a community garden requires significant time and labor, as well as volunteer commitment. Which may pose barriers to participation for individuals with limited mobility, resources, or expertise.

The goals of this project are to promote food justice and equity, enhance food system resilience and sustainability, foster social cohesion and collective action, promote food literacy and healthy eating habits, and advance equitable and just food policies. The first goal, promote

food justice and equity, centers equity. The goal's objective is to ensure fair and equitable access to nutritious food for all members of the community, regardless of socioeconomic status, race, ethnicity, or geographic location. This will be done through advocating for policies and programs that address systemic inequalities, structural barriers to food access, and discrimination. The second goal, to enhance food system resilience and sustainability, relates to resources. The objective of this goal is to build resilient and sustainable food systems that will optimize resource efficiency and minimize waste while adapting to environmental changes, shocks, and disruptions. The strategy is to invest in local food production, distribution, and infrastructure, while promoting regenerative agricultural practices, water conservation, soil health, and renewable energy technologies to mitigate climate change and ensure long term food security.

A mobile food market can promote food justice and equity by increasing community access to healthy and nutritious foods, targeting its outreach towards vulnerable populations, while honoring cultural diversity, and ensuring affordability, while empowering communities and fostering partnership and collaboration among community partners. By addressing the social determinants of health and inequities in the food system, mobile markets contribute to building more resilient, inclusive, and equitable communities where everyone can thrive. Food redistribution practices can enhance food system resilience and sustainability in several ways. Implementing food distribution practices that prioritize efficiency, sustainability, equity, and community engagement can enhance food system resilience by reducing waste, diversifying distribution channels, improving supply chain performance, enhancing food security, and promoting sustainable consumption patterns, while empowering communities to build more resilient, equitable, and sustainable food systems. Implementation of food distribution practices also best advance equitable food practices by redistributing food to those who need it most.

Community gardens most effectively foster social cohesion and collective action by providing a shared space for residents to work towards a common goal, engage in collaboration, exchange knowledge, celebrate cultural diversity, participate in social events and activities, and advocate for systemic change. By nurturing social connections, promoting community resilience, and empowering community members, community gardens can play a vital role in addressing food insecurity and building stronger, healthier communities.

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Appendix D3-A: Policies and Goals

**Table 1:**

	<b>Goals:</b>				
<b>Policies:</b>	Promote Food Justice and Equity	Enhance Food System Resilience and Sustainability	Foster Social Cohesion and Collective Action	Promote Food Literacy and Healthy Eating Habits	Advance Equitable and Just Food Policies
Mobile Food Market	<i>1st</i>	<i>3rd</i>	<i>3rd</i>	<i>2nd</i>	<i>3rd</i>
Community Garden	<i>3rd</i>	<i>2nd</i>	<i>1st</i>	<i>1st</i>	<i>2nd</i>
Food Redistribution	<i>2nd</i>	<i>1st</i>	<i>2nd</i>	<i>3rd</i>	<i>1st</i>



## **Appendix E: Nette**

### Appendix E1: Social Determinant of Health Analysis

#### **Social Determinant of Health: Social and Community Context**

Our team chose the overarching Social Determinant of Health category of “Social and Community Context.” This category is one of the five key areas of SDOH listed by Healthy People 2030. This area highlights how people’s relationships and interactions with family, friends, co-workers, and community members impact their health and well-being. Additionally, other social issues such as unsafe neighborhoods, discrimination, or exposure to violence in the home or community can all have short and long-term physical and psychological effects, particularly in children and adolescents (Office of Disease Prevention and Health Promotion, n.d.)

The specific issue within this context that our team chose focuses on the Healthy People 2030 goal of eliminating very low food security among children. The U.S. Department of Agriculture defines very low food security as “food insecure to the extent that eating patterns of one or more household members were disrupted and their food intake reduced, at least some time during the year, because they could not afford enough food” (USDA, n.d.). Our team will limit our focus to children and adolescents under 18 who attend Burke County Public Schools in North Carolina. We will address this issue through a social and community context lens as we research it. Similar SDOHs, such as neighborhood and built environment and economic stability, will be excluded as they are not our team’s area of focus.

Food insecurity among children can have profound short- and long-term health impacts. The consequences of very low food security are multifaceted and affect health's physical, mental, and social domains. There are multiple short-term impacts. These include nutritional deficiencies

(Gunderson & Ziliak, 2015), physical health problems, and psychological stress (Ashiabi, 2005). The long-term impacts include chronic health conditions, impaired academic performance, behavioral problems (Slopen, Williams, & Gilman, 2010), and mental health issues (McLaughlin et al., 2012).

### **Geographic and Historical Context**

Burke County, located in Central North Carolina, just east of Asheville, has a rich history reflective of the story of American settlement and development of the United States. Before being settled by the Europeans, Burke County was inhabited by the Mississippian culture of Native Americans. Two centuries after being settled by the Europeans, Burke County was formed in 1777 and named after Thomas Burke. The county initially covered much of Western North Carolina but was later divided to form additional counties. After the Civil War, Burke County became known for its agricultural and manufacturing economy after the arrival of the Southern Railroad spurred population growth and industrial development in the area (About Burke County, n.d.)

As of the 2020 census, the population of Burke County was 87,570 people. Morganton is the county seat. In 2021, Burke County had 13 times more White (non-Hispanic) residents than any other race or ethnicity (U.S. Census Bureau quickfacts: Burke County, North Carolina, n.d.). The county has a total area of 514 square miles. Burke County is home to the western campus of the North Carolina School of Science and Mathematics and Western Piedmont Community College. A thriving tourism industry is driven by the charm of growing downtowns and abundant natural lakes, rivers, forests, mountains, and protected parklands such as Lake James State Park and the Pisgah National Forest (About Burke County, n.d.).

In 2015, statistics from the UNC School of Government indicated that 25.6% of children in Burke County lived in food-insecure homes. Of the children eligible for free and reduced-price school meals, only 77% received lunch, 36% received breakfast, and only 5% received free summer meals (Food Insecurity Statistics in NC, n.d.). Underutilization of existing programs like free school meals is a significant problem. The North Carolina Department of Health and Human Services (NCDHHS) has developed a Nutrition Security Action Plan to increase the reach of nutrition programs statewide. Additionally, the More in My Basket Program assists families in Burke County by helping them apply for the Food and Nutrition Services program North Carolina Department of Health and Human Services State Action Plan Nutrition Security 2023-2024, n.d.).

### **Priority Population**

Our priority population is children and adolescents less than 18 years of age who attend Burke County Public Schools. According to a 2019 Burke County Community Health Assessment report, 26.7% of people in Burke County are under 18, and the U.S. Census Bureau states that 12.6% of all residents living in Burke live in poverty (About Burke County, n.d.). While there is no current data on the number of households with children in Burke County experiencing very low food insecurity, we do know that 25.6% of children live in food-insecure homes (Food Insecurity Statistics in NC, n.d.).

### **Measures of SDOH**

According to the 2023 County Health Rankings for Burke County, 16% of the population is considered food insecure. According to the NCDHHS, 10.9% of the general population of North Carolina experiences food insecurity (NCDHHS, n.d.). This disparity may be due to

limited public transportation in the area and how rural the area is, which limits access to affordable, fresh, and healthy foods. The same County Health Ranking discusses that this lack of accessibility to fresh foods is a priority issue. Our team hopes that by evaluating students within the public school system, we may find more data on food insecurity levels within the county and also may understand current policies and strategies in a social and community framework that can be improved upon.

### **Rationale/Justification**

Nutrition security is defined by the United States Department of Agriculture (USDA) as meaning “all Americans have consistent and equitable access to healthy, safe, affordable foods essential to optimal health and well-being.” According to the USDA, nutrition security is an emerging concept focusing on equity, complementing ongoing efforts to increase food security. There is significant room to improve nutrition, as the Centers for Disease Control and Prevention (CDC) has found that most Americans do not eat the recommended number of fruits and vegetables, and vitamin and mineral deficiencies are highly prevalent. Across the country, households with children experienced food insecurity at a higher rate than households without children (12.5% vs 9.4%, respectively) (NCDHHS, n.d.).

Structural racism is another social and community issue in which the United States Department of Agriculture (USDA) states increases food insecurity and the risk of diet-related chronic diseases for historically underserved populations. Improving nutrition security also promotes health equity (USDA, n.d.). Food insecurity, and especially very low food security, have significant detrimental effects on children’s health and well-being. This level of food insecurity can lead to lower academic performance. Ensuring food security for children under 18

may lead to better educational outcomes for the youth of Burke County. By addressing the problem, we can improve children's overall health and potentially bridge the gap in health disparities within this SDOH. Addressing this issue through the lens of a social and community context is an upstream approach that is a proactive step to prevent further health problems. Preventing disease through proper nutrition is much more cost-effective than treating the diseases that this public health issue creates. By addressing this issue for children, we can hope to develop healthy, successful adults who can thrive in Burke County. Our team will examine the multiple social and community determinants that contribute to very low food insecurity among our priority population and work on solutions to how these determinants may be used as protective factors in Burke County.

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## Appendix E2: Concentration Deliverable 1 (Policy)

### **Analysis of Policy Factors that Affect Food Insecurity Among Children Under 18**

#### **Who Attend Burke County Public Schools in the Social and Community Context**

Several policies at the federal and state levels, as well as local government and individual school levels, directly and indirectly affect the issue of food insecurity among children under 18 who attend Burke County Public Schools in North Carolina. These broader scope policies, also called “Big P policies,” are often legislative or regulatory. On the other hand, “little p policies” are often less formal and more subtle in their implementation. These policies may be community organization guidelines or school policies. While not as broad-reaching as Big P policies, Little P policies can be equally influential in shaping outcomes.

These policies will be discussed through the lens of the social and community determinants of health (SDOH) context. The social and community SDOH context is one of five key areas listed by Healthy People 2030. This area highlights how people’s relationships and interactions with family, friends, co-workers, and community members impact their health and well-being. Additionally, other social issues such as unsafe neighborhoods, discrimination, or exposure to violence in the home or community can all have short and long-term physical and psychological effects, particularly in children and adolescents (Office of Disease Prevention and Health Promotion, n.d.)

#### **Policy Impacts**

In 2023, the North Carolina Department of Health and Human Services (NCDHHS) established the State Action Plan for Nutrition Security. This multi-pronged strategy includes related goals from the NC Early Childhood Action Plan, Healthy North Carolina 2030, the State Health Improvement Plan, and the NCDHHS Strategic Plan 2021-2023. This policy directly

affects food insecurity among our priority population in the social and community determinants of health (SDOH) context. One strategy of the State Action Plan for Nutrition Security focuses on growing the NCCARE360 network by adding more community-based organizations (CBOs). NCCARE360 is a statewide network that unites healthcare and human services organizations and identifies unmet social needs, enabling a coordinated, community-oriented approach for delivering care in North Carolina. It was developed in 2019 to address the social drivers of health in all 100 counties of North Carolina. There are two specific milestones of this strategy that directly impact our priority population. The first is to onboard K-12 school systems/districts to NCCARE360 to respond to needs worsened by COVID-19 and to link students and their families to community resources and services that address identified unmet needs. The second milestone is to onboard childcare centers to NCCARE360 as part of a Preschool Development Grant (NCDHHS, n.d.).

The State Action Plan for Nutrition Security is an example of a big P policy as it was created by the NCDHHS which is part of the state's federally mandated, state-supervised, county-administered social services system. Although this policy directly impacts our priority population, it is a broad-reaching plan that affects all North Carolinians. There is currently no data on the effectiveness of this plan or if it has worsened the problem, but the overarching goal is to leverage North Carolina's robust network of community partners who connect residents to services. These activities are grounded in metrics and milestones designed to decrease hunger and food insecurity in North Carolina's children and adults (NCDHHS, n.d.).

An example of a little p policy that directly impacts our priority population is the Community Eligibility Provision that was adopted in 2023 by the Burke County Public School (BCPS) system. Because BCPS is in a high-poverty area, under this provision, all BCPS students



are eligible to receive breakfast and lunch for free from their school cafeteria. This policy has the potential to reduce the stigma of BCPS students who receive free or reduced-price lunches and lessen any discrimination as a result. This is a prime example of how this policy directly affects our public health issue in the social and community context (BCPS, n.d.).

## **Policy Environment**

Burke County is governed by a five-member Board of Commissioners who serve four-year terms. The Board's 2023 to 2024 strategic goals have five focus areas: Community Advancement, Economic Growth, Public Safety and Well-Being, Fiscal Stewardship, and Employer of Choice. As our chosen SDOH focuses on the social and community context, I think discussing the community advancement and public safety and well-being focus areas when pitching policy options to the County Commissioner would be wise. I believe both policies discussed previously would not be too controversial as enrolling CBOs in the NCCARE360 program isn't partisan by nature, and the Community Eligibility Provision allows BCPS schools to receive federal funding for free meals. There may be some concern as the eligibility requirement for the Community Eligibility Provision is that the school district must be in a high-poverty area. I think this status is something that the County Commissioner may want to change and, therefore, may disrupt the ability of schools to receive this funding in the future (Burke County, n.d.)

The policies influencing food insecurity in children attending Burke County Public Schools reflect a complex policy environment where both broad and targeted initiatives intersect. The introduction of the State Action Plan for Nutrition Security by the North Carolina Department of Health and Human Services exemplifies a systemic, 'Big P' approach to weaving a

safety net through the NCCARE360 network. This network's expansion, particularly the onboarding of K-12 school systems and childcare centers, is a pivotal move to mitigate the cascading effects of COVID-19, addressing not only immediate nutritional needs but also long-term social determinants of health (NCDHHS, n.d.) On the micro-level, the 'little p' policy implemented by the Burke County Public Schools via the Community Eligibility Provision offers a strategic, more immediate remedy to food insecurity. By eliminating the lunch line divide, this policy ensures that every child has access to nutritious meals and serves as a social equalizer, potentially removing stigma and fostering inclusivity within the school environment (BCPS, n.d.)

When considering these policies' integration into the local policy environment, aligning them with the Burke County Commissioners' strategic goals is crucial. The community advancement and public safety and well-being focus areas resonate with the objectives of both the State Action Plan and the Community Eligibility Provision. However, while presenting these policies to the County Commissioner, one must navigate the delicate balance between addressing current needs and the long-term vision for the county's growth and prosperity. The commissioners' ambition to transition from a high-poverty designation may pose a risk to the sustainability of the Community Eligibility Provision. Advocating for these policies requires a nuanced approach emphasizing the immediate benefits and their role in fostering a resilient community capable of nurturing its youth and securing its own socio-economic future.

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## Appendix E3: Concentration Deliverable 2 (Engagement)

### **Overview of the SDOH and County Context**

In Burke County, North Carolina, the critical Social Determinant of Health (SDOH) of "Social and Community Context," as defined by Healthy People 2030, demands urgent focus and action. This SDOH underlines the significant effect of interpersonal relationships and community ties—encompassing family, friends, co-workers, and broader community networks—on health outcomes (Office of Disease Prevention and Health Promotion, n.d.). Within this scope, the challenge of very low food security among children stands out as a pressing issue. This condition, where families cannot afford enough food, leading to disrupted eating patterns, profoundly affects children's physical, mental, and social well-being (U.S. Department of Agriculture, n.d.). The statistics reveal a concerning picture in Burke County: 25.6% of children under 18 live in food-insecure homes, exacerbating academic and health challenges (Food Insecurity Statistics in NC, n.d.; Gundersen & Ziliak, 2015; McLaughlin et al., 2012). Addressing food insecurity within the county's public school system emerges as a priority, aiming not only to meet immediate nutritional needs but also to confront broader SDOH issues in the social and community context, such as educational disparities, health inequities, and poverty, thereby emphasizing the need to prioritize SDOH for fostering a healthier, equitable community (About Burke County, n.d.; Ashiabi, 2005; Slopen et al., 2010).

### **Introduction**

Food insecurity significantly impacts children in Burke County, necessitating a comprehensive engagement plan that leverages community partnerships for systemic change. This strategy outlines a collaborative approach to engaging our key partner, Burke County Public Schools, in addressing food insecurity within the social and community contexts of social

determinants of health (SDOH). Understanding and recognizing the interconnectedness between food insecurity and social and community contexts is important. Some ways they are correlated include social support networks, stigmas, social norms, community engagement, and participation (Healthy People 2030 – Food Insecurity, 2024).

### **Purpose**

Engaging community partners is critical to changing our prioritized SDOH, food insecurity, in the social and community context. Community engagement is essential for enacting sustainable, systemic changes that support the health and well-being of children in Burke County. By focusing on collaboration, we can address the multifaceted nature of food insecurity, ensuring a holistic approach to community health (Doustmohammadian et al., 2022).

### **Priority Partner: Burke County Public Schools**

The Burke County Public Schools (BCPS) system is pivotal in addressing food insecurity among our priority population. The BCPS system directly influences social and economic factors, education, literacy, and community engagement. With funding and programs already in place to address food insecurity, the Burke County Public School system is the best partner to engage with to make the biggest impact. Their position allows them to implement school-based programs directly affecting children's access to nutritious food, making them a key partner in this initiative. We plan to partner with school administrators and officials within BCPS to address the issue. Specifically, the BCPS Child Nutrition Director will be our key partner within the BCPS administration. The Child Nutrition Director is well-versed in the nutritional requirements of students within the school district as defined by local and federal guidelines. Additionally, they are knowledgeable about the current resources at the disposal of the school system to address food insecurity. It is their responsibility to guarantee that the BCPS efficiently utilizes its

resources to meet the nutritional needs of its students while adhering to regulatory standards. Their unique role allows them to leverage programs, influence policy supporting food security initiatives, and connect with community partners, such as food banks and local farms. They also have current data on the school district that can help us assess needs and measure the impacts of our efforts (Nutrition Staff, 2024).

### **Engagement Barriers**

Several potential challenges could impede the BCPS engagement in initiatives to address food insecurity. Firstly, BCPS officials and administrators must be aware of the severity of food insecurity in their district and feel empowered to effect change. To ensure they are both informed and motivated, it will be necessary to establish ongoing, clear communication that emphasizes the school board's critical role in this issue (Cyril et al., 2015). Secondly, communication barriers must be overcome. Misunderstandings arising from different communication styles or language barriers can undermine cooperative efforts between our organization and the school board. Effective, culturally sensitive communication strategies must be developed to facilitate clear understanding and collaboration (Rimal & Lapinski, 2009). Lastly, mistrust among partners can impede efforts to address the SDOH collaboratively (Hatton et al., 2024).

### **Facilitators**

Several facilitators could positively influence the BCPS engagement with initiatives to mitigate food insecurity. Collaborative decision-making with the school board is essential for the alignment of objectives and for fostering a trustworthy partnership. In addition, equipping the BCPS with adequate resources, including funding, staff, and training, will empower administrators and reinforce the value of their involvement. This support assures them that their efforts are achievable and critical to the initiative's success. Lastly, a realistic time frame for

meeting objectives will give partners a clear vision for the future (Weiss et al., 2016). These strategic efforts will positively impact their active participation and support the overarching goal of addressing food insecurity within the community.

### Engagement Methods

Engagement Method	Related Facilitator(s) / Barrier(s)	Timing
Needs Assessment Workshop (Group Collaboration)	Awareness, Aligning Objectives, Data	Design
Community Focus Group (Group Collaboration)	Awareness, Communication, Aligning Objectives, Transparency, Data	Improve
Training and Capacity Building (Group Inform)	Awareness, Communication, Aligning Objectives, Funding/Resources/Training	Sustain/Scale

These three engagement methods will address the barriers and leverage the facilitators to garner engagement from the BCPS. The first method, the Needs Assessment Workshop, will occur between key stakeholders such as parents, the Burke County Health Department, and the Child Nutrition Director to raise awareness of the problem, provide data on food insecurity specific to children in Burke County, and align objectives for the project. This method will be performed in the “design” phase before implementing the program. This systematic method will identify our priority population's unmet food insecurity needs (Bajin, 2008). The second method, Community Focus Groups, will occur during the “improve” phase (or approximately one year into the project) and will be a collaborative effort with students, parents, BCPS administrators, and other key stakeholders to provide qualitative insights and quantitative data on the

effectiveness of the program. Lastly, during the “sustain/scale” phase, we plan to engage with BCPS administrators by providing continued education and capacity-building resources to continue the program in the long term.

## **Conclusion**

This engagement strategy outlines a comprehensive approach to addressing food insecurity among Burke County Public Schools children. By focusing on collaborative efforts with priority partners, particularly the BCPS board and Child Nutrition Director, we aim to create sustainable solutions that address food insecurity in the social and community context, considering immediate needs and long-term systemic change. The proposed engagement methods, tailored to different implementation phases, ensure a dynamic and responsive strategy capable of adapting to evolving challenges and opportunities.



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## **Appendix F- Thuringer**

### **Appendix F1: Social Determinant of Health Analysis**

The social determinants of health otherwise referred to as SDOH is the basic understanding and foundation of why certain health outcomes occur. The SDOH includes five domains, economic stability, education access and quality, healthcare access and quality, neighborhood and built environment, as well as social and community context (Healthy People 2030, 2024). In definition, the SDOH was stated as, “the conditions in the environments where people are born, live, learn, work, play, worship, and age affect a wide range of health, function, and quality of life outcomes and risks are defined as the Social Determinants of Health (SDOH)” (BCHD & UNC – BR, 2022).

A primary focus for this project is to center specifically on how social and community context relates to the project topic, which is food insecurity in children under the age of 18 in Burke County Public Schools. Within a social and community context, food insecurity can be influenced by things like family dynamics and households, education and awareness, or even cultural and language barriers (Meisenheimer, 2024) A few examples of coexisting or contributing factors of being food insecure can include income, employment, housing instability, and transportation barriers (Healthy People 2030 - Poverty, 2024). Each of these examples could have devastating short-term effects on a person or family's physical and mental well-being. According to Feeding America, research has found that food insecurity has detrimental effects on children's development, some of these effects include, “risk of chronic illnesses like asthma and anemia; and behavioral problems like hyperactivity, anxiety and aggression in school-age children” (Feeding America, 2024). Long-term effects of food insecurity on children and families can include chronic health conditions, and impacts on mental health (Healthy People 2030, 2024). It is imperative for doctors and those diagnosing patients to look at a whole person

and their environment in deciding the next steps for treatment options. The SDOH is important not only for healthcare providers but also for public health professionals, health insurers, non-profit organizations, academia, and government work. To take the next step in helping food-insecure children in Burke County, we ask you, the county commissioners, to consider how important working on an initiative to help diminish food insecurity for this community truly is.

### **Geographic and historical context**

Burke County resides in North Carolina's west central mountain region and has a total population of 13,340 people, (14.9% of the county population) of which are food insecure (Burgess, 2020). According to the 2022 Burke County Community Health Assessment, it currently consists of 13 townships and seven municipalities with a total population of around 90,418 (BCHD & UNC – BR, 2022). The breakdown of Burke County racial distribution includes the following: 81.20% white, non-hispanic, 6.50% black, non-hispanic, 6.70 % hispanic/latinx, 3.70% asian, and 0.80% american indian (BCHD & UNC – BR, 2022). There have been many advancements in policy work that have contributed greatly to Identifying inequities with respect to the SDOH. One example of a policy that directly contributed to focusing on more than one of the 5 categories of SDOH includes the child tax credit. The child tax credit increase for families impacts economic stability, social and community context, and even neighborhood and built environment. Although this policy was specifically a federal policy, it directly benefited more funds for people across the US. In 2021 the North Carolina Association of County Commissioners provided a resolution in support of the NCACC presidential Initiative to promote food system Resiliency, With a plan to support Burke County, "farmers, supply chains, agribusiness, food industry, and hungry families" (Brittain, 2021). The need for County

Commissioners to step in to help enact change shows that it's a real ongoing problem that needs to be addressed yet again in 2024.

### **Priority population**

With a focus on school age children under 18 its imperative to understand the priority population in the context of the school systems. In 2018, “Burke County Schools contain[ed] 26 schools and 11,632 students. The district’s minority enrollment is 40%. Also, 39.7% of students are economically disadvantaged” (U.S. World News & Report). In the Burke County 2022 Community Health Assessment, it is stated that the built environment can include things like access to healthy foods and community gardens (Burke County CHA, 2022). Within the CHA it defined food insecurity as well as food deserts, and also briefly talked about food insecurity during the COVID-19 pandemic (Burke County CHA, 2022). Before the beginning of the pandemic, “56.5% of BCPS students were eligible for free lunch, that number now sits at 65% of students being eligible for the 2022-2023 year” (Burke County CHA, 2022). During the pandemic, the Burke County School Public Schools served over 6000 breakfasts and 7000 lunches each school day and provided both pickup and delivery for students (Burke County CHA, 2022). In the state of North Carolina, there is a total estimated 443,040 children who are food insecure (Feeding America NC, 2022). In Burke County, in 2021 food insecurity rates for children under 18 stood at 3,000, with a rate of 18.3 (Feeding America – Burke County, 2021). To view more details for more county-specific statistics (See Appendix C).

### **Measures of SDOH**

In this diagram, you can see that food hardship by tract is shown with data from 2020 (See Appendix A). This data shows statistics from Burke County with a range from 0 – 1.0, 1.0 being the percentage where healthy food is harder to access (Burke County CHA, 2022). The

second diagram shows the percentage of people in North Carolina with limited access to healthy foods, with stats from 2017 to 2022 (See Appendix B). In looking at the social determinants of health with a zoomed-in approach to the social and community context, it's clear that SDOH is interchangeably intertwined with food insecurity.

### **Rationale/Importance**

Food insecurity in children who reside in Burke County, NC should be the priority population due to the high rates of food insecurity in the county. With over 3000 children food insecure in Burke County, we urge the county commissioners to take a stand in helping children get the resources they need to live food secure (Feeding America – Burke County, 2021). Helping this rural community gain the resources they need to thrive and live sustainable healthy lives is something you as a county commissioner can help launch. It is important for county commissioners to take decisive action to make this tangible change. As a county commissioner, I implore you to analyze and examine these statistics as well as valuable insights from cited sources that talk about food insecurity specifically in Burke County, NC. With a deeper understanding of how social and community context is intrinsically linked to food insecurity, it is your job to recognize the importance of moving this projected theory of change into motion.

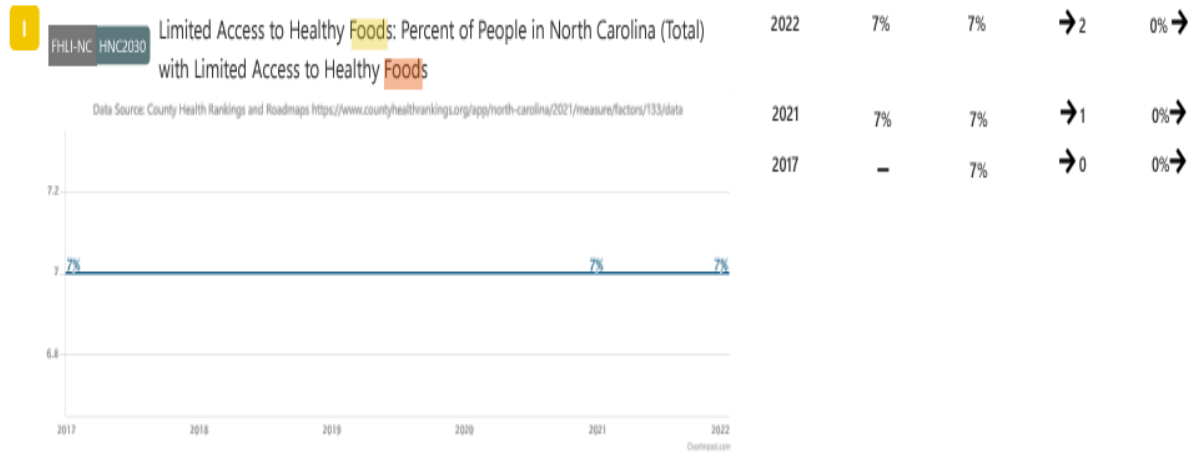
## APPENDICES

### Appendix F1 - A: Food Hardship Index by Tract Food Hardship by Tract



(Burke County CHA, 2022).

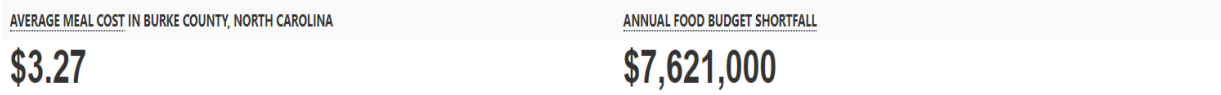
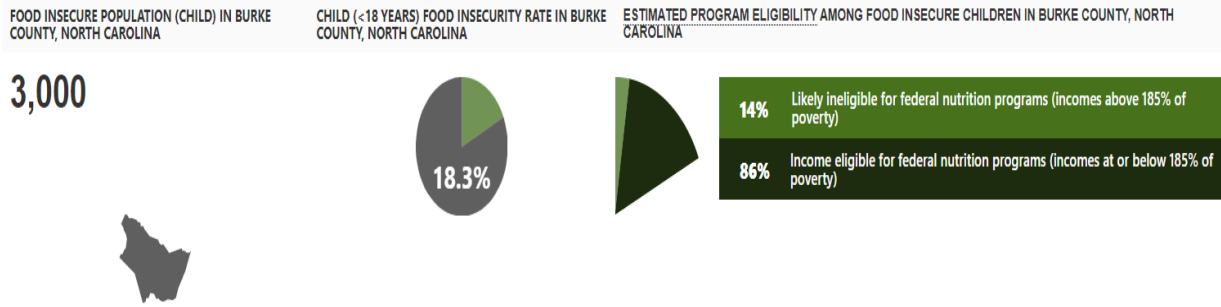
## Appendix F1- B: Access to Healthy Foods in North Carolina



(BCHD, 2022).



## Appendix F1 - C: Food insecurity and Federal Nutrition Programs



(Feeding America – Burke County, NC, 2021).

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## Appendix F2: Concentration Deliverable 1 (Engagement)

### **Background: Overview of the SDOH and county context**

Food insecurity among children under 18 within Burke County Public Schools matters under the Social Determinants of Health, specifically in the social and community context. It is important to address due to the many different ways it affects individual children and families' lives. It is important to enact actionable changes through various intervention methods with the support of both engagement within the community and community stakeholders. It's important to understand and recognize the interconnectedness between food insecurity and social and community context. Some of the ways they are correlated include social support networks, stigmas, social norms as well as community engagement and participation (Healthy People 2030 – Food insecurity, 2024).

### **Community Partner Mapping – Approach & Output**

As public health leaders, it is important to understand the wide range of actors who are affected by and could be or should be involved in helping aid food insecurity in youth in this county. In identifying and mapping community partners that would be involved in transformation, the tool utilized was a stakeholder analysis chart (See Appendix A). The choice of using this specific tool was due to the efficiency and the overall totality of information needed to move forward as a team in planning. Based on the stakeholder analysis chart, there are a variety of reasons as to the rationale behind the choice of the proposed partners. In choosing these partners the goal was to understand how each partner aligned with the SDOH specifically the primary topic of interest is food insecurity, with a focus on how social and community context affects it. The community partners who will be helping aid in this initiative include the Burke County public school system, local government, non-profit organizations, parents and

caregivers, as well as food pantries and food banks. Specific roles each partner group may play in aid of this project can be found in the appendices (See Appendix A). The following is a list of how each community partner can help focus on interventions within the scope of social and community context within the SDOH for food insecurity. Within the list below you may reference more specific details in Appendix A where it is categorized the role in each partner will play in addressing food insecurity in the county and the method of engagement in which each partner will hold. Each partner listed below has the opportunity to impact the community in a variety of big-picture ways, examples have been provided for each partner.

- Burke County Public Schools: Social and economic factors, education, and literacy, as well as community engagement.
- Local Government: Food assistance programs, community development projects, policy work, and allocation of resources.
- Non-profit organizations: Direct services, advocacy, and community engagement through programs such as food distribution, nutrition education, and poverty alleviation programs.
- Parents and caregivers: Advocating for the needs of food security for children.
- Food pantries and food banks: provide emergency food assistance in collaboration with community partners and local grocery stores as well as local government.

There are many ways in which factors may influence the equitable representation and participation of identified key stakeholders. The first factor that arises includes the fact that different stakeholders will have different levels of power and influence on the implementation of programming and creating an initiative. Two factors that may influence the representation and participation of these partners in transformative change include both power dynamics and inclusivity as well as clear communication and transparency. The role each organization will

play will depend heavily on a variety of factors all of which, but are not limited to, funding, allocation of resources, time investment, staff availability, and capacity.

## **Reflections and Conclusions**

In reflecting on the analysis of engagement through the community partner analysis, I was able to find that there is a variety of potential community partners that can advance and or implement programs and initiatives that can help alleviate food insecurity on children in Burke County Public Schools. With an interdisciplinary approach across a scope of different public health leaders, broadening the range of resources and funds will help more children and create long-term sustainable goals. These partners each individually have goals and aspirations for change in the community and as a collective working together will provide tangible solutions and actionable goals to truly help the population's health as a whole. Some examples of possible actionable solutions or interventions include some of the following:

- Burke County Public Schools: Nutrition education program, Community Garden.
- Local Government: Policy changes for living wages, allocation of funding towards public transportation expansion.
- Non-profit organizations: Health education and health promotion programming for food assistance programs.
- Parents and caregivers: Utilize food pantries, SNAP benefits, and school meal programs.
- Food pantries and food banks: Diversify cultural food options and expand outreach to rural communities.

In covering the strengths and weaknesses of implementing programs or initiatives in the community it is important to analyze a variety of factors in strategic planning to ensure longevity

and outward reach of children under 18 in the county. Listed below are possible strengths of utilization of various partners and the differing weaknesses that may arise.

***Strengths:***

- Creating long-term sustainable solutions to help reach a greater population of children in need of food resources.
- Providing resources within the school system for children.
- Broad potential for collaboration with a list of potential community partners.

***Weaknesses:***

- Lack of potential funding.
- Providing food resources for children outside of normal school hours and academic year schedules.

In wanting to know more about each organization there would be both a list of general basic questions and more stakeholder-specific questions. Basic questions would include questions such as, “What specific programs, initiatives, or services does your organization offer to address food insecurity among children?” and “How can other stakeholders, such as local government, County Commissioners, or residents, support or collaborate with your organization's efforts to address food insecurity?”. Then after asking more general questions, the next goal would be to ask very specific questions to each stakeholder group. For Burke County School Administration questions that the team would ask them would be more statistical questions like, “What is the number of food insecure students in Burke County” and “What current programs are offered throughout the school district that aid in helping diminish food insecurity for children?”. In conclusion, just as in a strategic plan, there are gaps and missing

parts that would need to be addressed. Outlining both the strengths and weaknesses within this stakeholder analysis will help in better preparing the next steps of program planning and implementation of ideas.



Appendix F2 -A: Stakeholder Analysis Chart

Stakeholder	Potential Partners	Level of power/influence	Role In addressing Food Insecurity	Method of engagement
Schools and educators	Burke County Public Schools Administration	Moderate to High (Education, influence on families)	Implement school-based programs, engage parents, provide education	Parent-teacher meetings, workshops, school events, community gardens
Local Government	<ul style="list-style-type: none"> <li>County Commissioners</li> <li>Health Department</li> <li>Social Services Department</li> <li>Education Board</li> </ul>	High (Policy decisions, resource allocation)	Develop and implement policies, allocate resources, coordinate programs	Public hearings, policy forums, collaborative workshops
Nonprofit Organizations	<ul style="list-style-type: none"> <li>The Outreach Center</li> <li>Burke County United Way</li> </ul>	Moderate to High (Advocacy,	Service delivery, advocacy, community engagement	Partnerships, community forums,

		service provision)		outreach programs
Parents and Caregivers	Parents and Caregivers	Moderate (Direct influence on children)	Engage in community programs, access resources, advocate for needs	Parent support groups, community meetings, workshops
Food Pantries/Food Banks	<ul style="list-style-type: none"> <li>• Burke United Christian Ministries Food Pantry</li> <li>• The Outreach Center Food Assistance</li> <li>• (Burke County Distribution)</li> <li>• Local Church Food Pantries</li> <li>• Community Volunteer Groups</li> </ul>	Moderate (Critical food resource providers)	Distribute food resources, collaborate on community programs	Volunteer engagement, community partnerships, awareness campaigns

	<ul style="list-style-type: none"><li>• Second Harvest Food Bank of Metrolina</li></ul>			
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\*\*\*Highlights are the primary stakeholders for this project

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## Appendix F3: Concentration Deliverable 2 (Leadership)

### **Background: Overview of the SDOH and county context**

Within the social and community context framework, food insecurity is tied to economic factors, social support networks, built environment, as well as social norms. Food insecurity among children under 18 within Burke County Public Schools matters under the Social Determinants of Health, specifically in the social and community context. It is important to address due to the many ways it affects individual children and families' lives. It is important to enact actionable changes through various intervention methods with the support of both engagement within the community and community stakeholders. It's important to understand and recognize the interconnectedness between food insecurity and social and community contexts. Some ways they are correlated include social support networks, stigmas, social norms, and community engagement and participation (Healthy People 2030 – Food insecurity, 2024).

### **Measures to Success**

In advancing sustainable change in any company or organization, leaders need to measure performance and manage competing priorities. In developing structures of accountability to promote good governance and stewardship of resources to improve population health, it is important to create measures of success. In creating these measures of success, it sets create the foundation for goals and future aspirations for the committee to meet. The steering committee should be an elected process of individuals from varying parts of the organization all of which include lower, middle, and upper management of the organization or group of people who will be taking on leading any food insecurity initiative for children under the age of 18 in burke county public school system. The committee should also include individuals outside the primary organization leading this initiative. It's important to gain outside perspective directly

from community members when making decisions that directly affect the community at large. The steering committee should focus on many factors to gauge measures of success. Some of these factors include continuously watching for changes in the community context. They should focus on fostering characteristics within the coalition structure that promote collaboration and innovation while ensuring member engagement, satisfaction, and diverse representation to strengthen community partnerships. It is also important to maintain steering committee retention and continue to be a support for relationship development and network structure. The feasibility of having a steering committee is a huge advantage in the beginning stages of implementing an initiative in the community. The steering committee should collect data through various partners and store that data in a shared drive such as Microsoft Teams and/or Google shared drives. The data found can help leaders make more informed decisions on the how, when, and whys of the initiative they move forward with.

### **Conflict Resolution**

In any workplace, it's important to always have a conflict resolution plan in place to ensure conflict is handled appropriately. Conflict resolution is imperative for the steering committee as it is the base foundation for all initiatives and community engagement moving forward. In creating a conflict resolution plan it is important to have open communication across the board to ensure every person on the steering committee is fully included and has the space to have their voices heard. Building off that topic specifically, it's important for all parties to use active listening skills. In any conflict resolution plan, it is important to understand how mediation will be dealt with and ways in which facilitators will guide others in finding common ground. As with any mediation, there may be times when compromise is necessary, and it's important to set ground rules for the steering committee. Alongside many onboarding trainings that the steering

committee should provide for each member of the committee, conflict resolution training should be on the list as one of the top priorities. In the beginning of planning and creating it's important to acknowledge the ground rules and create space for shared brainstorming sessions for all voices to be heard. The committee should meet regularly and try to work alongside each member's busy schedule and provide virtual options and possible recordings of sessions for those who cannot make each meeting due to unforeseen circumstances. Recording meetings may detour conflict from arising so that what was said on record cannot be taken as "he said or she said" as there will be record of factual statements. Something that should be discussed prior to the first meeting is having a conversation with priority community partners on what positions are needed on the steering committee so it is clear when people apply to each position, they are fully aware of their roles and responsibilities. This can also be discussed after a committee is determined, but for the organization's sake and elections, it might be more efficient to post roles before the meeting. A few more important things to note once the steering committee has officially begun, it would be imperative to possibly have members fill out a form that asks questions such as interest on being on the committee, the best ways individuals prefer to receive feedback, and if they would like to be a part of peer mentoring by other committee members. In Developing these structures of accountability, it will help to promote good governance and stewardship.

### **Leadership Tool Kit for Sustainability**

A huge takeaway that leaders of the steering committee should consider are things that make a good leader, great. Many qualities that a good leader should possess have been stated in how a well-organized steering committee should run. Similarly, strong communication and integrity should be at the forefront of a person who is qualified to lead others. In tandem with integrity, a leader should possess empathy, accountability, and decisiveness. A leader should feel

empowered and be an inspiration for those they lead. A leader should be resilient and learn how to be adaptable in any given situation. Often times things don't always go according to plan and mistakes happen, its important to be adaptable and flexible when its needed. It is fundamental to realize that there are different and complementary leadership strategies that directly affect the engagement and inclusion of diverse partners in advancing equitable population health outcomes. In each environment and profession, different people hold unique skills and qualities that individualize who they are as leaders and how they lead. In working in a fast-paced dynamic space it's vital to recognize and build off people's strengths to utilize those skills to the needs of the team.

In every team, there is power. Power in the ability to make decisions, power in responsibility, and power in title. Power can be used in ways that inspire, and ways that tear down individual and team morale. Power is inevitable when gaining leadership roles or holding positions of authority. In positions of leadership emotional intelligence is a component of understanding how you like to have others supervise you and how you supervise others. Emotional intelligence is a tool within oneself that helps manage emotions in receiving and giving feedback. In comprehending power, emotional intelligence, and interpersonal skills we can see how these skills can directly influence the trust, credibility, and competence of public health leaders.

### **Sustaining Momentum**

In sustaining this change process, the steering committee will be performing several key functions to oversee and guide the activities of any project, or initiative that the county commissioners choose to move forward with. Ways the steering committee can move forward in sustainable change is through continuous evaluation, policy advocacy, sustainability planning,



and through public awareness and education. Some of the ways that the steering committee can promote and strengthen the partnerships to sustain the proposed efforts through shared goals and mutually beneficial collaboration. A few ideas for individuals who might be considered for the steering committee can include individuals such as school principal, community outreach coordinators, nutritionists or dieticians, public health officials, faith-based organization representative, local government representative, school counselors or Social Workers, student representative(s), Family representative(s), as well as county commissioners. Each of these individuals brings a unique approach to contributing their valued expertise through an interprofessional lens. In promoting requesting individuals to be on the steering committee fliers can be placed strategically within the community as well as sending personal formal invitations mailed by letter/Email/ or by phone call. When reaching out to community members it's important to make sure that they are aware of what their presence and expertise brings to the table. A crucial component of this is also ensuring that they are getting something out of it such as networking opportunities, opportunities for leadership on committee, as well as making sure to provide flexible involvement opportunities. When it comes time to build a project or initiative, marketing it in the correct ways is very critical in ensuring high involvement from the community. Some of the ways to best market a project or initiative that the committee can consider are targeted messaging, utilizing a multichannel approach, visual content with photos and videos if available, partnership spotlights as well and offering education workshops and/or presentations on the great work the committee is doing for the community. Within the committee, there needs to be a defined method for sustaining partnership and continuing to build upon initial successes over time. The committee needs to define how others can join, participate, and assume

leadership positions for the future. This can all be decided when creating a strategic plan for the committee and an outline for a constitution.

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