Systems Thinking in Communities:

Understanding the Causes of Inactivity, Poor Diet/Nutrition, and Childhood Obesity in Nash and Edgecombe Counties, North Carolina

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Acknowledgments

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Judy Wright
Nancy Nixon
Kelly Lee

Introduction

*Healthy Kids Collaborative*is one of 49 community partnerships participating in the national *Healthy Kids, Healthy Communities* program of the Robert Wood Johnson Foundation (www.healthykidshealthycommunities.org). The purpose of this *Healthy Kids Collaborative* project was to introduce systems thinking at the community level by identifying the essential parts of the Nash and Edgecombe Counties, North Carolina system and how the system influences policy and environmental changes to promote healthy eating and active living as well as to prevent childhood obesity. To accomplish this goal, community partners and residents participated in a group model building session and discussions. The group model building exercises were designed by staff from Transtria LLC and the Social System Design Lab at Washington University in St. Louis, Missouri as part of the *Evaluation of Healthy Kids, Healthy Communities* funded by the Robert Wood Johnson Foundation. These exercises actively involved a wide range of participants in modeling complex systems and provided a way for different representatives (e.g., youth agencies, residents, government agencies, community-based organizations, foundations, schools) to better understand the systems (i.e., dynamics and structures) in the community (see the *Healthy Kids, Healthy Communities Group Model Building Facilitation Handbook*, www.transtria.com/hkhc). Overall, the evaluation was designed to assess policy, system, and environmental changes as a result of the community partnerships' efforts to increase healthy eating and active living in order to reduce childhood obesity.

Nash and Edgecombe Counties, North Carolina : Background and Local Participation

The Healthy Kids Collaborative focused on children and families living in Nash and Edgecombe Counties, North Carolina. These counties, located in eastern North Carolina, are largely comprised of small towns and rural areas. The HKC worked at the county level, as well as in specific cities and towns, including Rocky Mount, Pinetops, Red Oak, Nashville, and Spring Hope. The City of Rocky Mount straddles the county line and serves residents from both counties. While this provides a central location for many agencies and organizations, it also creates multiple systems to connect, such as county government with city government.

Nash and Edgecombe counties are largely comprised of low-income, minority families. Edgecombe County has a higher percentage of African-American and lower-income residents than Nash County. Nash and Edgecombe Counties, like the rest of North Carolina, are experiencing a fast-growing Latino population. The region is burdened by high unemployment rates, as well as limited access to nutritious food options and recreational resources.

Early onset of obesity is a growing problem in Nash and Edgecombe counties: Thirty-three percent of Nash County children and 27% of Edgecombe County children between the ages of 2-4 are overweight or obese. Nash and Edgecombe counties also face the highest adult obesity rate in the state. Nash and Edgecombe counties are two of the five counties in North Carolina comprising the Area L AHEC (Adult Health Education Center). The prevalence of overweight/obesity in this region is 72%.

The HKC was established in 2008 when DEPC saw a need for health to become a priority area for the organization. DEPC saw that health was connected to its overall mission of getting children ready for school. The Kate B. Reynolds Foundation, a major funder and partner of DEPC, also pointed out that health would be a good focus area for the organization.

The HKC was comprised of 70 members from 50 agencies including community agencies, organizations, local government officials, and other leaders that wanted to help children and families lead healthier, more active lives.3 The HKC established subgroups to help guide the work of specific targeted strategies. Each subgroup had a community member who served as leader of the subgroup. Subgroups met as needed to discuss strategies and develop action plans for their area of focus. Subgroups reported to the larger HKC at quarterly meetings. The five subgroups included:

- Faith-based initiatives
- Medical/health care
- Child care
- Access to healthy foods (i.e., farmers' markets)
- Policy (i.e., joint-use, community gardens, park adoption)

Healthy Kids Collaborative's Priorities and Strategies

The partnership and capacity building strategies of *Healthy Kids Collaborative* included:

- Park Partners Program: This program was launched by the City of Rocky Mount's Department of Parks and Recreation. HKC partners encouraged local faith-based organizations to adopt parks, allowing them to help in maintaining park conditions and to play an active role in the long-term park improvement planning process.
- Capacity-Building in Healthcare Settings: Informational resources on obesity prevention strategies were developed and distributed to families with children at risk of or already obese. In addition, patients and their families from pediatric clinics were referred to the DEPC Family Support Group. Finally, a Childhood Obesity Screening toolkit was developed that contained local resources, educational material, self assessments, and tips for physicians on communicating with patients about obesity.
- Healthy Kids, Healthy Communities Summits: The HKC held summits in 2010 and 2012 to share results of food and park assessments, engage community stakeholders and decision-makers, and promote innovative local, state, and national policies to combat childhood obesity.

The healthy eating and active living strategies of *Healthy Kids Collaborative* included:

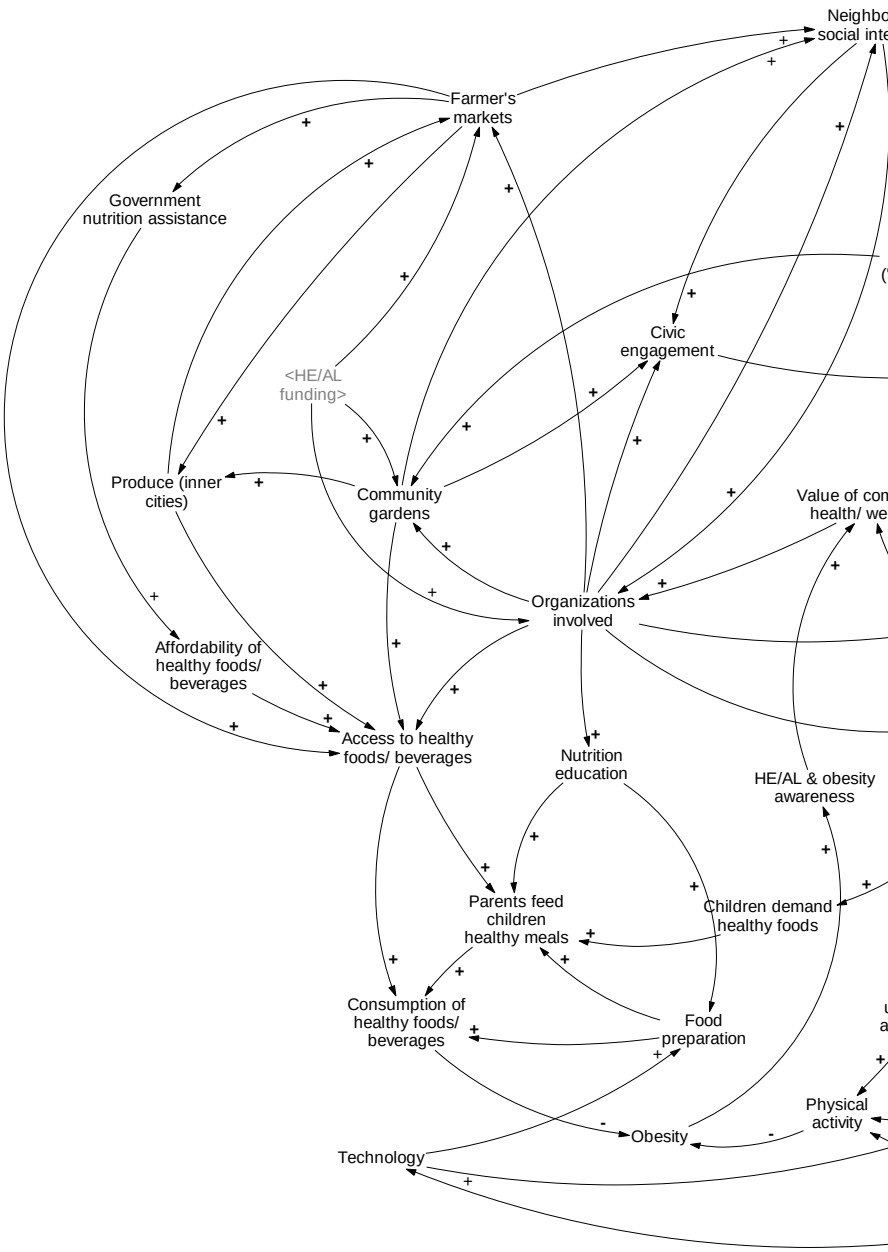
- Parks and Play Spaces: HKC partners collaborated with groups from diverse sectors to transform a park into a model outdoor learning environment, renovate a park in a rural town, and establish a joint use agreement between Edgecombe County and Edgecombe County Public Schools.
- Farmers' Markets: Farmers' markets became more accessible to disadvantaged communities through efforts of the HKC. Three produce stands were opened and a bus route was re-located to the Rocky Mount farmers' market.
- Nutrition and Physical Activity Standards in Child Care: New nutrition and physical activity policies and practices were established in 16 Nash and Edgecombe County child care centers and homes.
- Community Gardens: HKC efforts led to three new community gardens, as well as the adoption of a city policy that supported community gardens in Rocky Mount.
- Healthy Eating and Physical Activity Policies in Faith-Based Settings: As a result of the HKC efforts, seven faith-based organizations adopted healthy eating and/or physical activity policies.

For more information on the partnership, please refer to the Nash and Edgecombe Counties case report (www.transtria.com/hkhc).

Systems Thinking in Communities: Nash and Edgecombe Counties, North Carolina

"Systems thinking" represents a range of methods, tools, and approaches for observing the behaviors of a system (e.g., family, community, organization) and how these behaviors change over time; changes may occur in the past, present, or future. Figure 1 illustrates a system of policies, environments, local collaborations, and social determinants in Nash and Edgecombe Counties, North Carolina that influence healthy eating, active living, and, ultimately, childhood obesity. This system and the dynamics within the system are complicated with many different elements interacting.

Figure 1: *Healthy Kids Collaborative* Causal Loop Diagram



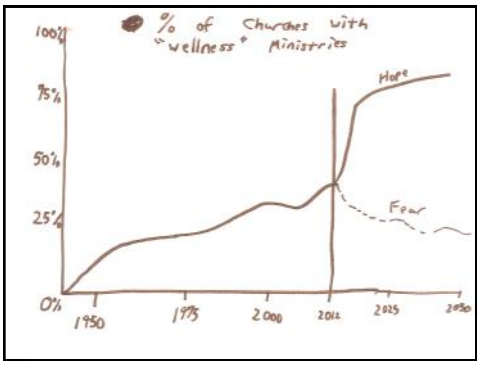
Models, such as Figure 1, provide a way to visualize all the elements of the system and their interactions, with a focus on causal relationships as opposed to associations. Through the model, specific types of causal relationships, or feedback loops, underlying the behavior of the dynamic system, can be identified to provide insights into what is working or not working in the system to support the intended outcomes (in this case, increases in healthy eating and active living, and decreases in childhood overweight and obesity). In system dynamics, the goal is to identify and understand the system feedback loops, or the cause-effect relationships that form a circuit where the effects "feed back" to influence the causes.

Group Model Building

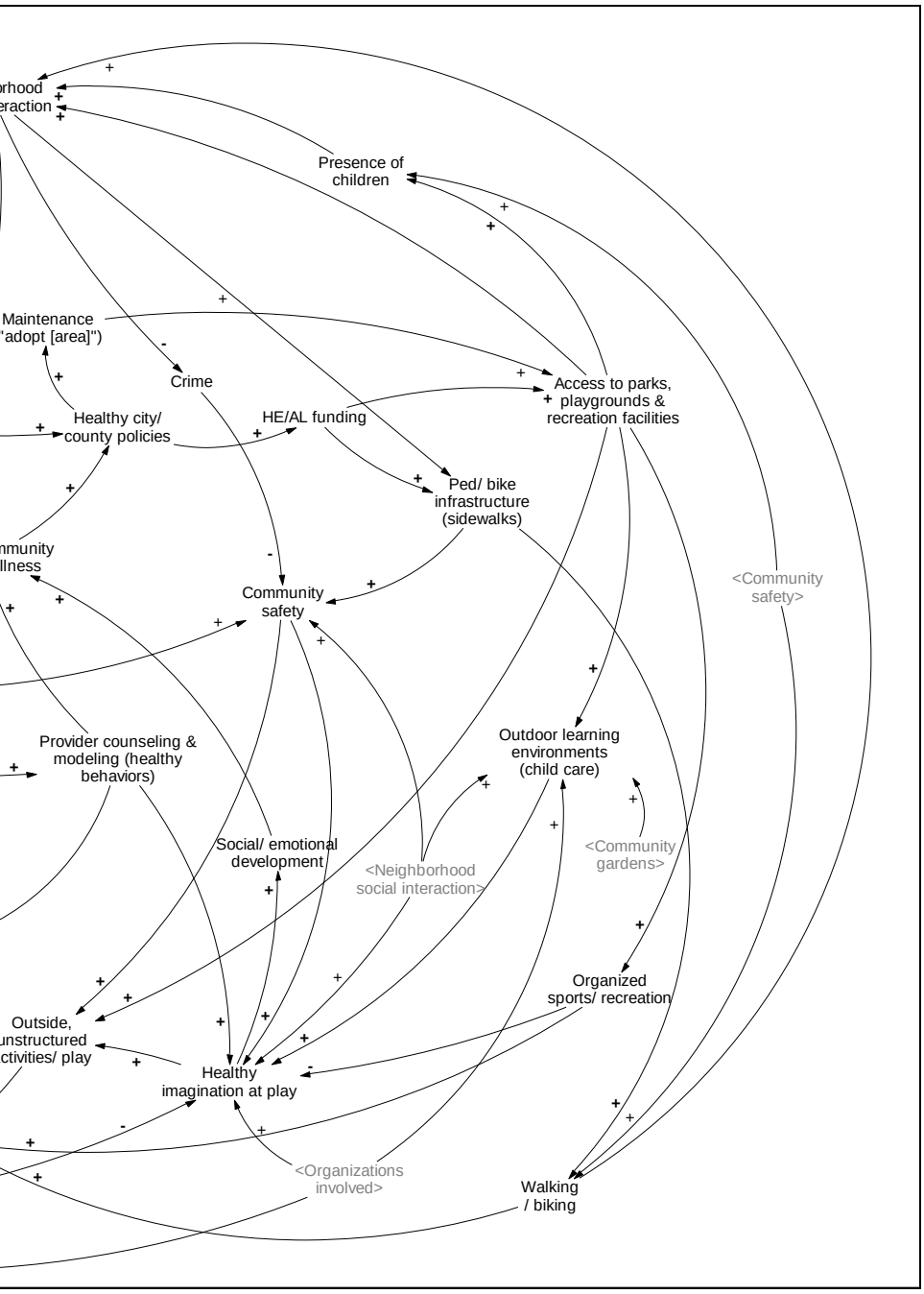
Members of the *Healthy Kids Collaborative* partnership participated in a group model building session in October, 2012 and generated this system. also referred to as a causal loop diagram (Figure 1). Participants in the group model building session included residents and representatives from youth agencies, government agencies, community-based organizations, foundations, schools, and advocates. The group model building session had two primary activities: 1) a Behavior Over Time Graph exercise; and 2) a Causal Loop Diagram (or structural elicitation) exercise.

<u>Behavior Over Time Graphs</u>

To identify the range of things that affect or are affected by policy, system, and environmental changes in Nash and Edgecombe Counties related to healthy eating, active living, and childhood obesity, participants designed graphs to name the influences and to illustrate how the influences have changed over time (past, present, and future). In this illustration for percent of churches with wellness ministries, the number of these churches has increased since the 1940's and the participant hopes that this increase will continue to rise dramatically before it levels off.



Each graph is a tool to increase the use of common, specific language to describe *what* is changing in the community as well as *when*, *where*, and *how* it is changing. The graphs capture participants' perceptions of the influence, or variable, and through the graph, the participant tells their story. These perceptions are based on actual data or evidence, or they are part of the participants' lived experience.



Causal Loop Diagram

To examine the relationships among the variables from the behavior over time graphs, participants worked together and with facilitators to develop a causal loop diagram. In Figure 1, the words represent variables of quantities that can increase and decrease over time (i.e., the behavior over time graphs). These variables are influenced by other variables as indicated by the lines with arrows. The lines with arrows represent causal relationships - this is what is known about the system and how it behaves.

One feedback loop is: organizations involved → provider counseling and modeling → value of community health/ wellness → organizations involved.

What is important to notice is that there are other feedback loops interacting simultaneously to influence or to be influenced by organizations involved. Some variables may increase organizations involved while other variables limit it. Determining the feedback loop or loops that dominate the system's behavior at any given time is a more challenging problem to figure out, and ultimately, requires the use of computer simulations.

Based on this preliminary work by the *Healthy Kids Collaborative* partnership, this "storybook" ties together the behavior over time graphs, the participants' stories and dialogue, and feedback loops from the causal loop diagram to understand the behavior of the system affecting health in Nash and Edgecombe Counties, North Carolina and to stimulate greater conversation related to Nash and Edgecombe Counties 's theory of change, including places to intervene in the system and opportunities to reinforce what is working. Each section builds on the previous sections by introducing concepts and notation from systems science.

Causal Loop Diagram for the Childhood Obesity System

The causal loop diagram (CLD) represents a holistic system and several subsystems interacting in Nash and Edgecombe Counties, North Carolina. In order to digest the depth and complexity of the diagram, it is helpful to examine the CLD in terms of the subsystems of influence. Because of this project's focus on healthy eating, active living, and childhood obesity, this system draws attention to a number of corresponding subsystems, including: healthy eating policies and environments (red), active living policies and environments (blue), health and health behaviors (orange), partnership and community capacity (purple), and social determinants (green).

From the group model building exercises, several variables and causal relationships illustrated in Figure 2 were identified within and across subsystems. This section describes the subsystems in the CLD.

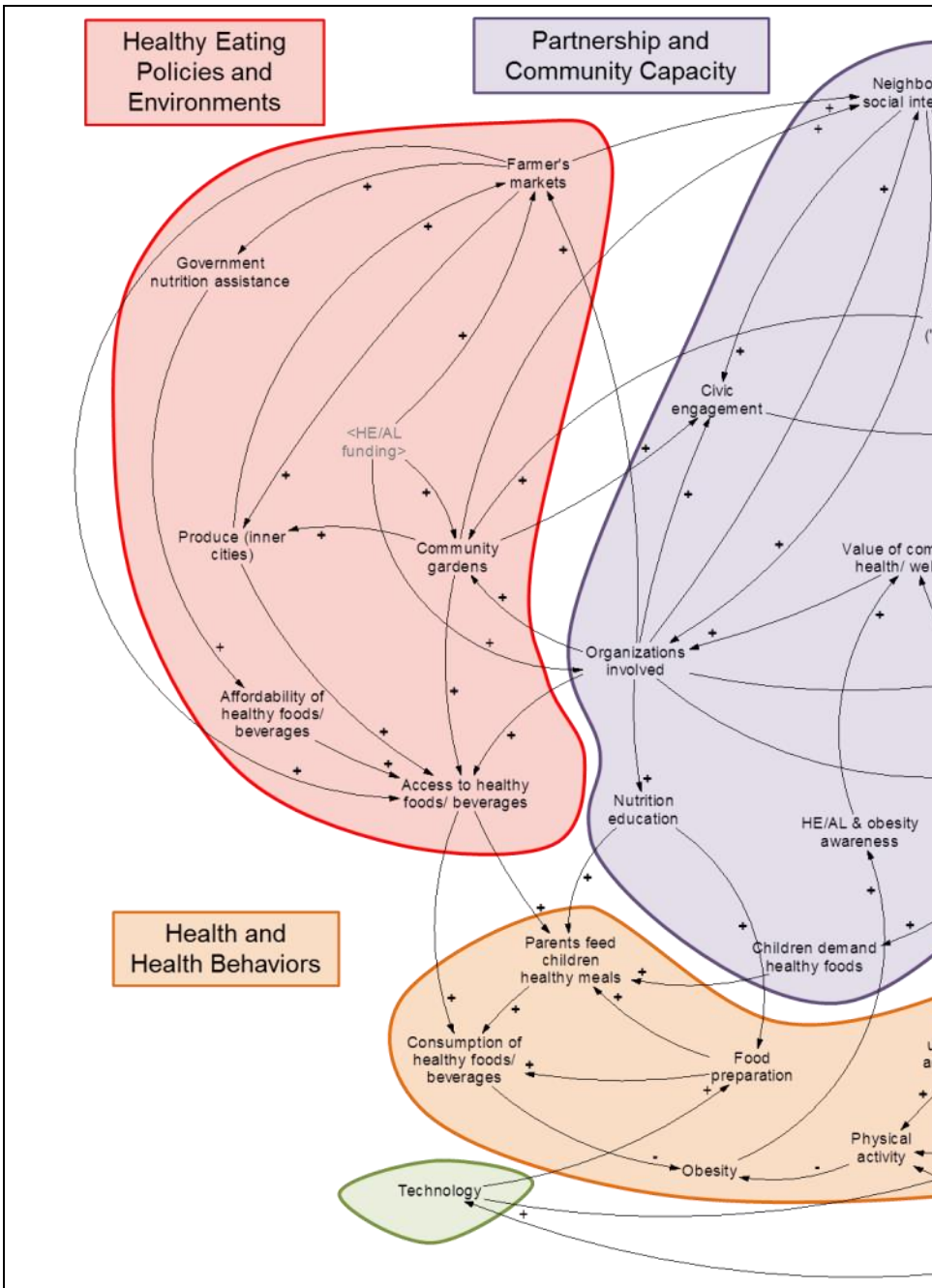


Figure 2: Subsystems in the *Healthy Kids Collaborative* Causal Loop Dia

<u>Healthy Eating Policies and Environments (Red)</u>

The healthy eating policy and environmental subsystem includes food production, food distribution and procurement, and food retail. During the behavior over time graphs exercise, the participants generated ten graphs related to policy or environmental strategies (e.g., community gardens) or contexts (e.g., government nutrition assistance) that affected or were affected by the work of *Healthy Kids Collaborative*. The variables represent participants' conversations from the behavior over time graph and causal loop diagram exercises.

<u>Active Living Policies and Environments (Blue)</u>

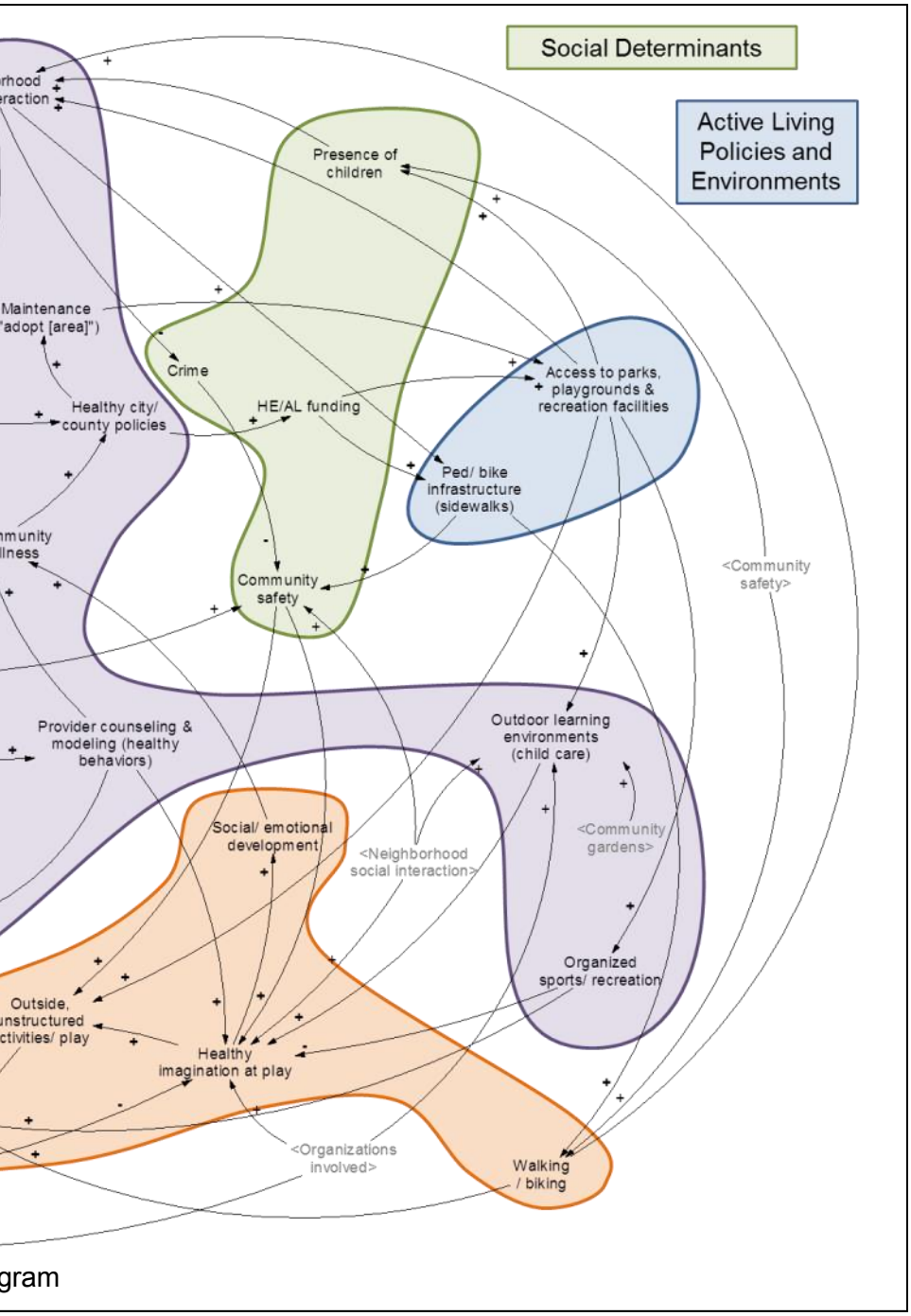
The active living policy and environmental subsystem includes design, planning, construction, and enforcement or maintenance related to access to opportunities for active transportation and recreation. For this topic, the group model building participants developed six graphs related to policy or environmental strategies (e.g., pedestrian and bike infrastructure) or contexts (e.g., access to parks, playgrounds, and recreation facilities) that affected or were affected by the partnership's work.

<u>Health and Health Behaviors (Orange)</u>

The subsystem for health and health behaviors includes health outcomes (e.g., obesity), health behaviors (e.g., healthy eating, physical activity), and behavioral proxies or context-specific behaviors (e.g., outside, unstructured activities/play, food preparation, parents feed children healthy meals, walking/ biking).

Partnership and Community Capacity

The partnership and community capacity subsystem refers to the ways communities organized and rallied for changes to the healthy eating and active living subsystems. For instance, *Healthy Kids Collaborative* increased civic engagement through Healthy Kids, Healthy Communities summits. This subsystem also includes community factors outside the partnership that may influence or be influenced by their efforts, such as the value of community health and wellness.



gram

Social Determinants

Finally, the social determinants subsystem denotes societal conditions (e.g., funding for healthy eating and active living) and psychosocial influences (e.g., perceptions of community safety) in the community that impact health beyond the healthy eating and active living subsystems. In order to achieve health equity, populations and subgroups within the community must have equitable access to these resources and services.

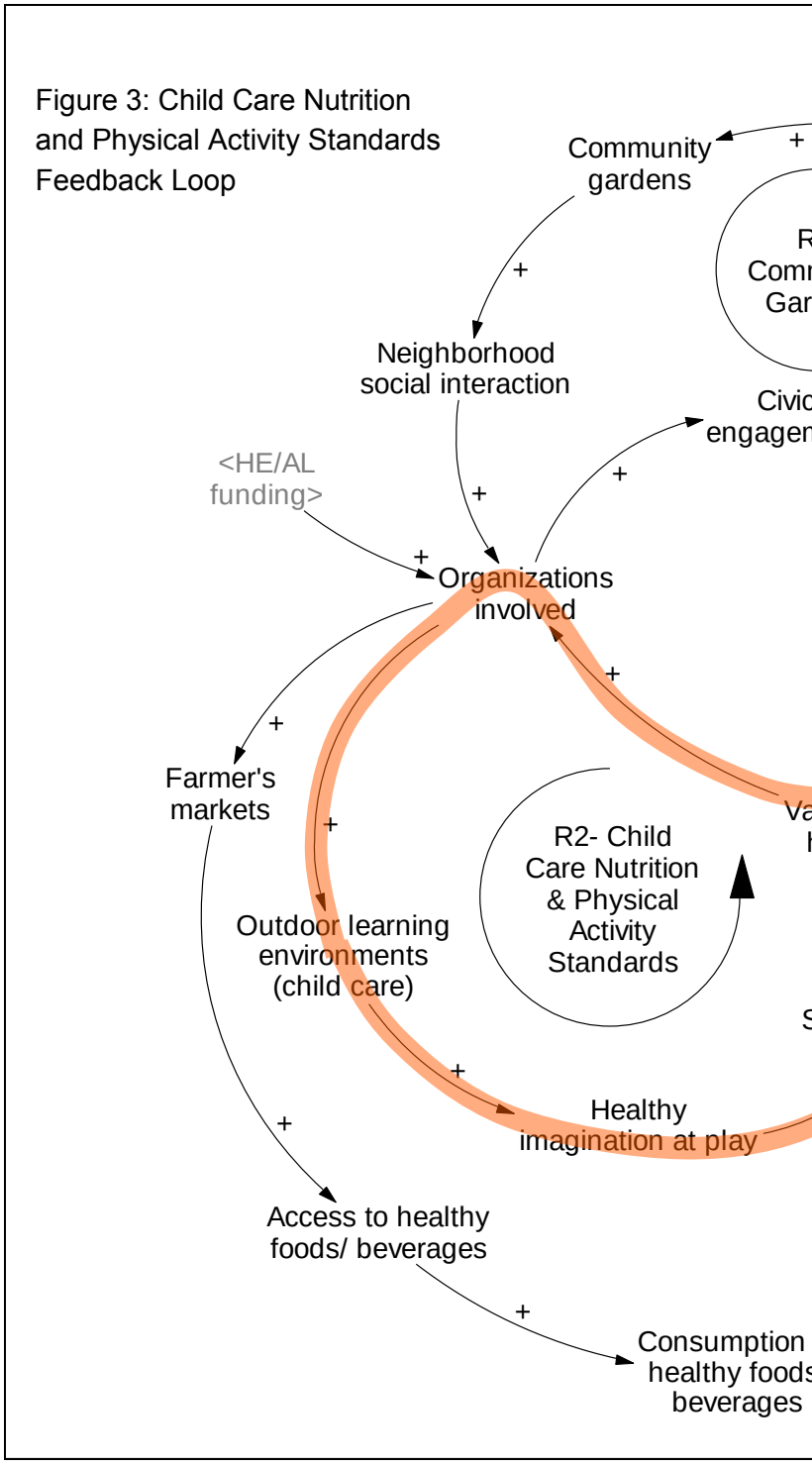
Each one of these subsystems has many more variables, causal relationships (arrows), and feedback loops that can be explored in greater depth by the *Healthy Kids Collaborative* partners or by other representatives in Nash and Edgecombe Counties, North Carolina . Using this CLD as a starting place, community conversations about different theories of change within subsystems may continue to take place.

The next sections begin to examine the feedback loops central to the work of *Healthy Kids Collaborative*. In these sections, causal relationships and notations (i.e., arrows, “+” signs, “-” signs) from Figure 2 will be described to increase understanding about how systems thinking and modeling tools can work in communities to increase understanding of complex problems that are continuously changing over time, such as childhood obesity. At the end of this CLD storybook, references to other resources will be provided for those interested in more advanced systems science methods and analytic approaches.

Child Care Nutrition and Physical Activity Standards Feedback Loop

To simplify the discussion about feedback loops, several loops drawn from the Healthy Kids Collaborative CLD (see Figures 1 and 2) are shown in Figure 3. While the CLD provides a theory of change for the childhood obesity prevention movement in Nash and Edgecombe Counties, North Carolina , each feedback loop tells a story about a more specific change process.

Figure 3: Child Care Nutrition and Physical Activity Standards Feedback Loop



Causal Story for Feedback Loop

Story A: In this case , the story is about child care nutrition and physical activity standards (orange highlighted loop in Figure 3). Partners from Nash and Edgecombe Counties, North Carolina established nutrition and physical activity policies and practices in 16 child care centers or homes. Participants described how outdoor learning environments in child care setting increase healthy imagination during play, increasing social and emotional development as well as physical activity. In turn, positive social and emotional development increases the value of community health and wellness, stimulating greater organizational involvement in providing outdoor learning environments.

Story B: While the preceding story reflected a positive scenario for Nash and Edgecombe Counties, North Carolina , the same feedback loop also tells the opposite story. A lack of outdoor learning environments constrains the range of opportunities for children to engage in imaginative play, limiting their social and emotional development and, consequently, associated values of health and wellness. Thus, fewer organizations consider involvement or development of outdoor learning environments.

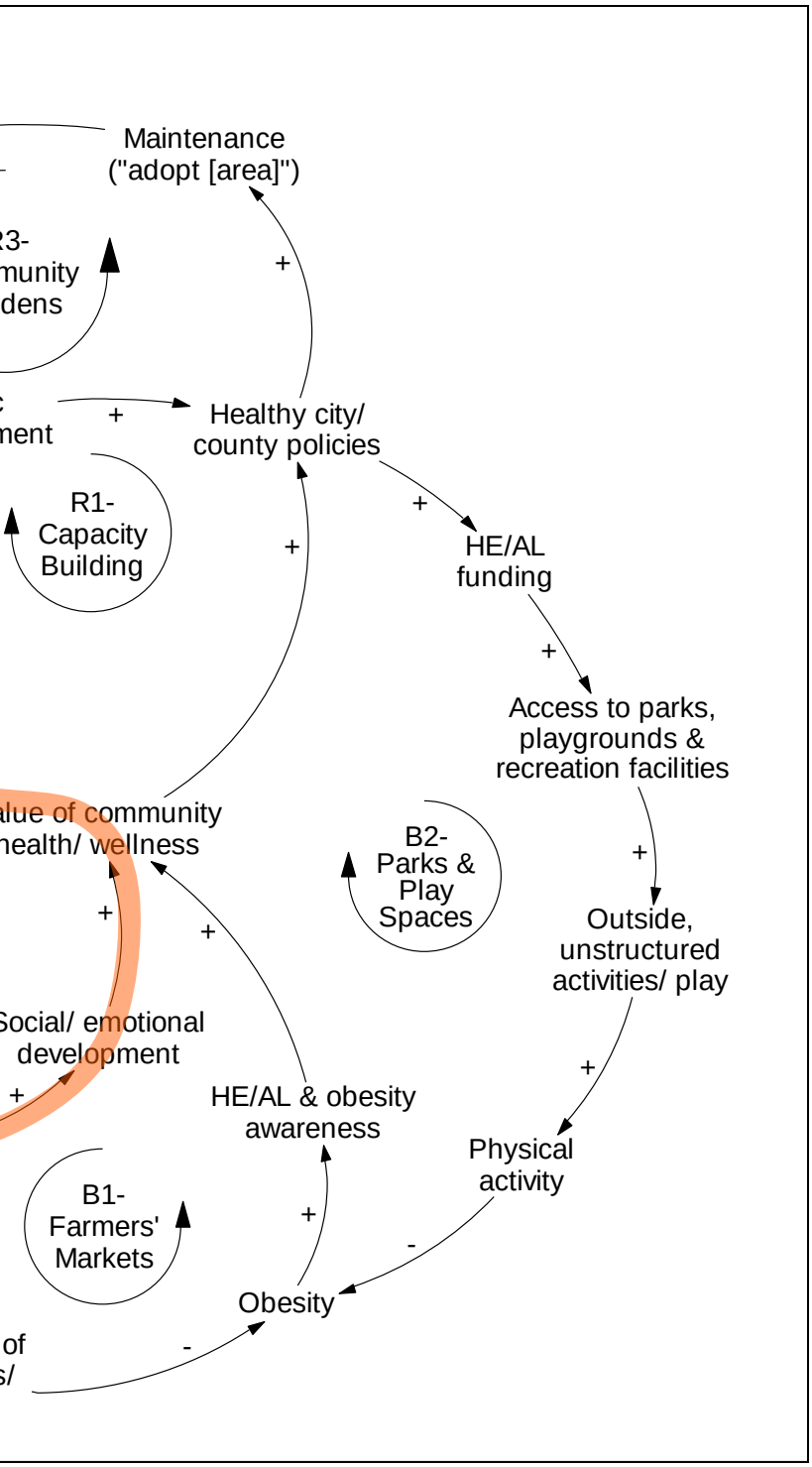
Reinforcing Loop and Notation

These stories represent a reinforcing loop, and the notation in the feedback loop identifies it as a reinforcing loop (see "R2 — Child Care Nutrition and Physical Activity Standards" and orange highlighted loop in Figure 3). The words represent variables of quantities that increase and decrease as illustrated in the stories above. These variables change over time and are influenced by other variables as indicated by the arrows. Each arrow represents a causal relationship, and the plus and minus signs on the arrows indicate whether or not the influence of one variable on another variable (1) increases/adds to (plus or "+" sign), or (2) decreases/removes from the other variable (minus or "-" sign). These signs are referred to as

"Our focus here is working with child care facilities and the outdoor learning environment; not having all the big, large equipment that we typically see on a playground but bring it more to the bushes, trees, sticks, and stones. We want to give children what we call loose parts out in the playground so that their imagination can grow so they can get out there and have unorganized play and, in turn, stay active, have a healthier social [and] emotional outcome." (Participant)

polarities.

In a reinforcing loop, the effect of an increase or decrease in a variable continues through the cycle and returns an increase or decrease to the same variable, respectively.



Looking specifically at the "+" or "-" notation, a feedback loop that has zero or an even number of "-" signs, or polarities, is considered a reinforcing loop. Balancing loops, with an odd number of "-" signs in the loop, are another type of feedback loop.

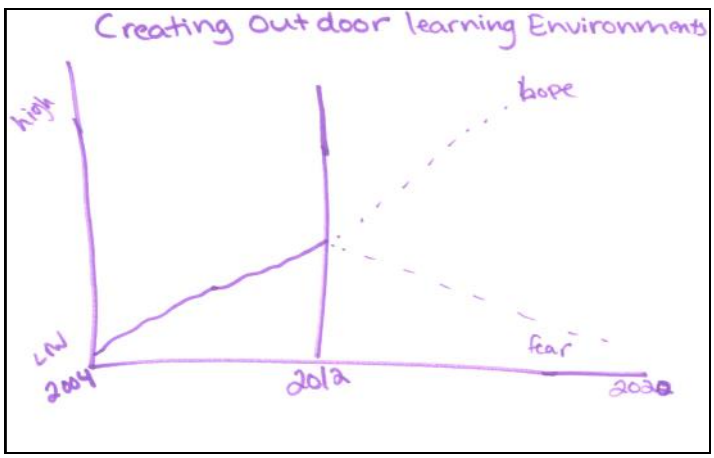
In isolation, this balancing loop represents the influence of outdoor learning environments on social and emotional development. To understand other influences on these variables, it is important to remember that this reinforcing loop is only one part of the larger CLD (see Figures 1 and 2), and the other loops and causal relationships can have an impact on the variables in this loop.

<u>System Insights for *Healthy Kids Collaborative*</u>

Participants also identified an increase in the creation of outdoor learning environments from 2004 to present in Nash and Edgecombe Counties, North Carolina (see behavior over time graph).

From the systems thinking exercises, several insights can inform the child care nutrition and physical activity standards strategy. For instance, activity standards that incorporate outdoor learning environments to stimulate imaginative play can simultaneously increase physical activity and social and emotional child development. This may also influence the location of child care facilities (e.g., adjacent to parks or green space), the aesthetics of the play areas (e.g., trees, bushes), and the types of play equipment (e.g., sand, rocks, and sticks).

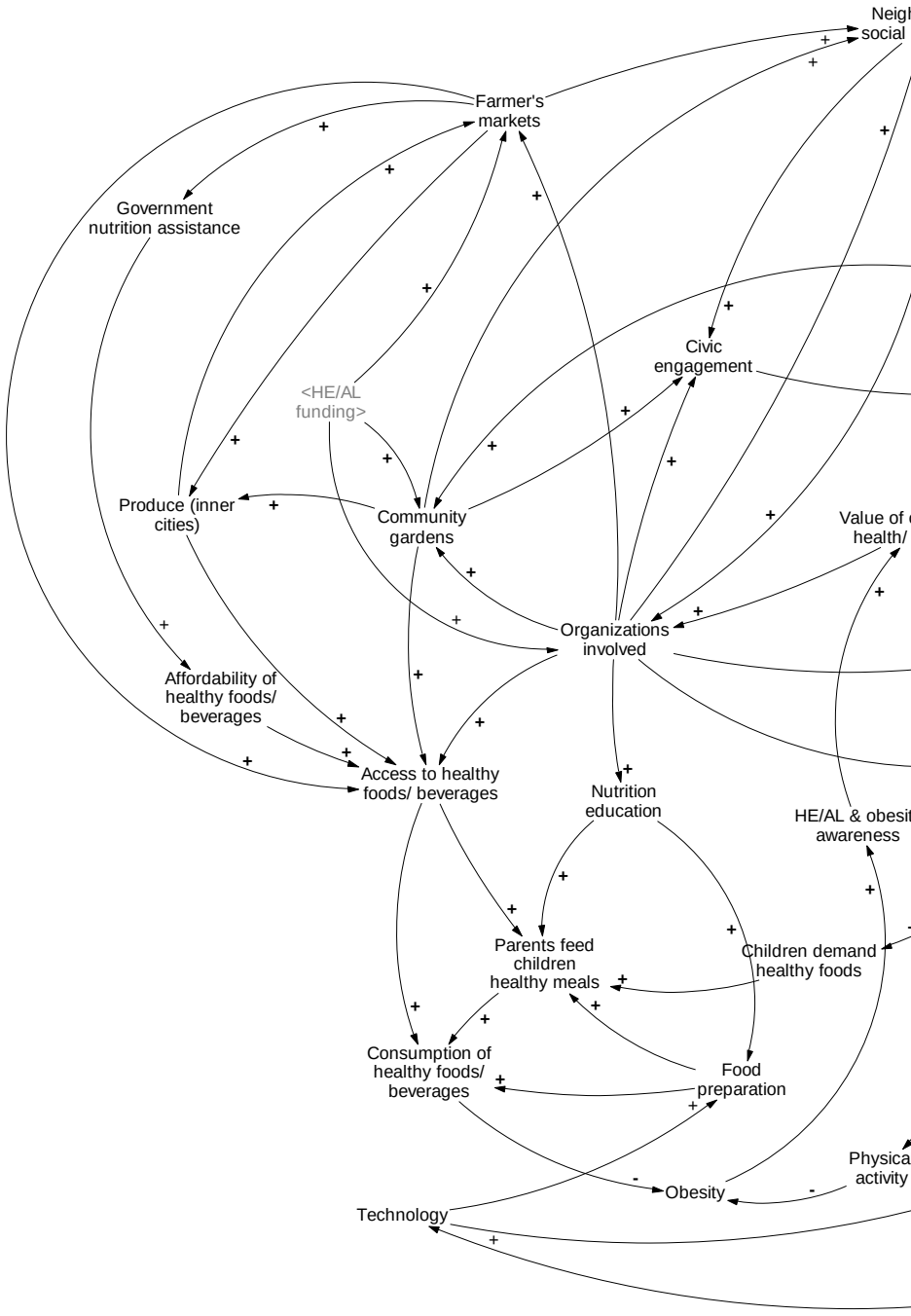
In addition to these insights, systems thinking can also help to pose key questions for assessment and evaluation, including assessing key features of natural play spaces that contribute to outdoor learning and imaginative play, evaluating the impact of imaginative play on rates of physical activity as well as social and emotional development, and determining the overall affect on health and wellness.



Opportunities for Systems Thinking in Nash and Edgecombe Counties, North Carolina

This storybook provided an introduction to some basic concepts and methods for systems thinking at the community level, including: causal loop diagrams, variables, causal relationships and polarities, reinforcing feedback loops, and balancing feedback loops, among others. For the *Healthy Kids Collaborative* partners, this storybook also summarized the healthy eating, active living, partnership and community capacity, social determinants, and health and health behaviors subsystems in the Nash and Edgecombe Counties' causal loop diagram as well as an example feedback loop corresponding to the partnership's primary strategies.

Figure 4: *Healthy Kids Collaborative* Causal Loop Diagram



This causal loop diagram reflects a series of conversations among partners and residents from 2011 to 2013. Some discussions probed more deeply into different variables through the behavior over time graphs exercise, or causal relationships through the causal loop diagram exercise.

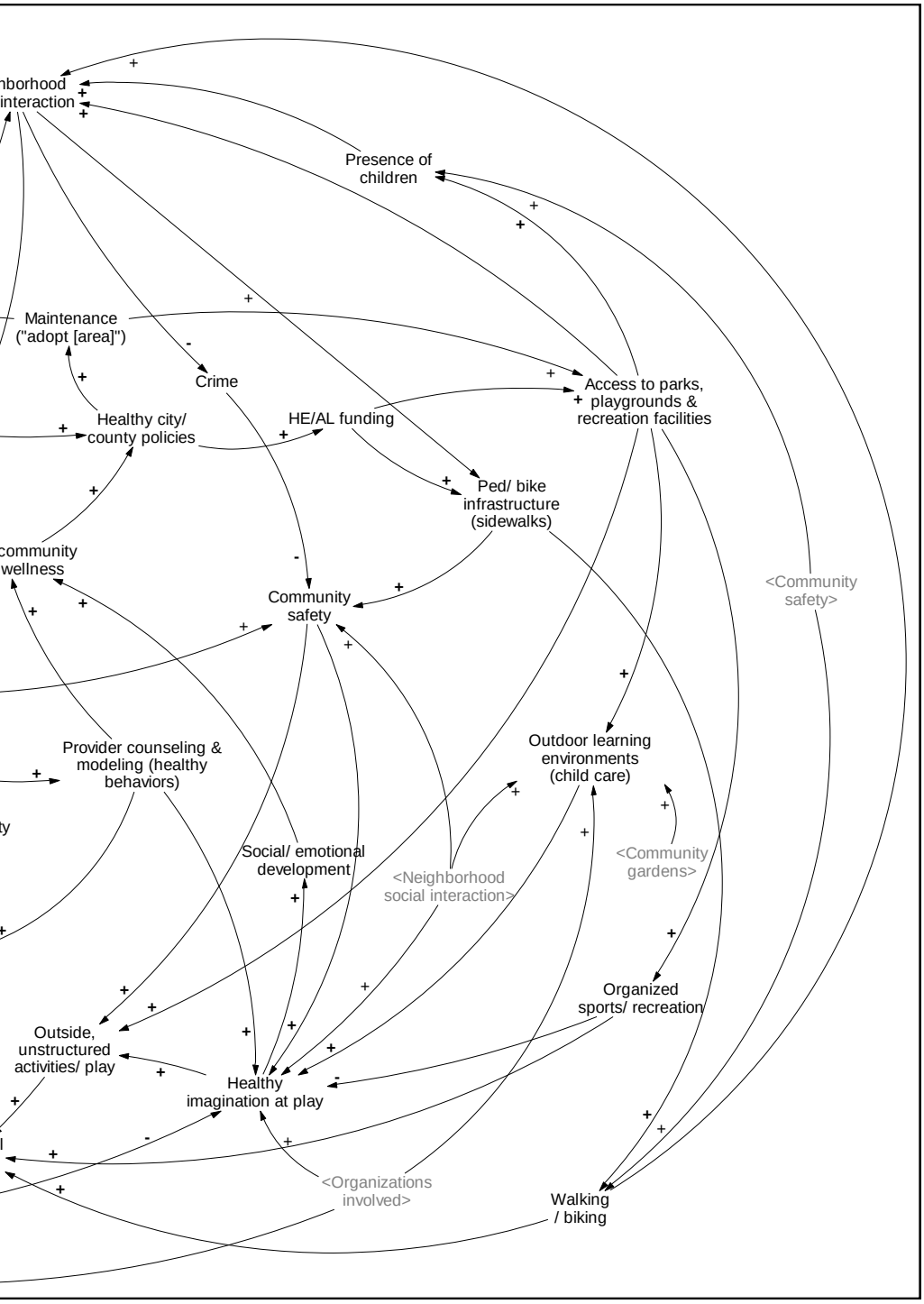
This represented a first attempt to collectively examine the range of things that affect or are affected by policy, system, and environmental changes in Nash and Edgecombe Counties, North Carolina to promote healthy eating and active living as well as preventing childhood overweight and obesity.

Yet, there are several limitations to this storybook, including:

- the participants represent a sample of the *Healthy Kids Collaborative* partners (organizations and residents) as opposed to a representative snapshot of government agencies, community organizations, businesses, and community residents;
- the behavior over time graphs and the causal loop diagram represent perceptions of the participants in these exercises (similar to a survey or an interview representing perceptions of the respondents);
- the exercises and associated dialogue took place in brief one- to two-hour sessions, compromising the group's capacity to spend too much time on any one variable, relationship, or feedback loop; and
- the responses represent a moment in time so the underlying structure of the diagram and the types of feedback represented may reflect "hot button" issues of the time.

Much work is yet to be done to ensure that this causal loop diagram is accurate and comprehensive, for example:

- having conversations to discuss existing feedback loops to ensure that the appropriate variables and relationships are represented accurately;
- reviewing the behavior over time graphs (see also Appendix E) to confirm that the trends reflect common perceptions among residents and compare these trends to actual data;
- revisiting variables removed because they were not part of feedback loops; and
- starting new conversations about other variables (behavior over time graphs exercise) or relationships (causal loop diagram exercise) to add to this diagram.



In addition, different subgroups in Nash and Edgecombe Counties may use this causal loop diagram to delve in deeper into some of the subsectors (e.g., healthy eating, active living) or feedback loops, creating new, more focused causal loop diagrams with more specific variables and causal relationships.

Use of more advanced systems science methods and analytic approaches to create computer simulation models is another way to take this early work to the next level. The references section includes citations for resources on these methods and analytic approaches, and it is necessary to engage professional systems scientists in these activities.

Please refer to the Appendices for more information, including:

- Appendix A: Behavior over time graphs generated during site visit
- Appendix B: Photograph of the original version of the *Healthy Kids Collaborative* Causal Loop Diagram
- Appendix C: Original translation of the causal loop diagram into Vensim PLE
- Appendix D: Transcript translation of the causal loop diagram into Vensim PLE
- Appendix E: Behavior over time graphs not represented in the storybook

References for Systems Thinking in Communities:

Group model building handbook:
Hovmand, P., Brennan L., & Kemner, A. (2013). Healthy Kids, Healthy Communities Group Model Building Facilitation Handbook. Retrieved from http://www.transtria.com/hkhc.

Vensim PLE software for causal loop diagram creation and modification:
Ventana Systems. (2010). Vensim Personal Learning Edition (Version 5.11A) [Software]. Available from http://vensim.com/vensim-personal-learning-edition/

System dynamics modeling resources and support:
Andersen, D. F. and G. P. Richardson (1997). "Scripts for group model building." System Dynamics Review 13(2): 107-129.

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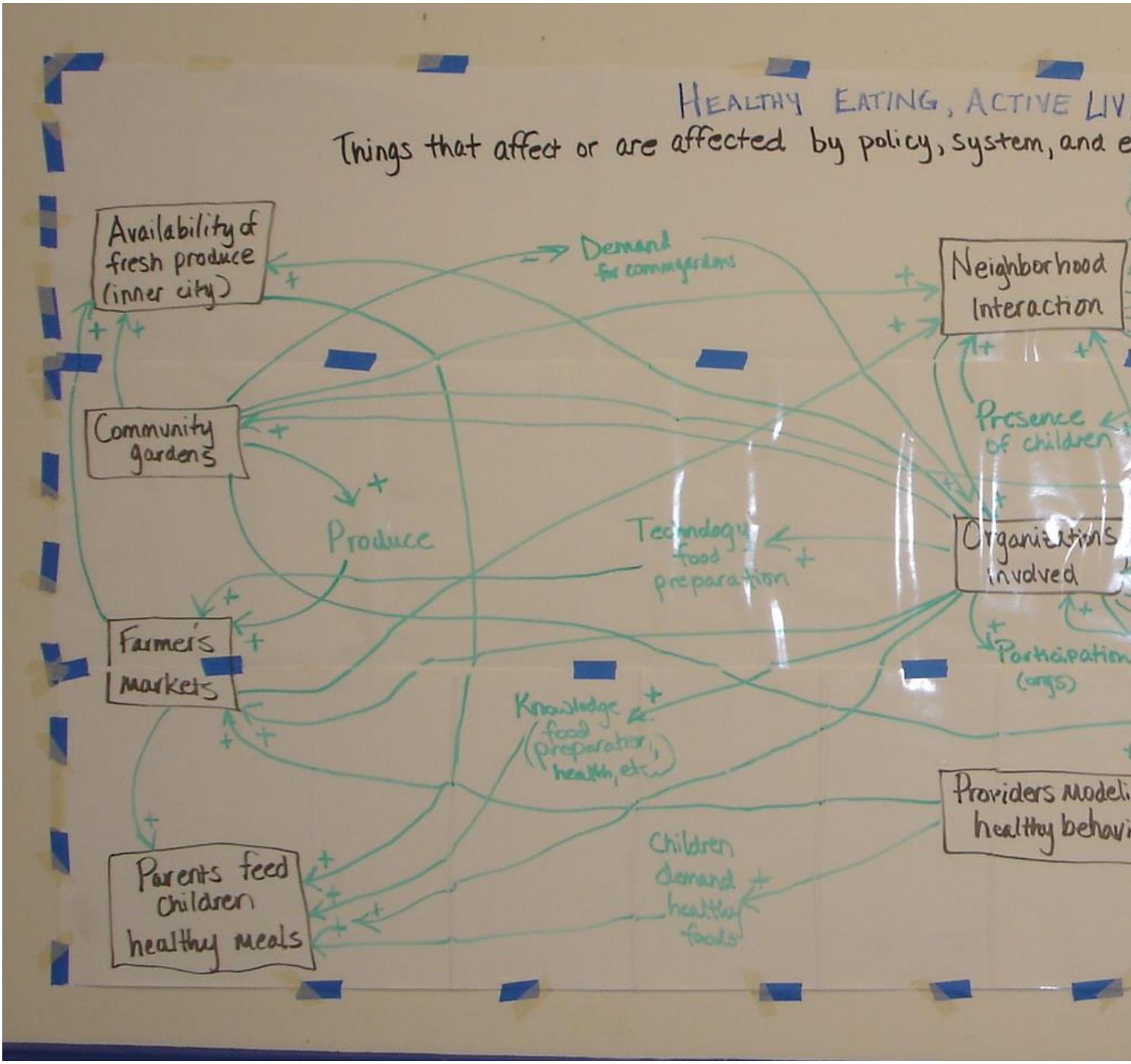
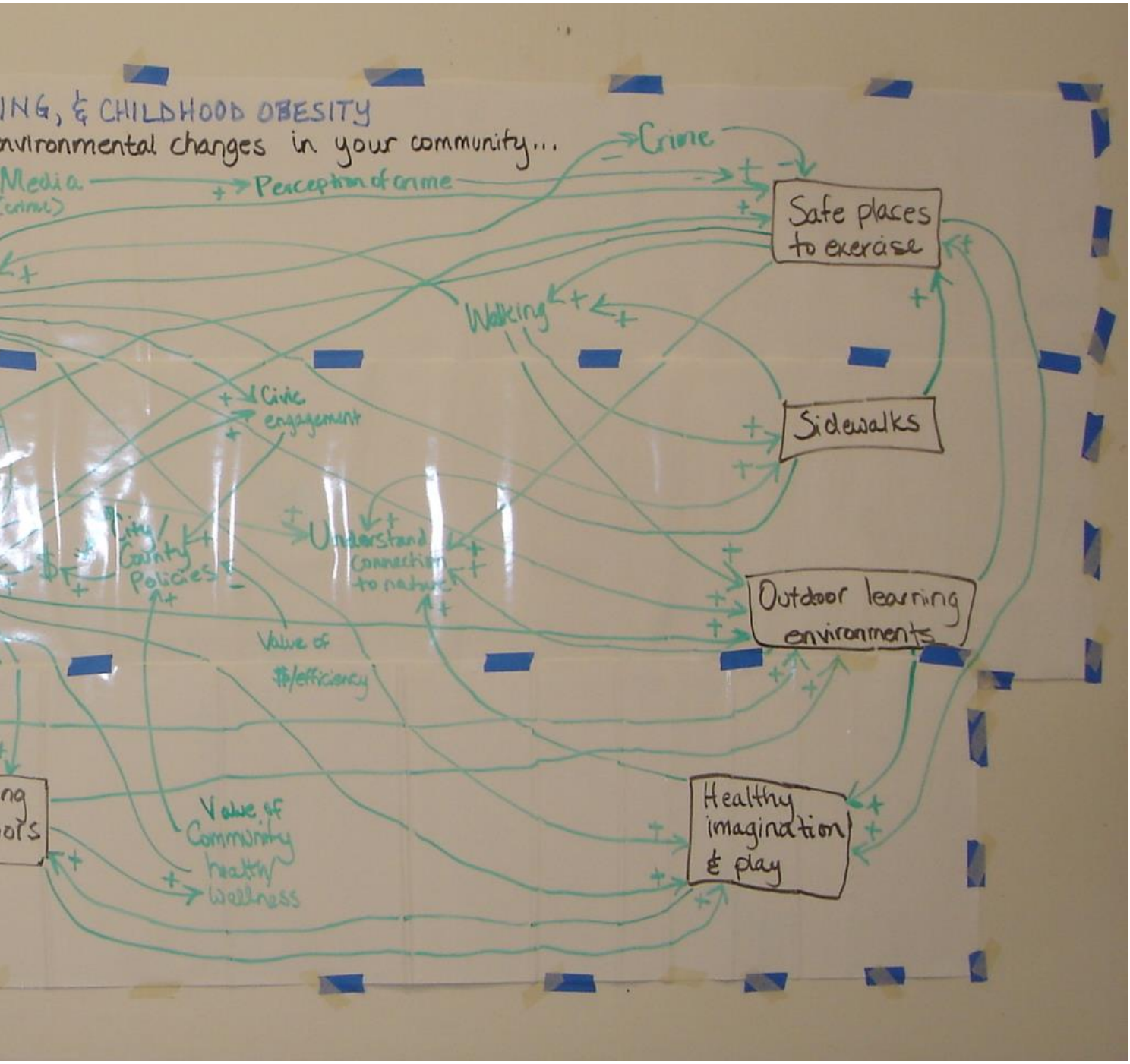
Appendix A: Behavior Over Time Graphs Generated during Site Visit

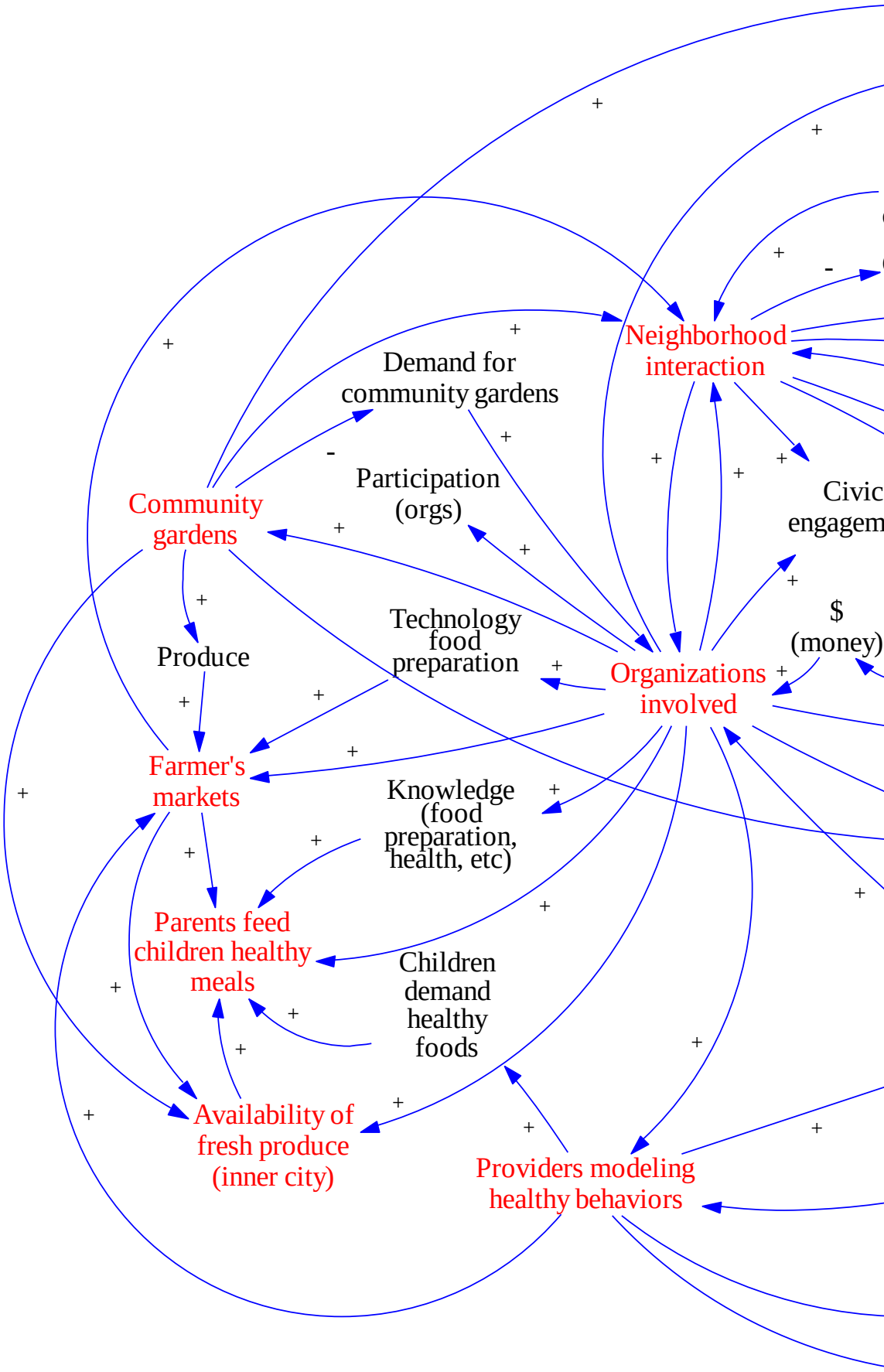
Nash and Edgecombe Counties, North Carolina: *Healthy Kids Collaborative*	
Categories	**Number of Graphs**
Active Living Behavior	5
Active Living Environments	1
Funding	1
Healthy Eating Behavior	2
Healthy Eating Environments	8
Marketing and Media Coverage	0
Obesity and Long Term Outcomes	1
Partnership & Community Capacity	2
Policies	5
Programs & Promotions (Education and Awareness)	7
Social Determinants of Health	1
Total Graphs	**33**

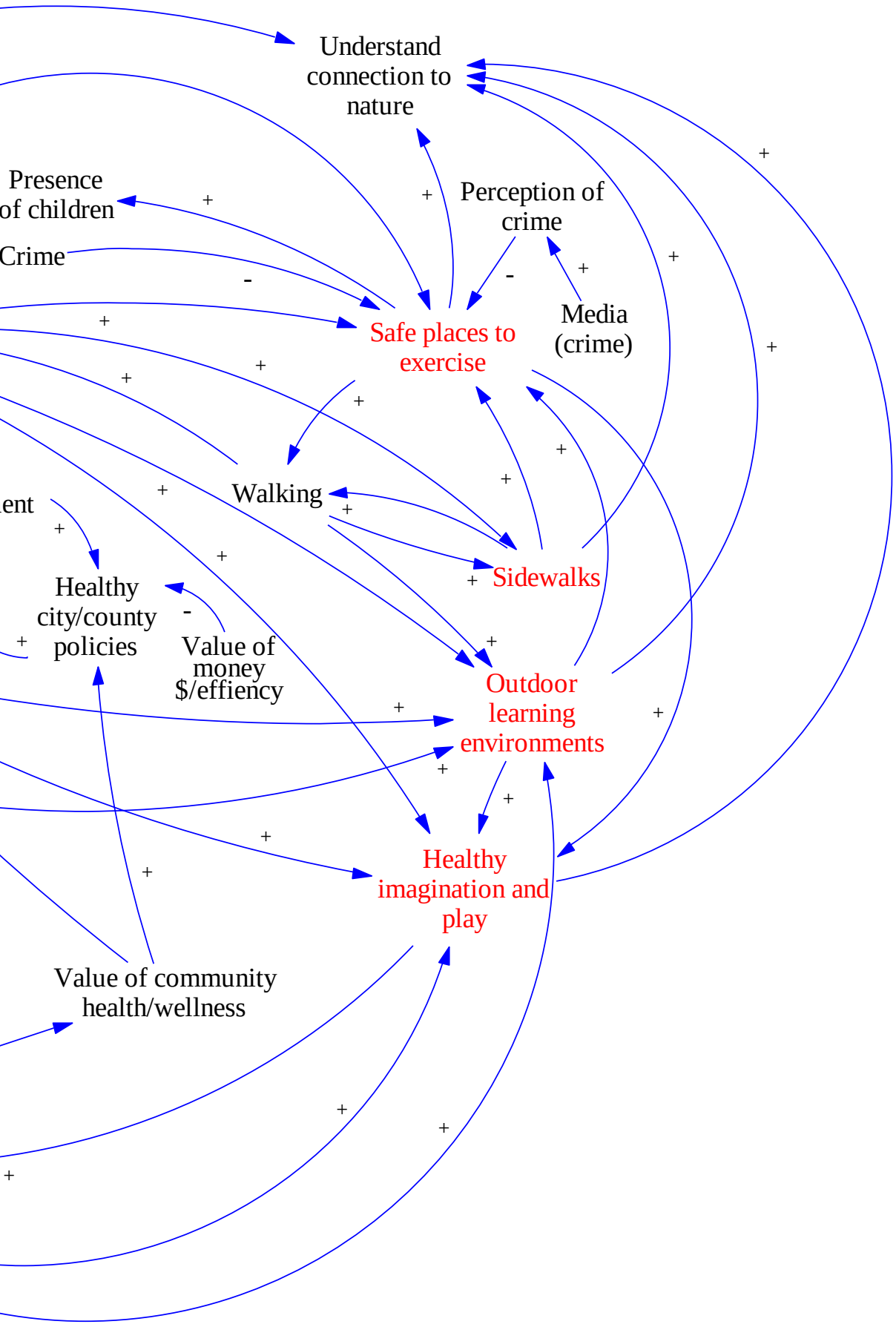
Appendix B: Photograph of the Original Version of the *Healthy Kids Collaborative* Causal Loop Diagram



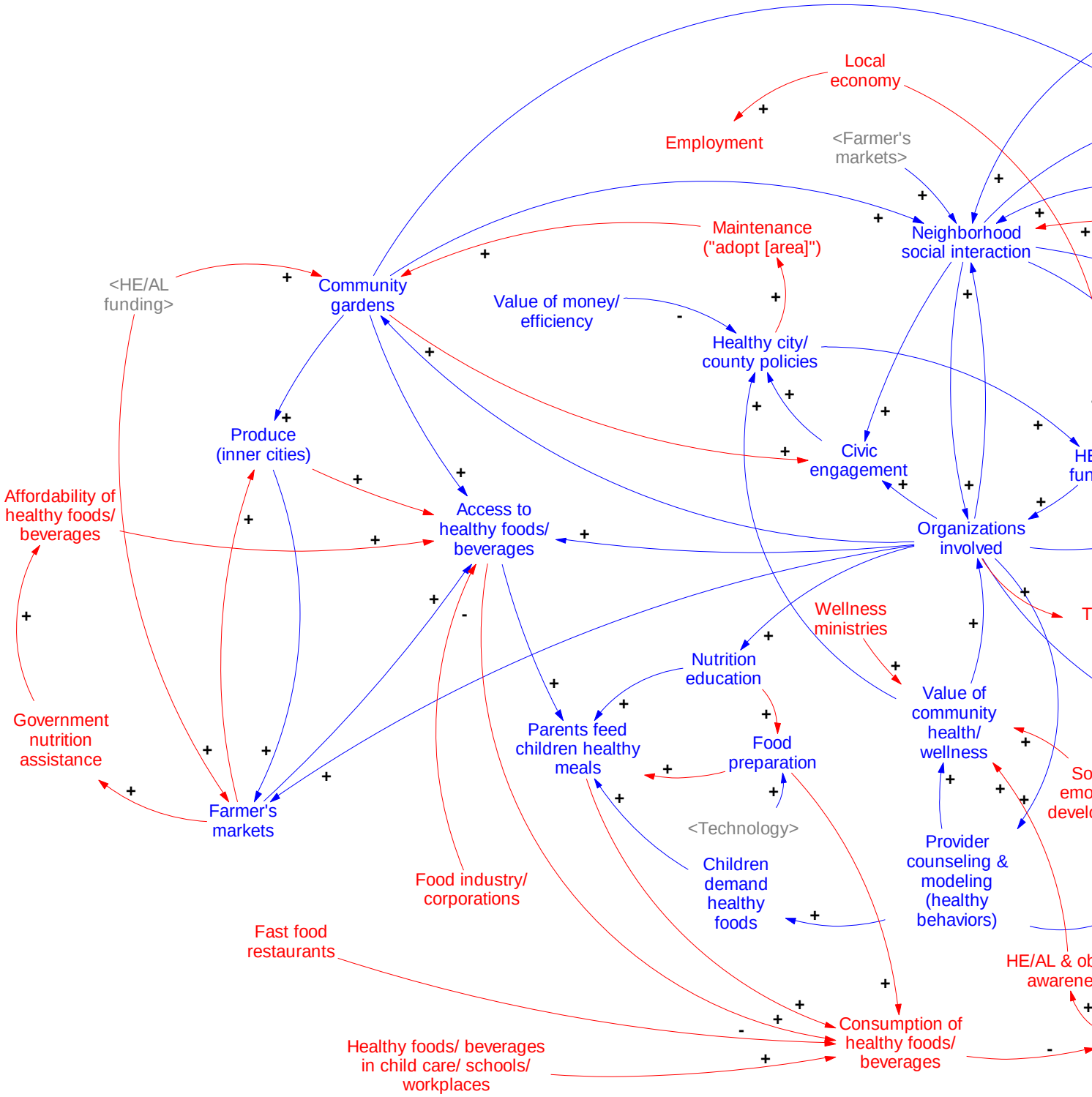

ING, & CHILDHOOD OBESITY
environmental changes in your community...
Crime
Media
(crime)
Perception of crime
Safe places to exercise
Walking
Civic engagement
Sidewalks
City/County Policies
Understand connection to nature
Outdoor learning environments
Value of $/efficiency
Value of Community health/wellness
Healthy imagination & play

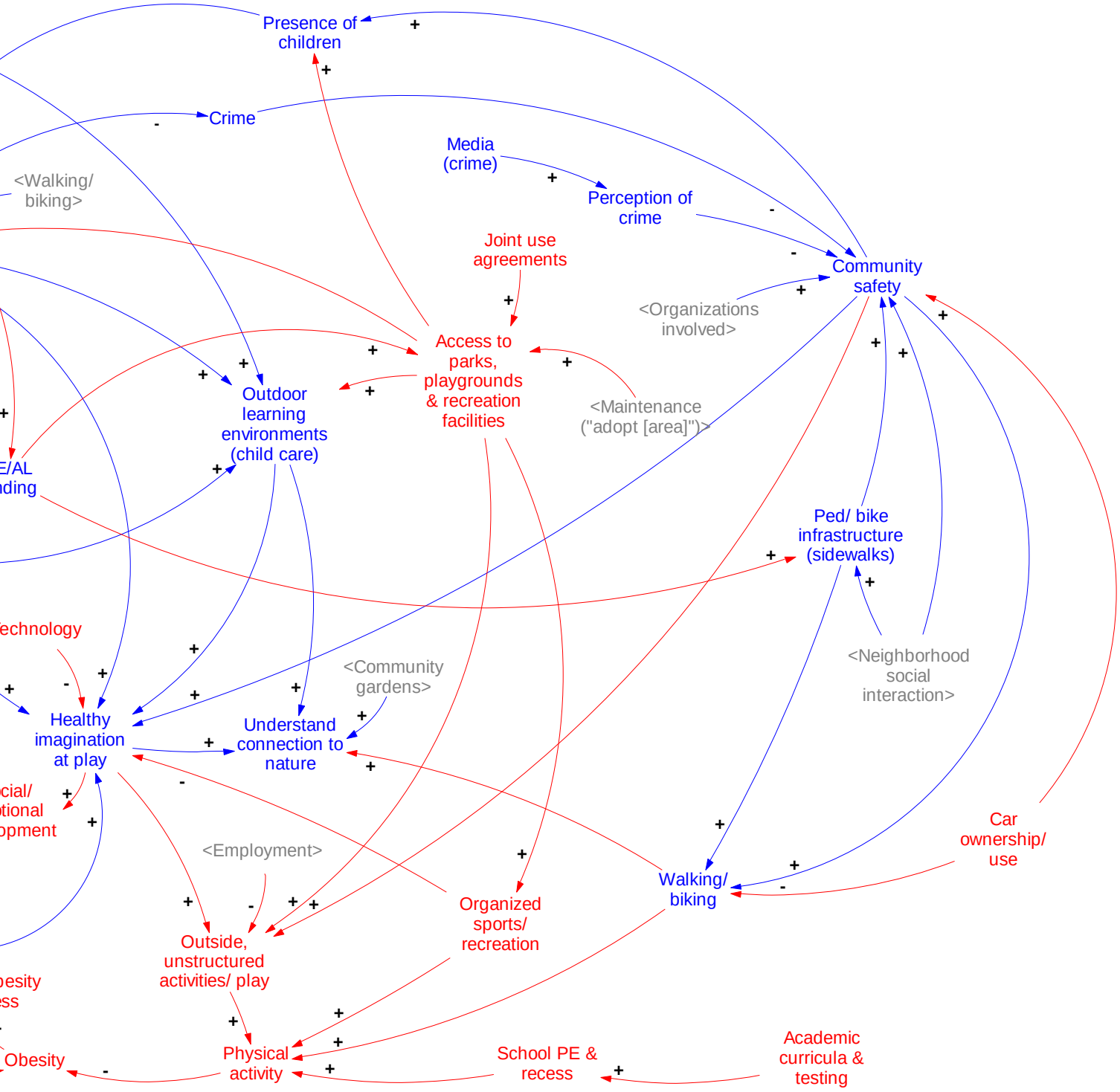
Appendix C: Original Translation of the Causal Loop Diagram into Vensim PLE



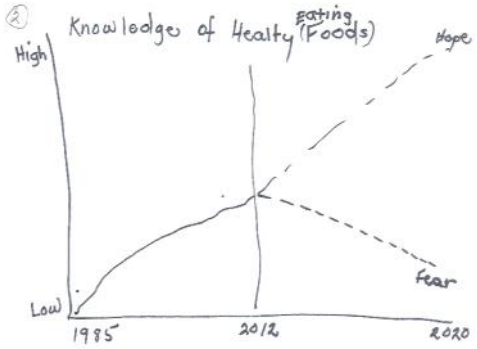

Understand connection to nature
Presence of children
Crime
Perception of crime
Media (crime)
Safe places to exercise
Walking
Sidewalks
Healthy city/county policies
Value of money $/effiency
Outdoor learning environments
Healthy imagination and play
Value of community health/wellness

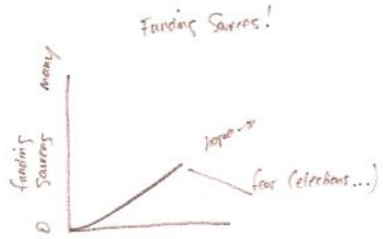
Appendix D: Transcript Translation of the Causal Loop Diagram into Vensim PLE

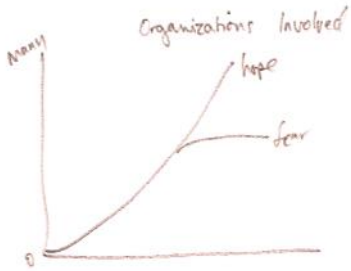


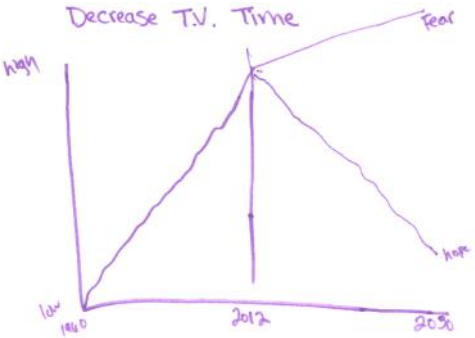

Presence of children
Crime
Media (crime)
Perception of crime
<Walking/ biking>
Joint use agreements
Community safety
<Organizations involved>
Access to parks, playgrounds & recreation facilities
<Maintenance ("adopt [area]")>
Outdoor learning environments (child care)
E/AL nding
Ped/ bike infrastructure (sidewalks)
echnology
<Neighborhood social interaction>
<Community gardens>
Healthy imagination at play
Understand connection to nature
cial/ tional opment
<Employment>
Car ownership/ use
Walking/ biking
Organized sports/ recreation
Outside, unstructured activities/ play
besity ess
Obesity
Physical activity
School PE & recess
Academic curricula & testing

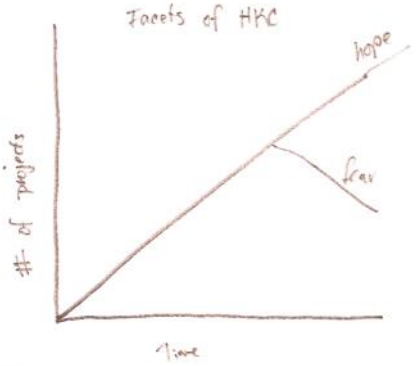
Appendix E: Behavior Over Time Graphs not Represented in the Storybook

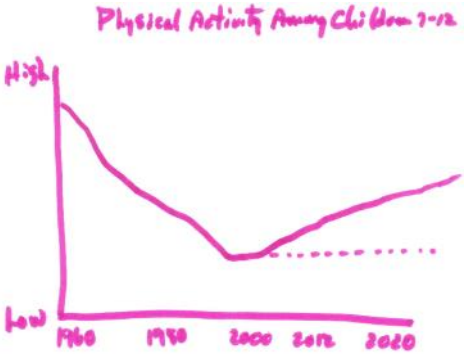


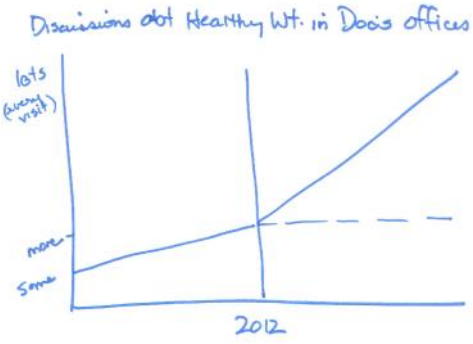


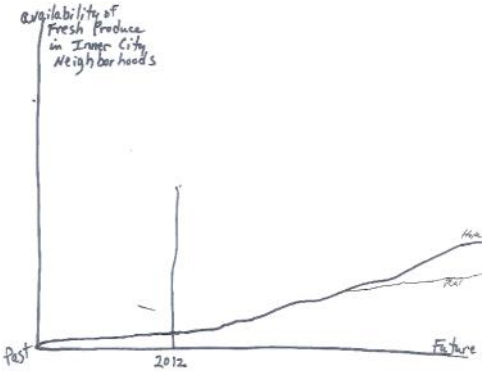


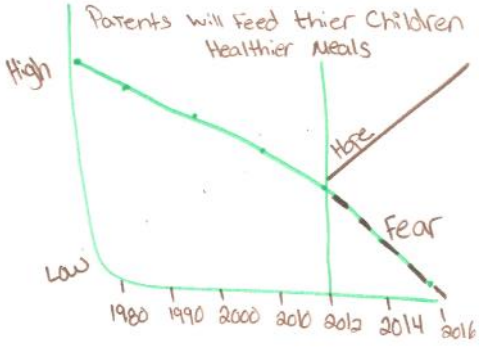


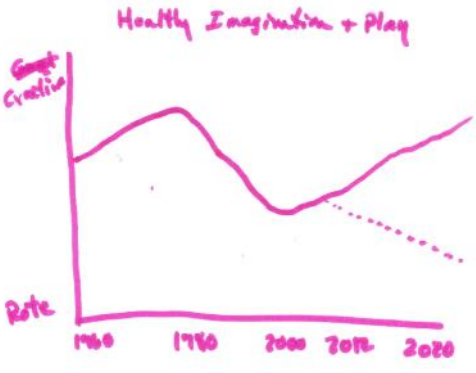


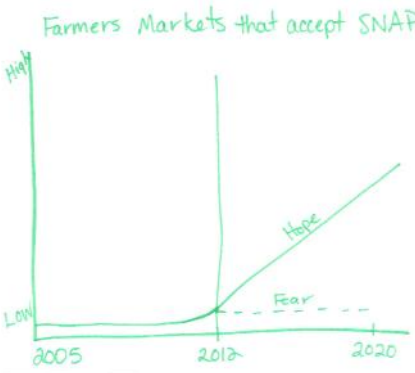


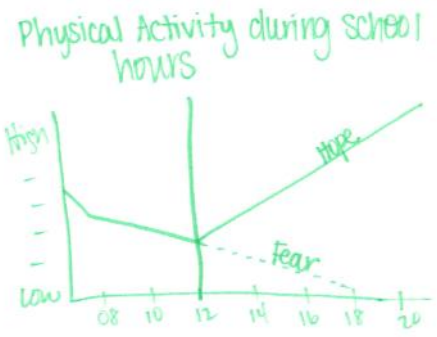


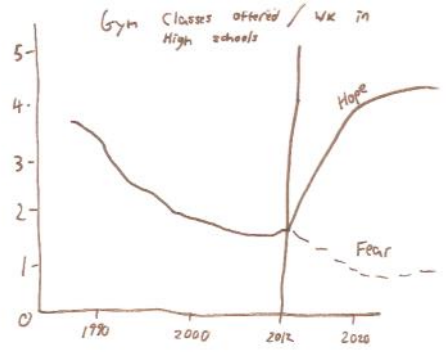


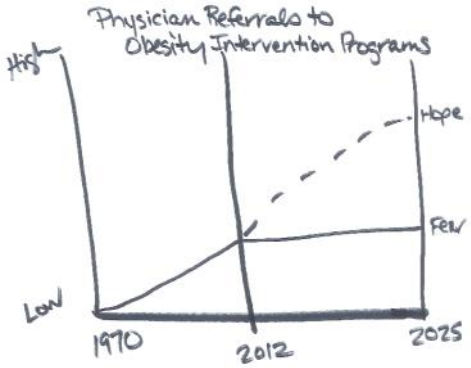


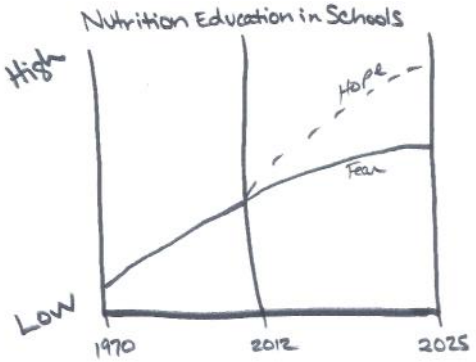


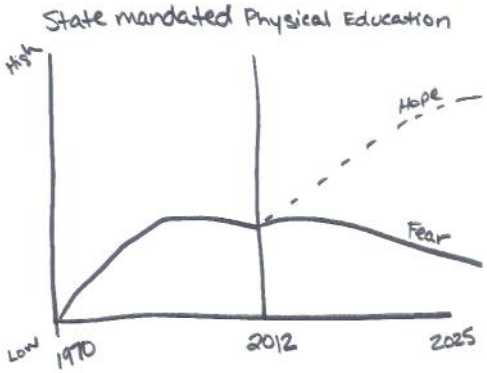


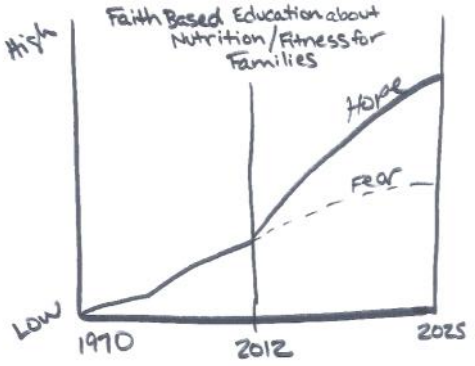


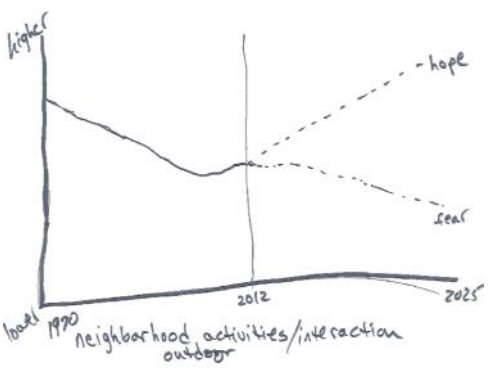

Gym Classes offered / wk in High schools
5
4
3
2
1
0
Hope
Fear
1990
2000
2012
2020

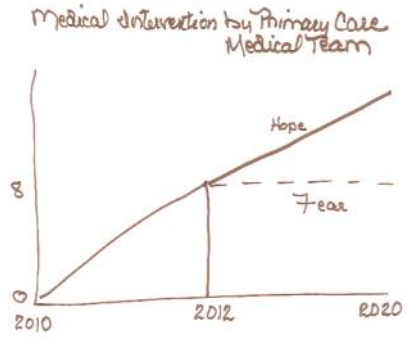

Physician Referrals to Obesity Intervention Programs
High
Low
Hope
Fear
1970
2012
2025

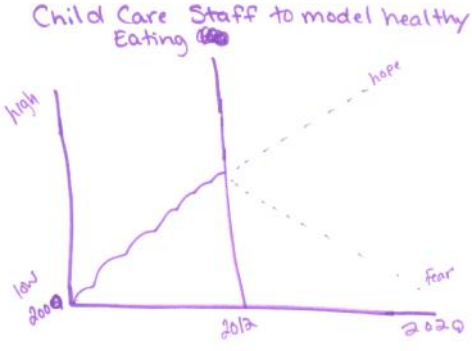

Nutrition Education in Schools
High
Low
Hope
Fear
1970
2012
2025

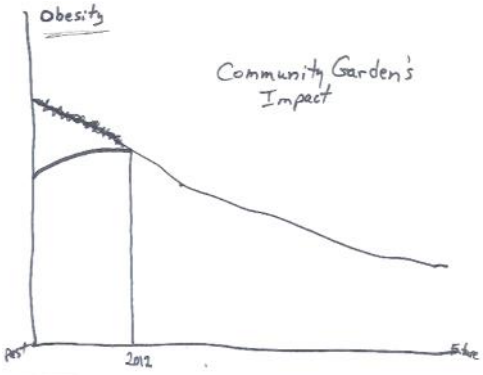

State mandated Physical Education
High
Low
Hope
Fear
1970
2012
2025

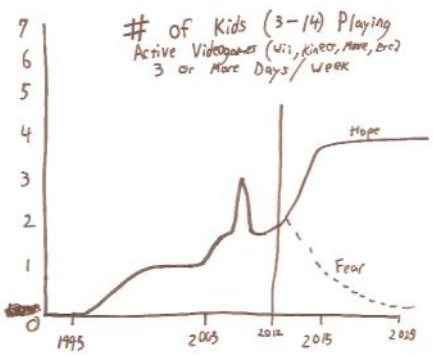

Faith Based Education about Nutrition / Fitness for Families
High
Low
Hope
Fear
1970
2012
2025

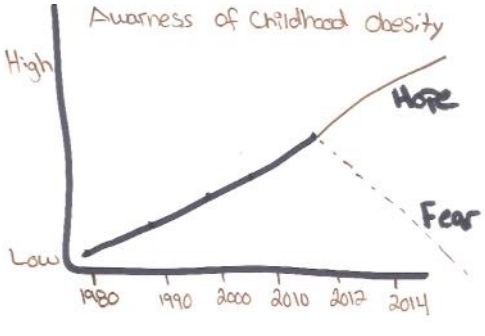

higher
hope
fear
2012
2025
lower
1970
neighborhood activities/interaction outdoor

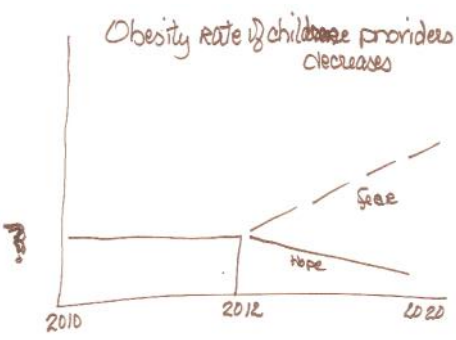

Medical intervention by Primary Care Medical Team
Hope
Fear
8
0
2010
2012
2020

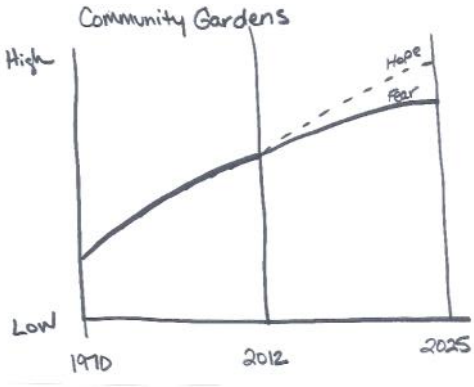

Child Care Staff to model healthy Eating
high
low
hope
fear
2012
2020

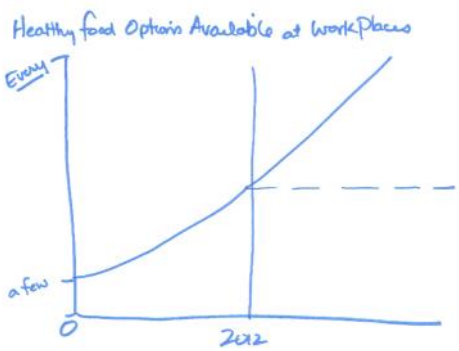

Obesity
Community Garden's Impact
2012

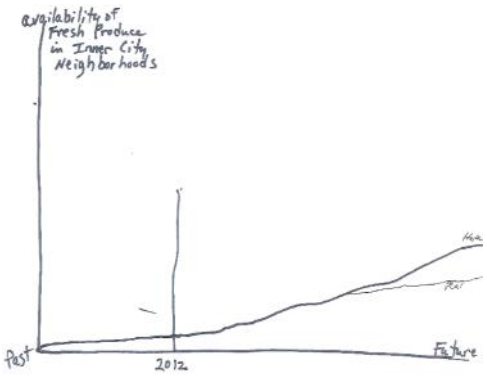

# of Kids (3-14) Playing Active Videogames (Wii, Kinect, Move, Etc) 3 or More Days / Week
7
6
5
4
3
2
1
0
Hope
Fear
1995
2003
2012
2015
2018

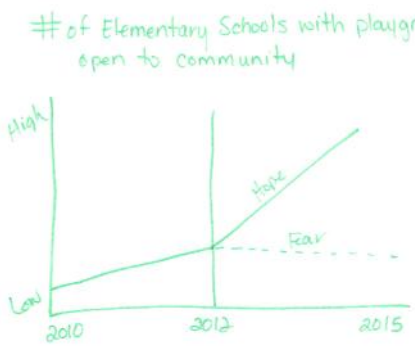

Awarness of Childhood Obesity
High
Low
Hope
Fear
1980
1990
2000
2010
2017
2014

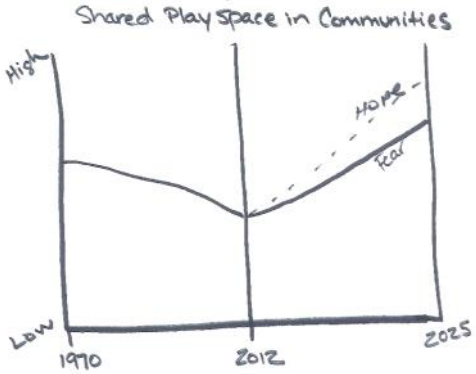

Obesity rate if childcare providers decreases
Fear
Hope
2010
2012
2020

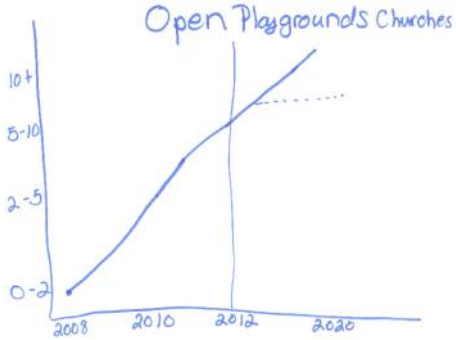

Community Gardens
High
Low
Hope
Fear
1970
2012
2025

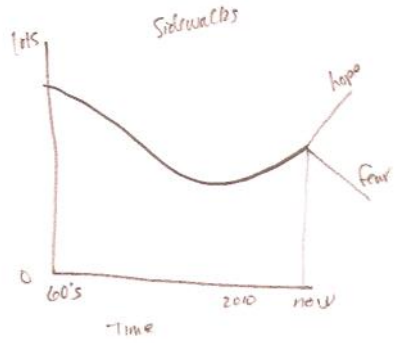

Healthy food Options Available at Work Places
Every
a few
0
2012


availability of Fresh Produce in Inner City Neighborhoods
Past
2012
Future


# of Elementary Schools with playgrounds open to community
High
Low
Hope
Fear
2010
2012
2015


Shared Play Space in Communities
High
Low
Hope
Fear
1970
2012
2025


Open Playgrounds Churches
10+
5-10
2-5
0-2
2008
2010
2012
2020


Sidewalks
lots
0
Hope
Fear
60's
2040
now
Time