8-2013

Breaking The Fast Food Chain: Introducing Urban Agriculture To Foster Healthy Eating Habits In America

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To the Graduate Council:

I am submitting herewith a thesis written by Justin Dean Bruno entitled "Breaking The Fast Food Chain: Introducing Urban Agriculture To Foster Healthy Eating Habits In America." I have examined the final electronic copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Landscape Architecture, with a major in Landscape Architecture.

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Breaking The Fast Food Chain: Introducing Urban Agriculture To Foster Healthy Eating Habits In America

A Thesis Presented for the
Master of Landscape Architecture
Degree
The University of Tennessee, Knoxville

Justin Dean Bruno
August 2013

DEDICATION

To my loving family and fiancée,
I could never have done this without your support.
Thanks for loving me even if I used to wear socks with sandals.

To food,
Without you, I could not survive.

ACKNOWLEDGMENTS

I wish to thank the University of Tennessee Landscape Architecture program and its faculty and staff who have inspired me and guided me through difficult coursework. I wish to give a special thanks to my Thesis Committee, who encouraged me to pursue what I am most passionate about.

To my primary advisor, Samuel M. Rogers, and my committee members, Bradford P. Collett and Jennifer A. Akerman, I appreciate all the time, effort, and early mornings that got me to the finish line. Your knowledge, dedication, and tough love was truly valuable throughout this process.

ABSTRACT

Americans today know food well, but few fully understand where it comes from, the processes involved in its production and distribution, or the issues of unequal access to it. It is encouraging to see the presence of healthy food and sustainability as hot topics in our society, but we have not yet given everyone equal access to these benefits. Farmers' markets, agritourism, and organic farms have begun to inspire a new generation about the advantages of healthy food, but the presence of food deserts haunts urban areas throughout the country. The lack of access to healthy food in the city is a pressing issue that is causing certain urban residents to be at a disadvantage. Changes are needed in the fabric of our urban communities to incorporate urban agriculture and food education.

In the neighborhood of California, within the city of Louisville, Kentucky, there are nearly six thousand citizens challenged by poverty, unemployment, and limited food access. These families have little or no healthy food access, even to something as simple as a grocery store. People cannot always move to where healthy food is, so it's time to bring it to them.

Urban agriculture can supply a neighborhood and the surrounding area with local and sustainable sources of healthy fruits, vegetables, nuts, legumes, herbs and more. The goal is to provide healthy food and hands-on education to young people within the community, and show them how to grow food, maintain gardens, and use the produce in healthy meals for themselves and their families. Finding a way to adequately distribute the food to those in the community is imperative as well.

In California, urban agriculture introduced in underutilized spaces could provide gardens for families, education for the community, and food for local residents. My design will serve as a prototype for how urban agriculture can be incorporated into the fabric of a neighborhood. Soon, the education of children about the importance of healthy food will make an impact on individuals' health and lifestyle. Overall, this design seeks to accomplish these goals, and begin to 'break the fast food chain in America.'

PREFACE
A PASSION FOR KNOWLEDGE AND UNDERSTANDING

My Journey

Until my graduate education began as a landscape architecture student at the University of Tennessee, I had no real perspective on our food system in America. Industrialized production, monoculture, and genetically modified organisms were all terms that I honestly knew nothing about. I was unaware of food's impact on my health, of ingredients that made up what I consumed, and of the differences between conventional and organic farming methods. In short, I ate apathetically.

Since I came to this realization almost three years ago, my eating habits and overall thoughts about food have drastically changed and so has my health. This primarily began when I was required to give a lecture in my Sustainability class on *Food Systems in America*. It was an enlightening experience that I have used to motivate myself and others to become healthier and more knowledgeable about the food that they eat, where it comes from, and how it affects their lives and the lives of others. We do not live in a vacuum. Our actions affect other people and nature also. When we realize that our decisions have an impact socially, economically, and environmentally, we may begin to make better choices for ourselves and others.

As you may have guessed, I am now the resident 'foodie' in my family. I was forced to change a lot when I discovered I had Hypoglycemia. There is no

doubt in my mind that the food and drink I consumed for much of my young life has now physically changed my body for the rest of it. Instead of eating fast food hamburgers and drinking sugar-filled soft drinks, I primarily cook for myself now and drink a lot of water. The creative process involved in making my own recipes, and trying different iterations of them, is very exciting. My reading and research has even led me to a life of vegetarianism, at least for now. This is all an experience that I hope no one else goes through. I was ignorant to the health problems that can stem from a “normal” diet.

My love (although sometimes paired with strong dislike), for food and food systems is a direct product of my increased knowledge of the subjects. I do not try to buy local and organic foods simply because they are healthier. It has not even been scientifically proven that they are any better for you than McDonald’s or Subway, in fact. For me, it is about an ethic much more than myself as an individual person. Organic and small-time farmers treat the lands they farm with respect, use less toxic chemicals, and produce less waste. While the debate about economy of scale will continue with the expansive farms, personally, I value the intimate contact that a small-time farmer has with his or her animals and crops. Generally, they choose to make less of an impact on the planet and treat their animals and employees better.

The benefits of making smart choices like these, about the food that you and I purchase and eat, can be numerous and far-reaching. There is a call for healthy, responsibly-produced food more than ever now. Even fast food restaurants are attempting to lure in more customers by creating more healthy

options. I currently feel that there is more to be done, and I've challenged myself to attempt to make an impact, by seeking to educate those who are unaware of how their decisions directly affect the food industry.

I do not blame producers and consumers of the food, nor do I blame myself for the situation we find ourselves in. Ultimately, it is the product of a flawed system where elements like cost may control the market more than factors like health and sustainability. Many are now becoming aware of things that might be objectionable about our food. We must show what types of food we desire by, as Michael Pollan would say, "voting with [our] forks" (Pollan, 281). It is time to educate ourselves and others, because only then can we make positive change. My goal is to begin to shine a light on the issues America is currently facing, and to discuss my proposed solution to combat these problems.

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THE PRESSING ISSUES

Health

Health problems are nothing new for humanity. It is easy to recall events of plague and famine discussed in high school history class. They certainly feel like things of the past, but how far removed are we from epidemic? Could there be one right under our noses today, yet it is only minimally discussed? Under our noses, yes, but only a little farther down at our waistline.

The epidemic being discussed here is *obesity*. Obesity is defined as an excess amount of body fat that has the potential to lead to a bevy of larger health problems (“WIN - Statistics"). Obesity may affect your life currently, or has the potential to at some point in the future. It is an increasingly present trend in America over the past fifty years (Figure 1.) According to data from the National

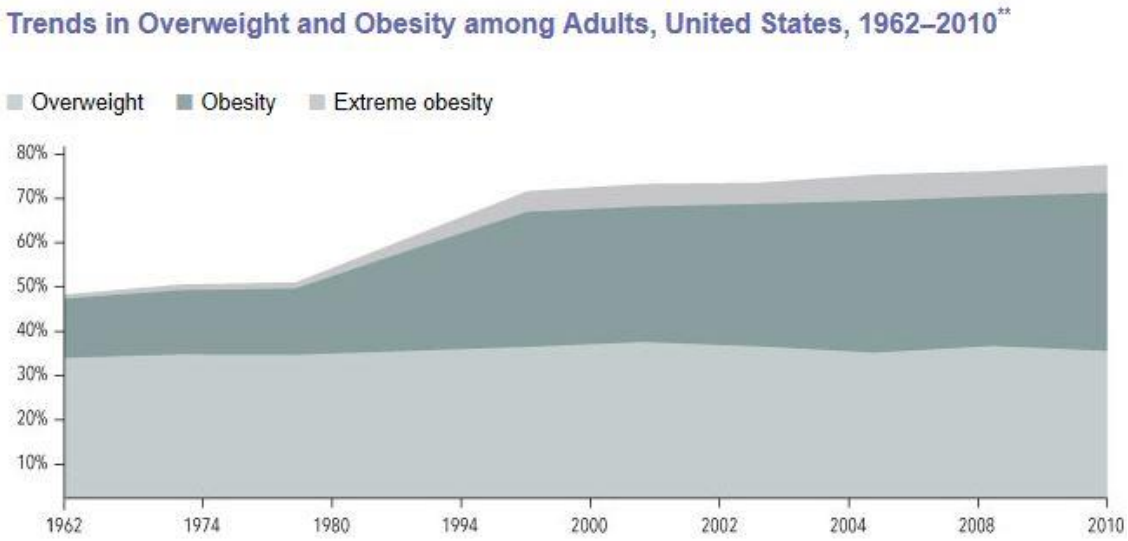

Figure 1. Trends in Overweight and Obesity.
Image by: “WIN – Statistics”, 2013.

Health and Nutrition Examination Survey from 2009-2010, greater than 2 out of 3 adults, and 1 out of 3 children, are considered to be overweight or obese (“WIN - Statistics").

There are a few factors responsible for obesity in Americans today. These consist of “genes, eating habits, where people live, attitudes and emotions, life habits, and income” (“WIN - Statistics"). While being overweight or obese is not solely attributable to diet, this is a huge factor. When someone consumes fewer calories than he/she burns in a day, he/she loses weight or remains constant. And the inverse is true as well, when one consumes more calories than he/she burns, weight, generally in the form of fat, increases. If this habit continues for extended periods of time it will lead to obesity and other health risks (“WIN - Statistics"). According to the Weight-Control Information Network, these consist of:

- “Type 2 Diabetes
- Heart Disease
- High Blood Pressure
- Nonalcoholic Fatty Liver Disease
- Osteoarthritis
- Breast, Colon, Endometrial, and Kidney Cancer
- Stroke”

(“WIN - Statistics")

While one’s eating habits are certainly important, emphasis must also be placed on what foods are found in one’s diet. In America, as well as other places

around the world, *processed foods* are becoming more prevalent and causing more health issues (Figure 2.). In our modern industrial American food system crops like corn and wheat are grown all across the interior of the country. There is little wrong with this fact, but when the grains are harvested they are not sold as corn and wheat. How is that possible? The processing of food involves altering a food's state through heating, milling, pressure treating, irradiating, and through the addition of food additives. These changes can be seen in canned and dried foods, herbs and spices, and even dairy products ("Processed Food Facts"). Essentially, any food you get from a store that is contained within some type of package has been *processed* in some way.

Figure 2. Typical Fast Food and Snacks.
Image by: Boone, 2009.

The processing of food in our society seems natural and is widely accepted and therefore most people do not realize health risks are involved. First, why do we process foods if it is detrimental to our health? This is a valid question and one that has a reasonable answer. "Foods are usually processed to make them safer, keep longer, or [to make them] more convenient" ("Processed

Food Facts"). When food is grown on a distant farm, shipped across the country (or the world) to be sold, and not necessarily consumed right away, it is easy to see why prolonging spoilage is a driving factor of processing. There is, in fact, another way for our system to operate.

Fresh food that has not been altered or processed is much more nutritional. Average food processing removes between 50 and 80% of the nutrients from a specific food product ("Processed Food Facts"), not to mention that it alters the taste and overall properties of the food:

> "Food manufacturers may then add cheap or artificial sugars, salts, fats, or additives to: improve or restore the flavor or properties of the food, disguise the taste of low quality ingredients that have been added to improve texture, shelf life, or appearance, [and] improve the shelf life of the food. In other words, processing usually means removing nutrients, swapping good nutrients for bad, increasing calorie content, and removing other valuable things like fiber" ("Processed Food Facts").

If this whole process sounds problematic, it is. In an article from *Natural News* they state, "According to the World Health Organization, the amount of processed foods that are consumed these days [is] responsible for the increasing levels of obesity and even heart disease" (Botes). To say that most people are unaware of this is an understatement. People would not willingly submit themselves to such harm if they were cognizant of the causes of their health issues. In fact, close to 90% of the average American's food budget is spent on processed food items (Botes). This illustrates clearly that more education on food issues is necessary in our country today.

Whether discussing obesity, processed foods, or other issues, food choice strongly affects one's overall health. One's affluence and location can also have an impact on one's eating habits. This transitions to the next major issue, food justice.

Food Justice and Access

Food availability in cities around the country is becoming an issue because of its inconsistency. The presence of 'food deserts' in urban locations are increasing in number every day, and this means there are more and more people without adequate access to healthy, nutritious food. City dwellers specifically are being affected by food justice issues, and are continually losing touch with agricultural systems and the origins of their food. According to Food Justice authors, Robert Gottlieb and Anupama Joshi, food justice isn't a simple term to define:

> "We defined food justice as related to three key arenas for action: (i) seeking to challenge and restructure the dominant food system, (ii) providing a core focus on equity and disparities and the struggles by those who are most vulnerable, and (iii) establishing linkages and common goals with other forms of social justice activism and advocacy…" (Gottlieb and Joshi, ix).

America's relationship with food is interesting, and of course, variable. It can be seen in the aforementioned health statistics that there is an increase in value for *quantity* of food, while value for *quality* of food is waning. This does not

mean that people do not request food that tastes good; it simply factors in elements like health and sustainable production as well.

Food is a vital source of sustenance, but is also important for community, health, commerce, and culture in our country and around the world. In an article by Kameshwari Pothukuchi and Jerome Kaufman, they introduce several reasons why food is immensely important to cities:

- "Food sector establishments like restaurants, fast food places, supermarkets, specialty food stores, taverns, and food wholesaling are an important part of any city's economy.
- Many city residents are employed in the food sector.
- Depending on income level, city households will spend from 10 to 40 percent of their income after taxes on food purchases in the home and when they eat outside the home.
- Food waste is a significant portion of the household, commercial, and institutional wastebasket. Including food packaging, food wastes make up close to a third of the total waste that ends up in many city landfills.
- Food related health problems – whether due to inadequate or unbalanced diet or excessive intake – are the cause of many illnesses. Racial and ethnic minority communities that are often concentrated in urban areas face a higher than average risk of diet-related health problems.
- Household and individual trips to grocery stores and other food outlets contribute a significant portion to urban transportation volume.
- A sizable number of lower income city residents depend on emergency sources of food available in food pantries, soup kitchens, and food banks."

(Kaufman and Pothukuchi, 217-18)

All these are true yet we, as Americans, are spending less of our household incomes on food today than at any point over the last ninety years, according to information published by the US Bureau of Labor Statistics (qtd. in Vo). This spending certainly reflects the lack of concern for quality foods in our contemporary Western society.

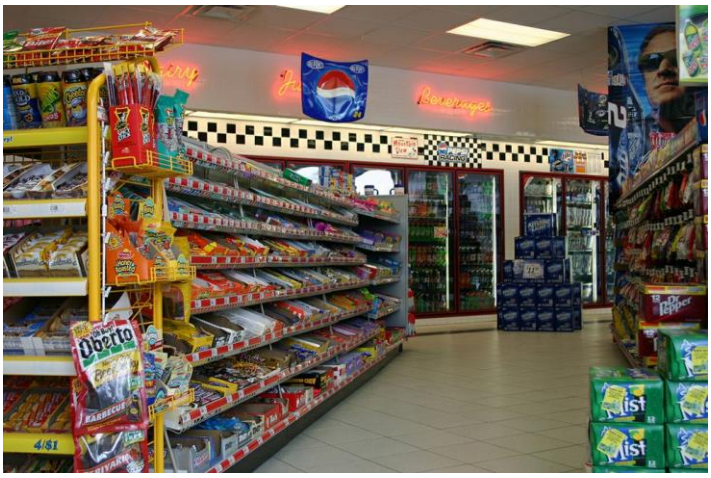

Figure 3. Display Cooler in Gas Station.
Image by: “A display cooler”, 2009.

Urban communities in recent times dedicate little space to landscapes of agricultural production in any capacity. The main sources of food for the average person are convenience stores and fast food restaurants (Figure 3.), because the majority of people cannot afford to buy from, or even travel to, sources of food that are both healthy and taste good. Fast food burgers and soft drinks offer much more in terms of portion and calories than their healthier counterparts (Figure 4.). However,

Figure 4. Typical Food Selection.
Image by: Ableman, 2006.

healthy foods contain many more nutrients and fill you up for a longer time. Yet, in an article published in the National Institute of Health Journal, a study states that 42% of participants reported eating fast food at least once in a four day span (Butt et al. 264).

Many economically-disadvantaged residents of cities face hunger on a daily basis. Several settle for cheap meals because, in our backward food system, most healthy food costs more (Figure 5.). In fact, this trend has persisted in our society because of basic economic systems like 'Supply vs. Demand' ("Why are healthy foods expensive?"). Demand is high for cheap food that tastes good, regardless of health value. If this demand shifts to cheap healthy food, one could surmise that there would soon be an abundance of it.

Figure 5. Food Cost Comparison.
Image by: Dye, 2007.

Very few urbanites have direct access to food production, like a farm, or the means to grow any food for themselves or their families. Even less have the knowledge necessary to be able to have their own productive landscape and understand the benefits that such a space can provide.

According to the American Journal of Public Health, African Americans incorporate 32% more fruits and vegetables into their diet for each supermarket

located in their census tract, while Caucasian Americans' add 11% (Morland, Wing, and Diez Roux, 1761). The presence of a supermarket alone could impact these individual's health in a positive manner. This problem is not so easily solved however, because it's bigger than most people might think. A study released by the USDA in 2010 states that 29.7 million Americans live in low-income neighborhoods and more than a mile from a supermarket. This represents almost 10% of the population of the whole United States (Ver Ploeg et al. iii).

Simple statistics like this are staggering, and illustrate many of the problems that exist with food justice in cities. Health should never have to be sacrificed to eat a quick and affordable meal in *any* part of *any* city in America.

Pollution of Environment

As if the effects of our food choices on humanity are not enough, one also has to consider how our American food system affects our environment. These impacts can be grouped into two main categories, *local effects* and *widespread effects*. Local effects can be seen as a result of issues like food waste and fertilizer usage.

Fertilizer may not seem like much of a problem to someone unaware of the difference between conventional and organic farming methods. This is one of the main reasons that we have two distinct systems. Organic farming exists "to avoid pesticides, hormones, and other chemicals used in conventional farming" (Chang). They seek to avoid certain health and environmental problems that

conventional farms produce. One of the largest is due to the massive inputs on crops in the form of fertilizer (Figure 6.).

Before the advent of industrial scale farming, farmers used sustainable practices in production, such as crop rotations, integrated pest management, and grazing management, according to the Agricultural Sustainability Institute (Feenstra). These practices effectively kept the farmland fertile and didn't deplete its valuable nutrients year after year. As our food system has evolved however, these practices died out in favor of easier and cheaper methods that could be done on a massive scale to produce more crop yield. These include spraying pesticides and fertilizers (Feenstra).

Figure 6. Springtime Spraying.
Image by: "Springtime work", 2005.

Fertilizers are a problem mainly because of the extravagant amount our country uses. In the year 2006, the US consumed around 25,278,600 metric tons of fertilizer. This accounts for 14% of the world total, of which the US ranks 2nd largest ("U.S Ranks 2nd in Fertilizer"). These numbers are a bit skewed because of the amount that residential lawns and landscapes require. It obviously takes a

lot of chemical resources to make all of these inputs, and even if they are not all applied to agricultural landscapes they can still be problematic.

Fertilizers and pesticides can also cause serious problems if they leach out of soils and enter freshwater and marine ecosystems. This happens quite often because of the chemical composition of most industrial fertilizers. Nitrates added to farm fields do not effectively bind with the clay minerals in the soil because of their solubility. Therefore, when a significant rain event occurs, stormwater can very easily carry the nitrates with it into nearby streams, reservoirs, and marine habitats (McMcKague, Reid, and Simpson). Here it causes massive algal blooms and begins a deadly process known as

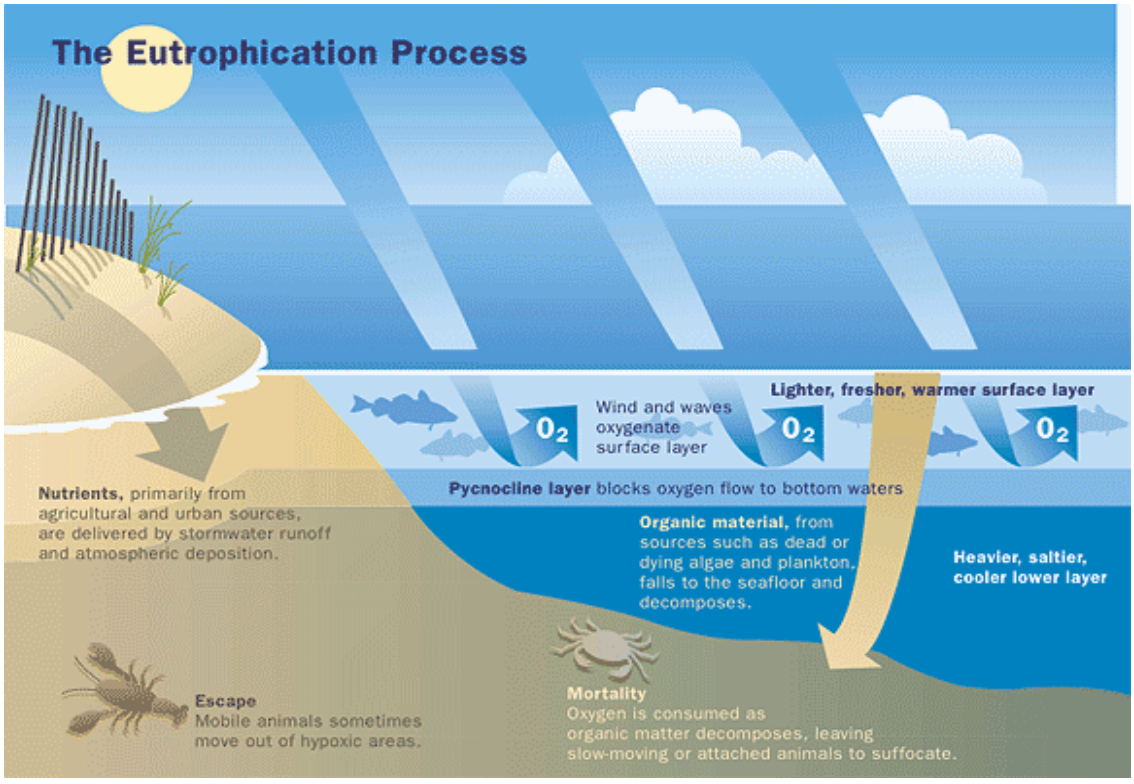

Figure 7. The Eutrophication Process.
Image by: Yanson.

eutrophication (Figure 7.). Eutrophication happens when a body of water becomes over-enriched with nutrients (fertilizer runoff) and causes water quality impairment in that marine environment (“About Eutrophication”). After these massive algal blooms, the water’s oxygen level is dangerously depleted, known as a state of hypoxia (“About Eutrophication”). On the coast of the United States, there are several instances of this which create dead zones for marine wildlife. These coastal sites, according to a report by the National Academy of Sciences, are increasing at exponential rates (Vaquer-Sunyer and Duarte, 15452).

There are also *widespread effects* of our current food system on the environment. Food uses a lot of fossil fuels and energy for the chemical inputs as well as for transportation of the food to consumers. In fact, to get our food from farms where it is grown to tables where it is eaten, we use around 15% of the United States energy budget each year (Bomford). Food production has, throughout history, relied mostly on the nutrients within the soil, rain from the sky, and energy from humanity to grow and harvest crops. This was subsistence farming, but it has now changed to surplus farming and the earth is being drained because of it.

Food actually contributes quite significantly to climate change. This is mostly due to what is known as *food miles*. Food miles are the distance a food item travels from production to consumption (Figure 8.). Most people are shocked to discover that the average item travels more than five thousand miles before that first bite is taken (Bomford). Certain food items in our daily diet come from other countries and even other continents. When one stops to think about

Figure 8. Food Miles.
Image by: “Food Investigators”, 2012.

the olive oil (imported from Italy) and that fresh pineapple at the grocery (imported from Costa Rica), the miles start to add up.

Five thousand miles is an incredibly long distance. In fact it equates to 30% longer than the diameter of the entire planet. By cutting down this distance, one could significantly reduce the amount of CO_2 being pumped into the atmosphere by semi-trucks. This, however, is only one of many possible ways to begin to tackle some of the aforementioned problems. Selected case studies follow that review how others are seeking to combat such rampant and expansive issues.

CHAPTER II
LEARNING FROM PRECEDENTS

Historical Case Studies

Our generation is not the first, nor will they be the last, to try and combat food issues and bring agriculture into cities and the lives of individuals. The United States has at least a century of historical attempts at accomplishing such goals. In fact, these projects have had a direct impact on the history of food in this country.

The first case study deals with the Victory Gardens (Figure 9.), a national initiative that began in the US around the time of World War I. Today, a Victory Garden is displayed at the National Museum of American History, and they continue to recognize its importance to the success of our country in times of war:

Figure 9. Victory Garden Poster.
Image by: “Victory Garden History”, 2013.

> “Victory gardens were vegetable gardens planted during the world wars in order to ensure an adequate food supply for civilians and troops. Government agencies, private foundations, businesses, schools, and seed companies all worked together to provide land, instruction, and seeds for individuals and communities to grow food… Colorful posters and regular feature articles in newspapers and magazines helped to get the word out and encouraged people to stick with it. The goal was to produce enough fresh vegetables through the summer for the immediate family and neighbors. Any excess

produce was canned and preserved for the winter and early spring until next year's victory garden produce was ripe (“Victory Garden at National Museum of History”).

Figure 10. Victory Garden Poster 2.
Image by: “Victory Garden History”, 2013.

These gardens accomplished what they set out to do: feed Americans when a large percentage of the population was either overseas in combat or working to create items needed for the wars (“Victory Garden at National Museum of History”). The gardens had been suggested originally during the First World War, but were brought to life again during World War II (Figure 10.). Millions took part around the country to grow fresh produce needed to support their families and those of others, including First Lady Eleanor Roosevelt (“Victory Gardens”). She created her own Victory Garden on the grounds of the White House, and encouraged others to follow suit. Such a movement was surely very inspirational to all involved, and continues to motivate in today’s world as well.

The Victory Garden movement was actually preceded by a man who is now famous for bringing agriculture into the design of cities, Ebenezer Howard. Howard wrote a book in 1902 called, *Garden Cities of To-Morrow*, which he used as a springboard for his ideas about agriculture and city planning (Reps). Born in

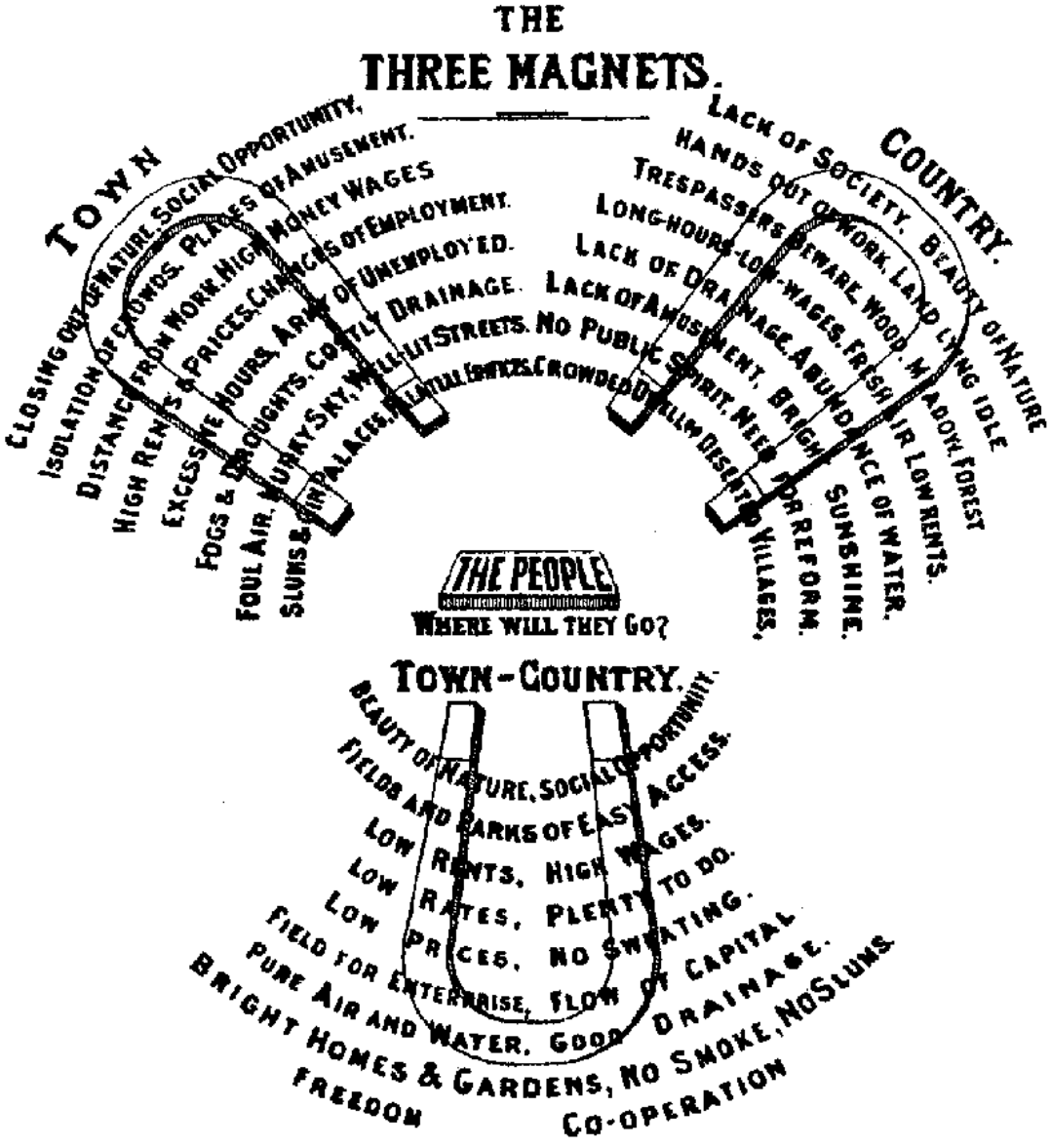

Figure 11. Howard Magnets.
Image by: Howard, 1902.

London, Howard came to America in his early twenties to pursue a path as a farmer, which he discontinued soon after. He resided in Chicago for a time before eventually returning to England and publishing works about Garden Cities (Reps). Howard's ideas (Figure 11.) and plans were highly regarded and were soon adapted into town planning codes of the mid-1940s (Reps).

Howard primarily called for towns and country to be brought together, after they had existed exclusively for so long. In this 'town-country' region life would be so much easier and more pleasant. One would have the luxuries of city-life along with those of country-life. In his design, the city was set up in a radial design that incorporated an agricultural ring around the outside. This enabled the beauty of nature and the garden to be married with the society and opportunity of the city (Reps). Overall, Ebenezer Howard was an influential man who promoted city planning, urban agriculture, and a true passion for one's ideas.

Ebenezer Howard's ideas did not fade away with his passing. In fact, they are stronger than ever in today's world of further concentrated urban environments. The theory is no longer known only by the term Garden City, but rather has added an element called Agrarian Urbanism. As one can derive from the nomenclature, Agrarian Urbanism places a high value on food production in an urban environment ("Agrarian Urbanism"). Such a promising trend in land use planning has required a figurehead strongly reminiscent of Ebenezer Howard himself, Andres Duany, an architect and urban planner.

Duany, of the design firm Duany Plater-Zyberk and Company, has written a book about this topic entitled, *Garden Cities: Theory & Practice of Agrarian Urbanism*. Within this book he describes the subject further:

> "Agrarian Urbanism is a concept that involves food not as a means of making a living, but as a basis for making a life and structuring the places in which we live. The shift in focus from "agricultural urbanism" or "urban agriculture" to the more encompassing term of "agrarian" refers to the planning initiative developed and forwarded by DPZ, promoting a type of sustainable community that intensifies agricultural activity across the Transect whilst promoting the associated economic, environmental and social benefits" (Duany).

Connecting the urban and rural elements of our society was a goal of Howard's in the early twentieth century. It can now provide even more benefits to our society. Growing food within an urban context (Figure 12.) certainly provides food security and the opportunity for improved health, but also boosts the local economy, has a positive impact on the environment, and provides the "social benefits of a productive activity in which all members of a community can engage" ("Agrarian Urbanism"). A strong value for the integration of these,

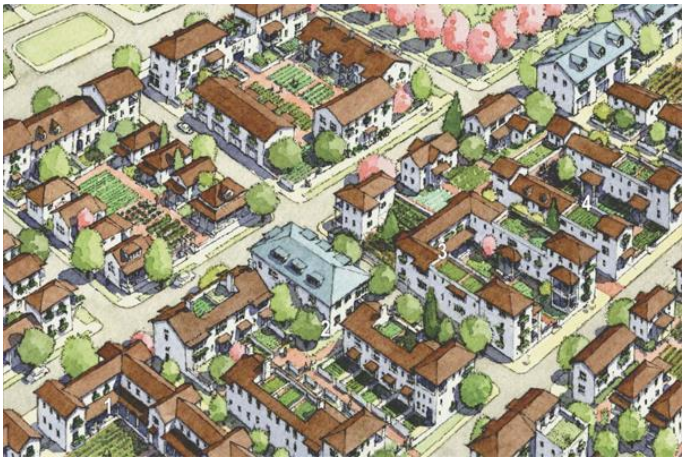

Figure 12. Agrarian Urbanism.
Image by: "Agrarian Urbanism".

mostly-separate rural and urban realms, is still present and serves as motivation for projects like this one.

Programmatic Case Studies

There are several initiatives currently underway from which lessons can be learned as well. These range from educational urban farms to food forests, in addition to local and national campaigns. Elements of each can help to influence concepts currently developing in the realm of urban agriculture. Programs, like the ones discussed here, are ultimately attempting to accomplish the difficult task of reintroducing health and agriculture into the city. Awareness and education are the keys to valuing such things again.

Figure 13. Jones Valley Urban Farm.
Image by: Hanson, 2012.

An agricultural undertaking in Birmingham, Alabama influenced this project programmatically a great deal. Jones Valley Urban Farm seeks to bring children of every age onto the property to educate them on the importance, and knowledge of, food. Through this instruction the farm stresses the significance of healthy living to young people, and indirectly, to their families (Hanson and Marty, 91).

Jones Valley Urban Farm is situated on three and a half acres (Figure 13.), and provides a supply of local, organic produce for markets, restaurants, and Community Supported Agriculture (CSA) members (Hanson and Marty, 98). Taking advantage of such a market allows for them to stay in business as such a small farm. Even though production of food occurs, the site's main goal is to create this unique blend, with education alongside it. Jones Valley Urban Farm has a number of programs for schoolchildren, and even those of college age, to come and participate in agriculture for class credit, an internship, or for pay. They host children in outdoor classroom settings on a daily basis. Also, the summer camps being offered give kids an opportunity to get more intimately involved and potentially learn a lifelong hobby (Hanson and Marty, 92).

Figure 14. Children Gardening.
Image by: "Untitled".

Jones Valley Urban Farm operates a successful urban agriculture operation while tackling more than just food production (Figure 14.). This is necessary, as a business model, for an agricultural landscape to be truly

sustainable. The farm's approach is innovative and inspiring, and the farm happens to be growing young minds even more than produce.

Another operational urban agriculture project that is highly influential is the Beacon Hill Food Forest in Seattle, Washington (Figure 15.). *Food forest* is generally not a term that most people are familiar with. It seems that such an unfamiliar term was selected to pique the interest of those involved in agriculture. Their website offers a detailed definition: "A Food Forest is a gardening technique or land management system that mimics a woodland ecosystem but substitutes in edible trees, shrubs, perennials and annuals" ("Beacon Food Forest"). In summary, it is an edible public garden.

In the initial scheme, the design committee, wanted to create a space that was open and inclusive to all people and fueled by permaculture ("Beacon Food Forest"). One can simply walk right in and partake of any of the fruits and nuts on the trees, herbs and vegetables in the gardens, or spaces for a personal garden plot within the community garden area. These features, in addition to areas for recreation and kids to play, are all provided for free to the public ("Beacon Food Forest"). There aren't fences or boundaries to keep certain people away, which makes this a space of social equality, where all can appreciate

Figure 15. Beacon Hill Food Forest Plan. Image by: "Beacon Site Plan", 2012.

the joys of a fresh-picked apple or a newly-ripened tomato.

A unique characteristic of the Beacon Hill Food Forest that attracts attention is its location: on public land. Adjacent to a local reservoir the land once grew only nicely trimmed turf, but since the initial idea was thought up by a student in a permaculture class, the space has become so much more. Seeing agriculture incorporated into public land reveals that cities are beginning to value it enough to spark this reintroduction of food. Such a paradigm shift is vital to a project like mine that has a similar goal.

Observing current forms of urban agriculture are important, but it is also necessary to understand food movements on a larger scale. The United States currently has a program, begun by the First Lady, Michelle Obama, called Let's Move! This initiative is one that seeks to improve children's health by empowering parents, providing healthier food options in schools, and promoting more daily physical activity ("Let's Move!"). Mainly, the effort is to counteract the obesity epidemic plaguing the nation among all age groups ("Let's Move!"). Also, having a luminary spokesperson like the First Lady brings these health and food issues into the limelight (Figure 16.).

Figure 16. First Lady on Let's Move!. Image by: Wagner, 2013.

This specifically focuses on younger children because the results of such an effort are more effective. Rather than preaching to an adult who learned habits growing up, and are at a point in life where they are unwilling to change them, concentrating on children allows for a lifetime of healthier living. Eventually, these children will grow up and teach these children what they learned as kids and continue the cycle (Figure 17.). It will give this, and future, generation(s) a much-needed healthy start.

Figure 17. First Lady Planting.
Image by: Wong, 2011.

Mrs. Obama has also been busy with her recently published book about the White House Kitchen Garden. She is only the second First Lady to ever have a garden planted on the South Lawn; the first since Eleanor Roosevelt had planted her “Victory Garden” there in 1943 (“Victory Gardens”). The book, *American Grown*, tells the story of how this kitchen garden inspired the Let’s Move! initiative and a push for more productive gardening across the US (Burros).

Figure 18. Opening an HIAH Store.
Image by: Harrison, 2011.

Programs exist relating to food, health, and sustainability on a more

regional scale as well. One created recently in the city of Louisville, Kentucky is supplying convenience and corner stores with fresh produce to help combat food justice issues. As part of the mayor's Healthy Hometown movement, the Healthy in a Hurry Corner Store (HIAH) initiative (Figure 18.) has already given residents of underprivileged urban communities access to more food options ("Louisville Healthy in a Hurry Stores").

Figure 19. HIAH Produce. Image by: Harrison, 2011.

Officially begun in 2009, Healthy in a Hurry has given funds to seven stores that house produce stands ("Louisville Healthy in a Hurry Stores"). These usually make up a section of the store and contain reasonably-priced fruits and vegetables (Figure 19.), commodities that cannot be found elsewhere in that region. Food injustice is slowly being fought just by its existence. Someday Louisville, through this and other programs, hopes to provide all of its residents the opportunity to live and eat healthy.

Design Case Studies

Overall, the aforementioned programs and initiatives have helped to shape the objectives for my own project. After viewing the issues and various solutions it is easier to understand what types of actions are being attempted. Observing precedents that serve as design inspiration are necessary as well.

These projects aid in selecting a design language and comprehensive look and feel for my intervention.

Figure 20. Trinity Urban Farm Design Plan.
Image by: “B+C Studio”, 2011.

The Trinity Avenue Farm Design by B+C Studio, created for a competition in Atlanta, serves as a solid guide for what spaces are necessary in an urban farm design and how to organize them. The designer’s appealing plan provides a plaza space, vertical farming elements, composting, water storage, an orchard, and food production beds organized in a grid pattern (“B+C Studio Trinity Farm Design”). These elements, (Figure 20.) are part of a sustainable and productive urban agriculture landscape that brings food-making into areas that rarely have access to it. The scale and the completeness of the design, which includes areas for service, livestock, and even rainwater harvesting was of


Figure 21. Wilmington Urban Farm.
Image by: “Looking at an urban farm”, 2010.

great value and interest to me.

In the city of Wilmington, Delaware, an urban farm was created by locals to teach economically-disadvantaged residents about the benefits of urban agriculture (“Looking at an Urban Farm”). The Wilmington Urban Farm uses a grid pattern for raised planting beds, similar to the design at Trinity Avenue, but also incorporates elements that create a vertical presence in the space, namely pergolas (Figure 21.). Pergolas shape spaces into outdoor rooms, create shade for visitors, allow for vertical or vining plant growth, and fit well into naturalistic and agricultural landscapes.

The construction, materiality, and size of the raised planting beds offers insight into how these are planned and constructed in urban situations. Using simple dimensioned lumber allows for beds to be built with materials from nearby hardware stores, and without much prior experience. They are raised, yet low to the ground, so that soil amendments can be made without plants being cut off from existing soil on site. The beds in this design

Figure 22. Magic Stone Garden.
Image by: Revard, 2013.

specifically, are elongated in one direction to allow for more crops to be grown, but short in the other so someone can easily reach all plants from outside its edges.

Quite a distance from the previous design examples, the Mid-Pacific Institute of Honolulu, Hawaii, offers young children a chance to learn about fruits and vegetables firsthand. This elementary school operates a small outdoor garden called the Magic Stone Garden (Figure 22.). Here, young children participate in the growth of herbs and produce, and are exposed to the processes involved with growing one's own food (Revard).

This garden's design, aimed at education, uses small, square beds, rather than the elongated rectangular ones that are used for production in the Wilmington Urban Farm. The squares are about four feet by four feet with adequate spacing in between them, so that children are able to move or gather around them as needed. The short dimensions also allow for kids to have access to individual plants without having to walk in the beds. There are several of these small beds in the plan so that large classes of children can be split into small groups to better facilitate learning. Overall, the Magic Stone Garden uses different design strategies to create an environment suitable for a younger user group (Revard).

Finally, the Sandhill Organic Farm within the developed area of Prairie Crossing near Chicago, taught me about the use of traditional elements for new purposes. Sandhill Organic Farm is vast, including one hundred acres of farmland and twenty-five acres of pastureland (Hanson and Marty, 154-155).

Over time this traditional agricultural landscape has changed so that it's now located within an urban context. The town of Grayslake, Illinois values the presence of the farm and wants it to continue to exist because they realize the benefits that local agriculture can provide to a community. Ultimately they sought to prove that large, developed communities can coexist with large-scale production farms in a 'peri-urban' environment (Hanson and Marty, 153-154).

With this farm existing prior to the development, it has a bit more of a rural agricultural aesthetic than is normally seen in urban or suburban regions. This agricultural symbolism appears to be a strength of the project, and could be incorporated further into urban agricultural development to effectively communicate its program and mission. Additionally, Sandhill Organic Farm uses old silos and grain bins on-site, but not for their original intent: "Instead of storing commodity crops, as they would on many of Illinois's large farms, these silos [and grain bins] (Figure 23.) hold the tools and equipment used to produce the wide range of crops grown at Prairie Crossing" (Hanson and Marty, 155). Over time, as needs and technology have changed, certain facilities are no longer necessary on the farm. Rather than

Figure 23. Sandhill Organic Farm.
Image by: Hanson, 2012.

demolishing them and building anew, the farmers have decided to re-purpose these old silos and grain bins(Hanson and Marty, 155). This alternative use is a great way to bring traditional agricultural aesthetics into a site, but to serve new and updated purposes.

All of these designs for current or proposed projects have resonated with my design intent in some way. Whether through materiality, specific design decisions, or even elements to be included in my project, they have offered a great deal of insight. After viewing existing problems with food and food systems, and projects being executed to try and combat these, I will elaborate on what kind of design is to be produced, and the goals involved with such an undertaking.

CHAPTER III
PROJECT OBJECTIVES

Creating Food Justice

Food justice is a buzzword in American society today. Much like 'sustainability' or 'organic', the term tends to put a positive spin on an issue that is very negative. All these terms represent encouraging, progressive movements, but in our country they are generally very small and constantly fighting against the status quo. We hear these words (attempted solutions) more than we hear about the rampant problems (unsustainability, conventional, food injustice), and so we create false images in our minds of 'the good guys winning'. Honestly, at this point in history those who support these movements are fighting an uphill battle, but these terms give us hope and galvanize us to continue.

As discussed earlier, food justice represents the fair sharing of food and everything about it. This means that all should have access to fresh and healthy options to prevent health issues. This health problem in America can partly be blamed on food injustice in many communities and cities throughout our country.

It is not surprising that our individual health is compromised when certain neighborhoods are given one main option: fast food meals have become a staple of American culture. Michael Pollan, author of *The Omnivore's Dilemma* and a leading voice of concern about food in America, points out that our lack of food customs in this country is partially to blame for this enduring problem:

> "…amazingly, in those countries where people pick their food based on custom and taste, the people are healthier than we are. They have lower rates of diet-related illness such as

> heart disease. Take the French, for example. They eat by and large as they have for generations. They drink wine, eat cheese, cook with butter, and eat red meat. Oh yes, they also eat bread without worrying about it! Yet their rates of heart disease and obesity are lower than the health-crazy Americans'. How can that be? Maybe because *how* we eat is just as important as *what* we eat. French culture includes a set of customs or rules about how to eat…you'll almost never see a French person eating while driving or walking down the street" (Pollan, 94).

Often, dinner with the family in America no longer requires even a table or an oven. Rather, a drive-thru or a microwave is almost always involved. Yet, there are some that would prefer to eat natural and healthy foods, although they are very scarce. Even fruits and vegetables, if grown and processed a certain way, can be harmful. Pollan addresses the confusion that exists today about what is good for us and what is not. He describes how it is becoming harder and harder to choose what to eat:

> "We can't rely on taste to choose among processed foods. We can't just eat foods that we enjoy. We have no stable food culture to guide us, handed down over generations. We are told instead to rely on science. Science (and the industrial food system) will tell us which foods are good for us and which are not. But the "science" keeps changing with every new study" (Pollan, 95).

In a way, there is an increasing desire by many Americans to step back to past times when one could simply walk down to the market on the corner and buy unaltered and unprocessed foods, or venture out to one's own garden and

Figure 24. Urban Agriculture.
Image by: Behar, 2013.

pluck a ripe, juicy tomato. Here is where I see the opportunity to improve issues of food injustice and health.

The ideal way to promote food justice in struggling urban communities is by introducing a system of urban agriculture to provide healthier food options for local residents (Figure 24.). Throughout history, cities were constantly formed and organized around an operating system of agriculture. In modern times we have strayed from these traditional systems, causing residents to lose touch with the origin of their food, production methods, and healthy food entirely. Bringing healthy food production capacity back into a community can provide numerous benefits for all involved.

Educating About Food Production and Health

Knowledge about food systems in an urban context is, at times, very limited. This is due to a dichotomous relationship between rural and urban elements. When one pictures where food is produced, thoughts of the countryside fill the mind: bright blue skies above flowing fields of wheat and corn (Figure 25.), endless green pastures where cows and sheep graze, etc. These

visions are, in reality, not even close to what an industrialized food system looks like today. It also happens that, almost always, we are reminded of an agricultural landscape within a rural setting. At some point in the development of cities in America agriculture was deemed to be an element that did not 'fit' in an urban context. This should not be the case today.

Figure 25. Rural Farm.
Image by: "Clean Air".

In modern times, the average person rarely encounters food systems in their daily life. Within the journal article written by Pothukuchi and Kaufman, they discuss why the food system is so invisible:

> "…urbanites generally take the food system for granted; few see serious problems related to food access, availability, or affordability… the technologies of the industrial revolution that mechanized farming, transportation, refrigeration, and food processing in industrial countries ensured that even when suburbs and exurbs swept through previously rural terrain, the loss of local farmland that historically served cities, went unnoticed in local grocery stores. Food was always "there," unproblematic, even if no longer local. [Another] factor, particularly in the United States, relates to the persistent dichotomy in public policy between urban and rural policy".
>
> (Kaufman and Pothukuchi, 213-14)

When food is constantly out of sight while it's in production and is only seen on colorful grocery store shelves, it is quite obvious why it's undervalued: few understand where it comes from or what it takes to get it there. To educate

people about the processes of food again would be to place value on it; showing that not all foods are created equal. Those that are grown in backyards rarely need shipping or packaging, and only occasionally require substantial amounts of chemicals (Figure 26.). Compare this with most items produced by the current food industry needing some or all of these forms of alteration.

Figure 26. Woman Harvesting.
Image by: Plesu, 2011.

In Michael Pollan's book, he and his family of three, eat a meal from McDonalds (Figure 27.) and consume a total of 4,510 calories. He elaborates on the production of that number, "To grow and process those 4,510 food calories took at least ten times as many calories of fossil energy, something like 1.3 gallons of oil" (Pollan, 104). Most Americans are unaware of such statistics and are continually uninformed of all that goes into growing, processing, packaging, and shipping a food item.

Figure 27. McDonald's Drive-Thru.
Image by: Boyle, 2013.

Education is needed in a large capacity to make Americans aware of what happens in the food industry, what foods are healthy or unhealthy, and even how to incorporate healthier foods into their daily diets. There are many methods one can use to spread knowledge throughout a neighborhood and city. To me, the most merit lies in educating children and young people. During the earlier stages of life, children and young adults are constantly learning and forming their own habits and lifestyles. This appears to be the best time to directly introduce them to nature, agriculture, health, and the benefits of healthy food (Figure 28.). By teaching a child when they're young, one can create lasting positive impacts.

Figure 28. Children in Vegetable Garden.
Image by: Jupiterimages/Brand X Pictures/Getty Images, 2013.

Integrating into Community Fabric

My final project goal, after the realization of production and education, is to truly make this a part of the fabric of urban neighborhoods. People in America today, as a whole, do not relate to and identify with food the same as in the past. Most individuals care about food a great deal, but its societal significance has shifted dramatically. There was a time when cities were planned entirely around the local sources of food, how this food was distributed, and eventually where it was discarded. Carolyn Steel, an architect and lecturer on the subject of urban food, describes its history this way:

> "Of all the resources needed to sustain a city, none is more vital than food. Before industrialisation, this was clearly understood, since the physical challenges of producing and transporting food made its supply the dominant priority of every urban authority. No city was ever built without first considering where its food was to come from, and perishable produce, such as fruit and vegetables, were grown as locally as possible, often in the city fringes. Meat and fish were consumed seasonally, with the excess preserved by salting, drying or pickling. Nothing was wasted: leftover scraps were fed to pigs and chickens, and human and animal waste was collected and spread as manure. The sights and smells of food at every stage of its urban journey were inescapable" (Steel, 1).

These sights and smells that Steel speaks of are relatively nonexistent today. Cities no longer revolve around food, but around cars, zoning districts, and affluence. It is time, again, for food to rise and return to the hearts, minds, and stomachs of city-dwellers (Figure 29.). Creating a prototype urban farm and

community garden, within a neighborhood dealing with food injustice, could have a tremendous impact on people's health, financial situations, and daily lives. Currently, many neighborhoods exist without grocery stores or any other direct access to fruits and vegetables. These food deserts can lead to health problems when residents are left with little or no healthy options. By introducing an urban farm to help mitigate this problem in this neighborhood, it can spark change in others as well.

Figure 29. Green Breaks Through Gray. Image by: "Untitled", 2010.

All of these issues are extremely important in urban America. Historically, our values created cities that were food-centered, but as technology has changed over time, they have become two separate entities. Health is a constant fad in our country, while it is constantly worsening among the majority of the population. Not enough programs are being undertaken to re-educate the public about how much food impacts their daily lives. My goals lie in addressing the numerous problems we are faced with, while providing food access for people as well. Hopefully, agriculture will find its way back into communities and people's lives, and begin to restore health to both humanity and the environment.

CHAPTER IV
SITE SELECTION

The Process

When trying to mitigate a problem that is nationwide, how does one go about selecting a site for a design project? For me, it was important that I design in the context of a city that I know well, care about, and feel that changes could be realized. This city is Louisville, Kentucky (Figure 30.). Louisville was not randomly selected for this project. I have lived there in the past and understand that both the city's residents and authorities recognize the importance of food as part of its healthy environment and culture. The city of Louisville is constantly becoming more food conscious and is currently looking to eliminate areas of food insecurity present here. Actually, the state of Kentucky ranks fifth-highest in the nation for prevalence of food insecurity, according to the organization Feeding America. This provides even more motivation for attempting to tackle these problems here.

Figure 30. Louisville Skyline.
Image by: Fleur-Design Photography, 2005.

Within the city itself, the process of selecting a neighborhood and eventually a specific site was not quite as simple or subjective. First, it was paramount that I select a community dealing with food justice issues on a daily

basis (Figure 31.). There are several neighborhoods located within the ‘West End’ of Louisville that are dealing with such issues and are also economically disadvantaged. This region became the primary target for my urban agriculture project.

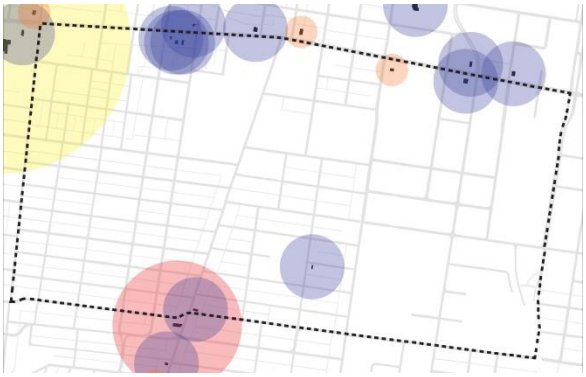

Figure 31. Food Inventory Map.

Another selection objective was to locate my site adjacent to schools within the neighborhood (Figure 32.). By siting this project near education centers within a community, it can successfully involve children and young adults in programs where they can learn about growing food first-hand. Demonstrations can be experienced, classes taken, and food camps attended. Children will soon learn where food comes from and become more aware of their overall health. They may even be more open to incorporating healthy food into their daily lives.

Figure 32. Neighborhood Schools.

A final selection objective was to place my design near

current landmarks within the neighborhood (Figure 33.). Locating this urban farm at the center of the community and adjacent to other more traditional, and well-utilized, neighborhood structures should convey that agriculture belongs in cities and communities where it once existed. People will again see it as part of the fabric of their neighborhood and lives. This presence can solve many of the issues we see today; those relating to health problems, pollution, and overall food injustice.

Figure 33. Neighborhood Landmarks.

The Sector

There are several factors that illustrate to me that the West End of Louisville is the right place to focus my study and proposal. Louisville Metro Department of Public Health and Wellness reveals that “In Louisville's West End and eastern downtown areas, there is one grocery store for 25,000

Figure 34. West Louisville Map.
Image by: Google Maps, 2013.

residents, while the rest of the city has one per 12,500" ("The State of Food", 4). Here we can see plainly the food injustice visible in the area. The organization goes on to say that several of the neighborhoods in West Louisville (Figure 34.) are 'food deserts', areas underserved by supermarkets and fresh foods. Compounding this problem is the area's lack of access to individual car transportation.

Not only is access to food extremely important but overall health is as well. "In West Louisville, an area considered one of Louisville's "food deserts," 37% of residents report having high blood pressure, 74% report being overweight or obese, and 12% report having diabetes" ("The State of Food", 3). Lifestyle choices are most likely not solely responsible for such staggering statistics.

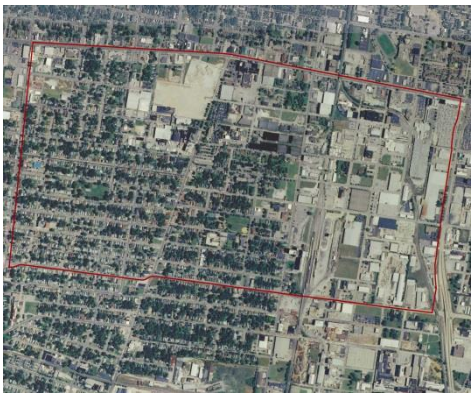

Figure 35. California Neighborhood Map. Image by: Google Maps, 2013.

Food choices are limited to the few unhealthy options these residents are given. For example, if one does not have a vehicle and may live a block away from three fast food restaurants and six blocks away from a healthy restaurant, which of these places will most likely emerge as a choice to eat? When surrounded by convenience stores and fast food that offer little to no affordable healthy options, individuals are more likely to sacrifice health concerns for ease of access and price. The situation is very clear: if it is both easier and cheaper to eat from a fast food chain

or convenience store, everyone is likely to do it (and most already do), despite the health risks.

The Neighborhood

From a socio-economic standpoint, one of the most challenged neighborhoods of Louisville is known as California (Figure 35, Figure 36, Figure 37.). With almost six thousand residents, it was named 'California' because it was originally the westernmost portion of the Louisville at the time. According to City-Data.com it is now a sector whose citizens are challenged by poverty (46-52%) and unemployment (5.4-7.1%), as well as limited food access ("Louisville Poverty Rate Data").

Figure 36. Heaven Hill Warehouses.

Figure 37. Gallagher Street.

The area was originally settled by German immigrants around the time of the Gold Rush. The California neighborhood is located west of 9th Street and east of 26th Street, between West Broadway and Oak Street. At around the beginning of the twentieth

century, the California Block Club Federation states that ‘white flight’ and segregated housing patterns caused the population of the neighborhood to become increasingly black and quite homogenous (“California Block Club”). The Louisville Metro Council reports that it is now predominantly occupied by African American residents (Figure 38.) (“California”, 3).

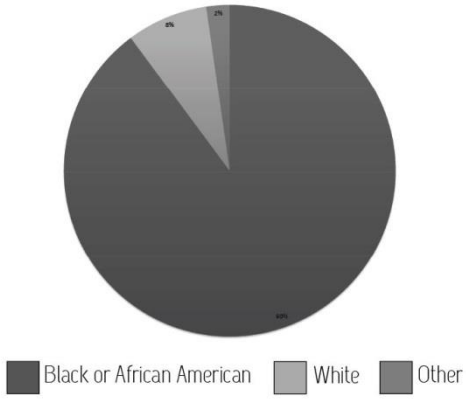

Figure 38. Racial Breakdown.

Within the last five or six decades the neighborhood has become known for its urban decay, crime, and other negative aspects. Recently though, it has seen a jump in the number of attempts at urban revitalization. It seems that people in the city do not see it simply as an unsafe area to avoid, but a neighborhood worth dedicating time, effort, and money to restore. Louisville residents basically want to see the neighborhood flourish again (Watts, 1).


Figure 39. California Community Center.

In fact, from personal observation, the California neighborhood contains a sizable park and community center (Figure 39.) that boasts offerings of basketball and tennis leagues, GED and

Skill-Building classes, and even walking trails (“California – Community Center”). There is a large playground where dozens of children play regularly. Most of the neighborhood also has beautiful, tree-lined streets. The border between the residential and industrial zones of the neighborhood has a great deal of character, although in certain places vacancy is an issue.

There even exists the beginning of a community garden plot on a very small church lot adjacent to California Park, so it appears that there is an attempt at a grassroots effort devoted to growing food, by some within the community. The California Neighborhood Coalition also has a presence in the neighborhood. It is a non-profit group dedicated to improving the community as a whole (“California Neighborhood Coalition”). This organization is the key to establishing a system of volunteers to help with programs and activities at a neighborhood urban farm, as well as policing the area.

In looking specifically at this area of West Louisville, and in the neighborhood of California, the establishment of landscapes that use various methods of urban agriculture can perennially provide for, as well as educate, the urban and underprivileged residents. These goals will be accomplished through an exploration of California’s underutilized spaces, parklands, and eventually, the potential reclamation of abandoned built structures. Having operational food production areas will aid in bringing fresh, locally-grown food to the area, but distribution is important to consider as well. The prototype urban farm to be designed for the neighborhood of California will have to tackle many issues simultaneously, and I hope to be successful with such an endeavor.

Site Inventory and Analysis

When looking at a design site for the first time it is necessary to understand the context, the people, and the systems that make the place. As mentioned previously, the process began with a brief look at Louisville as a whole, and then moved to more specific areas.

The city of Louisville lies within the curve of the Ohio River just across the river and south of the state of Indiana. Louisville is the largest city in the state of Kentucky, and the metropolis has sprawled so much that it now begins to claim portions of southern Indiana. Louisville boasts an expansive public park system including more than 14,000 acres, and seeks to provide areas of nature and recreation to those within its borders ("Park Finder").

"Possibility City", as it is widely known, has recently been named America's "Most Livable" large city, partly due to the residents' passion for helping each other (Green). Louisville Mayor Greg Fischer stated, "This award is a resounding endorsement of both the quality of life in Louisville and the quality of people who live in our city" (qtd. in Green). In fact, Louisville has won the "Most Livable" large city award twice in the last five years. The previous time, in 2008, was primarily due to the creation of the Mayor's Healthy Hometown Movement (Green). This is the program

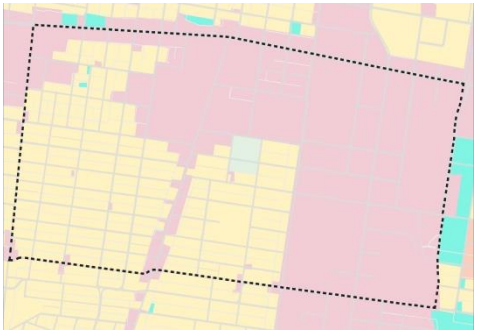

Figure 40. California Zoning Map.

that operates the Healthy in a Hurry corner store initiative.

The area known as West Louisville is the current and former home to many industrial businesses and commercial strip developments, as well as vast residential districts. Generally, this sector is home to many families that are economically disadvantaged. There is a significant portion of the properties that lie vacant, including structures and open land. Most businesses that operate in this area have existed for some time, while others are vacated. The West End used to be a lively industrial area within the city, but over the past decades, it has lost a good deal of its vibrancy.

The California neighborhood lies within this area of West Louisville. Similar to the sector as a whole, California is made up of industrial zones,

Figure 41. California Figure-Ground Map.

residential districts, and strips of commercial (Figure 40.). It is very valuable to be able to see the pattern of structures from above (Figure 41.). Right away, one can see how this part of the city is organized. The industrial areas are revealed to have larger buildings and open lots, while the residential areas contain numerous rowhouses, built within the last century. The patterns present in this community can begin to speak to how an agricultural design might be organized.

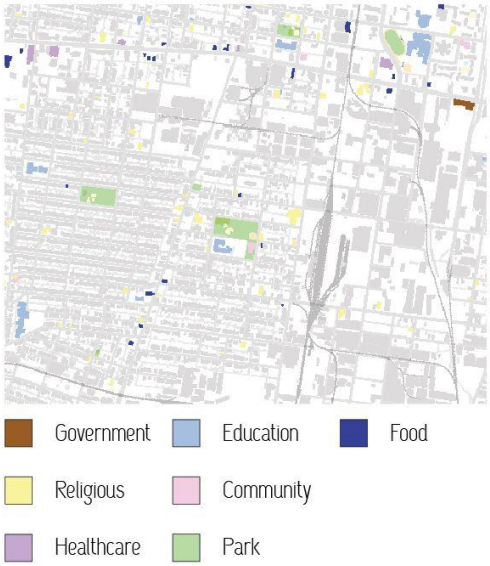

Figure 42. California Inventory Map.

When looking more closely at the neighborhood, it is important to study where certain types of buildings or areas can be found within it (Figure 42.). One can see that there is little healthcare presence here, and the food that does exist consists of fast food restaurants and gas station convenience stores. This begins to show the situation of food injustice in the region. Although it does not


Figure 43. California Parks.

appear unconquerable; the problem could be counteracted by the presence of an urban agriculture initiative.

The presence of parks within the city of Louisville is very valuable to its residents. While the land area within and around this neighborhood is modest, the existence of any type of recreation space is important to a community. These consist of parks, indoor recreation facilities, and active recreation spaces and are rarely more than a few blocks from each other (Figure 43.). This way they can adequately serve the community's needs.

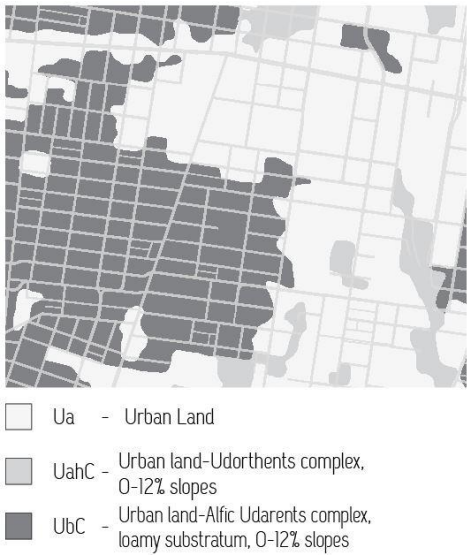

Figure 44. California Soil Taxonomy.

Observing the various soil classifications within the California neighborhood is necessary before attempting to introduce urban agriculture (Figure 44.). Currently, there are relatively few soil types. All of those present have been altered a great deal due to the urban environment. 'Urban' soils like these have generally been compromised due to significant compaction, internal drainage issues, and loss of topsoil for various reasons. This is important to note if an agricultural project seeks to utilize soil present on the site, although many urban farms typically also utilize raised planter beds to overcome issues associated with 'urban' soil types.

All of these factors contribute to defining the California community. By combining the inventory elements hierarchically, they make up a site analysis diagram (Figure 45.). Factoring in the site selection goals, three potential sites were revealed. Site One is the largest vacant site in the northernmost part of the California neighborhood, and is owned by a local developer. Upon further investigation, this developer has already commissioned a design firm to create an extensive mixed-use master plan, for which they are currently trying to fill spaces. This was a strong option initially, but considerable activity is already

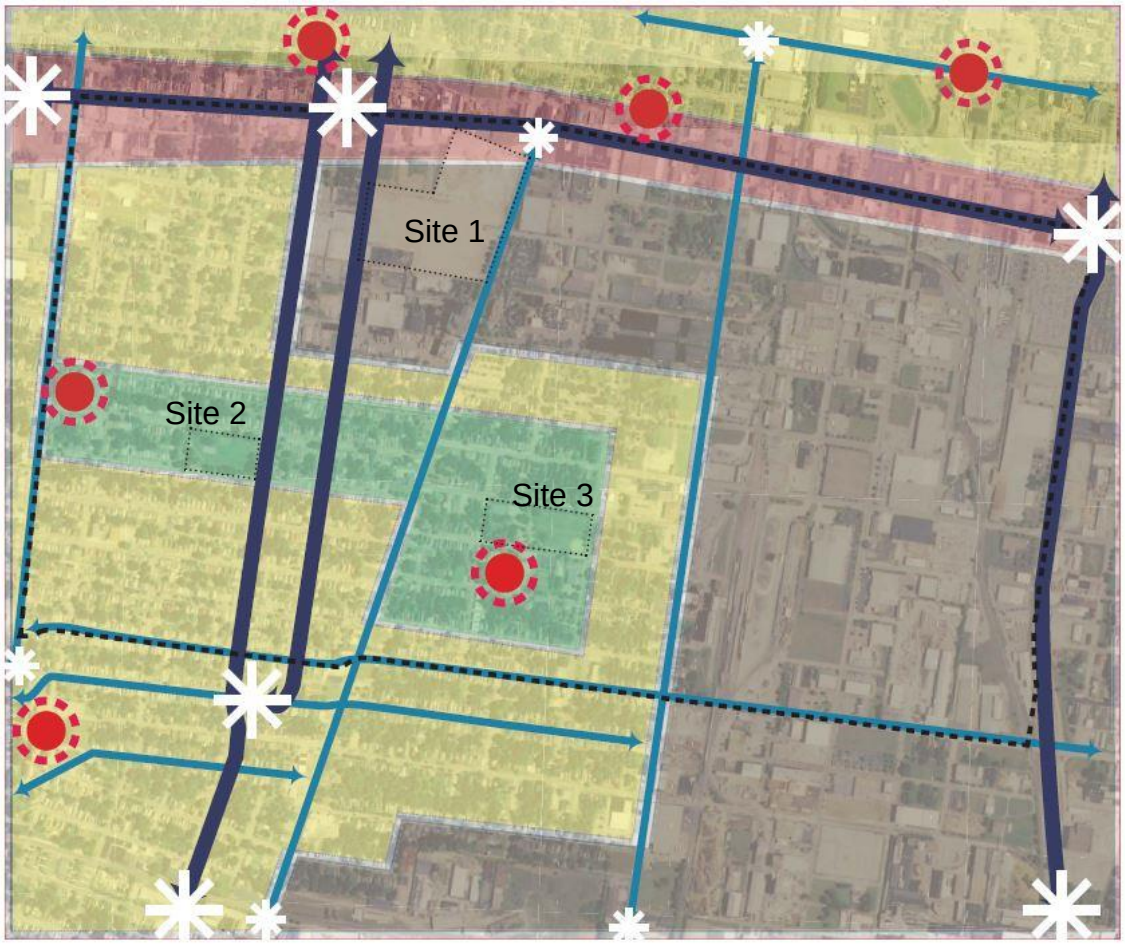

Figure 45. Site Analysis Diagram.

underway. The main reason for deciding against this possible site is that it sits in a commercial/industrial zone of the neighborhood. This would not allow for an intimate connection with residents of the community compared to a location within the residential zone.

Site Two is known as Victory Park and is located a few blocks from the westernmost edge of the neighborhood. The park, however, is very small. There is a little building on the site used for small gatherings, but it would most likely need to be expanded or replaced to accommodate any other function. Its location is not central to the community or an area that sees many visitors. Overall, while the park is well-maintained by Louisville's Metro Parks Department, its small size would hinder any attempt at making a real impact with urban agriculture in the community.

Site Three, known as California Park, is the best possible location for the introduction of urban agriculture into the California neighborhood. After much deliberation, I have concluded that the site is the strongest choice because of the adjacency of the California Community Center and Wheatley Elementary School. Parts of the park are well designed, and it contains various forms of active recreation. Upon further investigation, I have discovered that some of these areas are underutilized, and therefore, the whole park could be enhanced with year-round programmatic elements like urban agriculture.

The previous two sites would have sufficed for this project, but the apparent popularity of California Park and the presence of important community icons made this site optimum. Ultimately, my design proposal will serve as a

prototype for this neighborhood to again incorporate agriculture in the lives of residents. The site, therefore, holds a less important role than the ideas involved. These ideas have universal value; thus, it is possible that the concept of this design can serve as a prototype for similar urban neighborhoods across the United States.

CHAPTER V
CALIFORNIA PARK URBAN FARM

Main Design Objectives

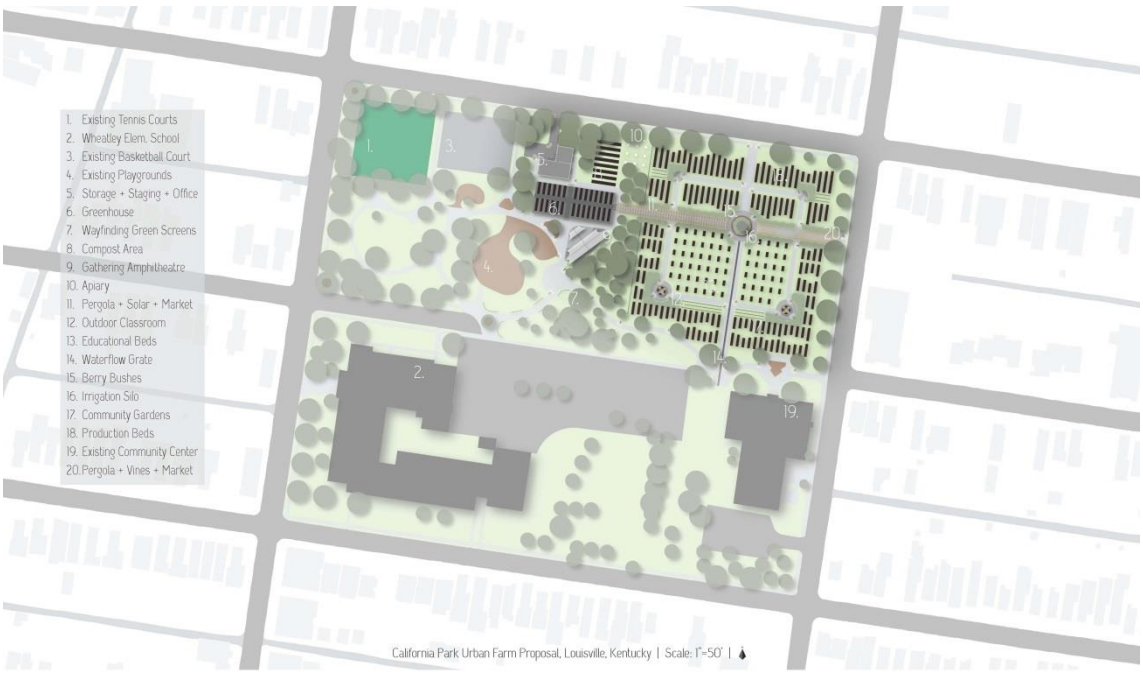

Figure 46. Design Plan.

Drawing from all of the research into food issues, design solutions, and site analysis, the California Park Urban Farm (Figure 46. *Larger versions of design images in the Appendix.) has been created with four main goals in mind. The first objective is to *foster experiential learning*, primarily for children. By taking advantage of the site's proximity to the Wheatley Elementary School and California Community Center, it will aim to bring both adults and children into the site where they can get their hands dirty, experience the process of growing plants, and learn how to live healthier lives.

The second objective of the urban farm is to *promote community engagement*. Without the support of the residents in the neighborhood, or others within West Louisville, the farm could not survive. People are the lifeblood of urban agriculture, and the design of the space is dedicated to them. My design takes advantage of as much of the existing park amenities as possible, and only eliminates the infrequently-utilized multipurpose rec-sports field. By taking this initiative the space can be active year-round. This was a trade-off that wasn't taken lightly, but in the end the benefits outweighed the drawbacks. Additionally, the design will use a material palette familiar to local residents, and also incorporate elements of a traditional agricultural aesthetic. This makes people feel that the space is truly a productive agriculture landscape and the farm belongs within this neighborhood.

The third objective, albeit most obvious, cannot be overlooked. The farm should always *provide organic, locally-produced food* for the people of Louisville. To do this effectively, the farm will utilize current initiatives within the city, like "Healthy in a Hurry" corner stores, and seek to provide these stores with produce grown locally. With the increased local food production there could even be an expansion of the number of these stores and someday all residents can have access to fresh, local, healthy produce. Introducing local residents to the taste and health benefits of fresh, organically-grown fruits and vegetables is also important, as well as offering workshops for preparing and cooking such food. Overall, California Park Urban Farm will aim to serve as a continual supply of healthy food within the city of Louisville at a low to modest cost.

The fourth and final objective is *to incorporate sustainable systems and practices into the design and operation* of the farm. By suggesting that agriculture should be an integral part of every urban community, Louisville has a chance to become a much more environmentally-friendly, sustainable city. This can be pushed even more by creating farm designs that think and act with people and nature in mind. Certainly organic methods of food production make a huge impact already by decreasing pesticides and fertilizers usage, but the farm can also promote and utilize sustainable technologies like photovoltaic panels, electric vehicle charging stations, rainwater harvesting, and food waste reuse for compost generation.

Design Specifics

To effectively foster experiential learning for children at the California Park Urban Farm, the design contains outdoor classrooms with educational and demonstration spaces (Figure 47.). This way, children can learn both visually and tactilely, while ultimately seeing what their efforts can produce. These educational spaces are located adjacent to the numerous beds provided for use by local classes and instructors (Figure 48.).

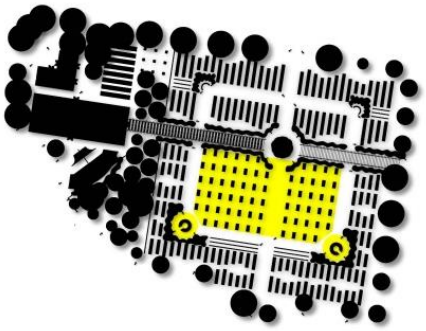

Figure 47. Educational Plan.

Creating spaces that allow for gathering and learning will aid in the engagement of community members (Figure 49.). The covered gathering space located directly next to the main entrance of the site can seat a large number of

Figure 48. Educational Space Perspective.

people for classes, demonstrations, social events, and even concerts (Figure 50.). By providing this kind of space, even those that do not wish to participate in agricultural-specific programs can take part.

For those that have the desire to grow plants, learn about food, and enjoy a fun outdoor activity, the community garden area contains several planting beds (Figure 49.). These would be leased to neighborhood residents for a very modest user fee, just to ensure that they will, in fact, use the space. Beds in this part of

the site will be open to families to grow any plants that they wish, just like their own personal gardens.

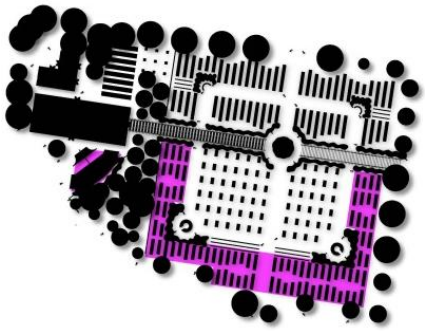

Figure 49. Community Plan.

To provide organic, locally-produced food there is a separate area on the northern half of the site that has planting beds operated by a farm staff and any volunteers. This serves as the main location for production at the farm (Figure 51.). Crops grown in the beds consist of: beets, broccoli, brussel sprouts, cabbage, carrots, cauliflower, corn, lettuce, muskmelons, onions, parsnips, peppers, potatoes, radishes, and tomatoes. A vegetable planting chart has been

Figure 50. Gathering Space Perspective.

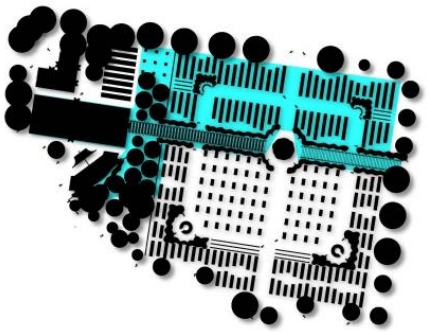

Figure 51. Production Plan.

set up to fully utilize the seasonality of some of the produce (Figure 52.). Certain outdoor crops can be grown in the early Spring or Fall while others can only be grown in the late Spring and Summer. By organizing the times, locations, and specific crops the farm can hope to achieve the most production in this allotted area.

Ultimately, a farm exists to provide food. The beds are not the only way in which this is carried out. The design calls for several fruit and nut-producing trees and shrubs to be used as well (Figure 52.).

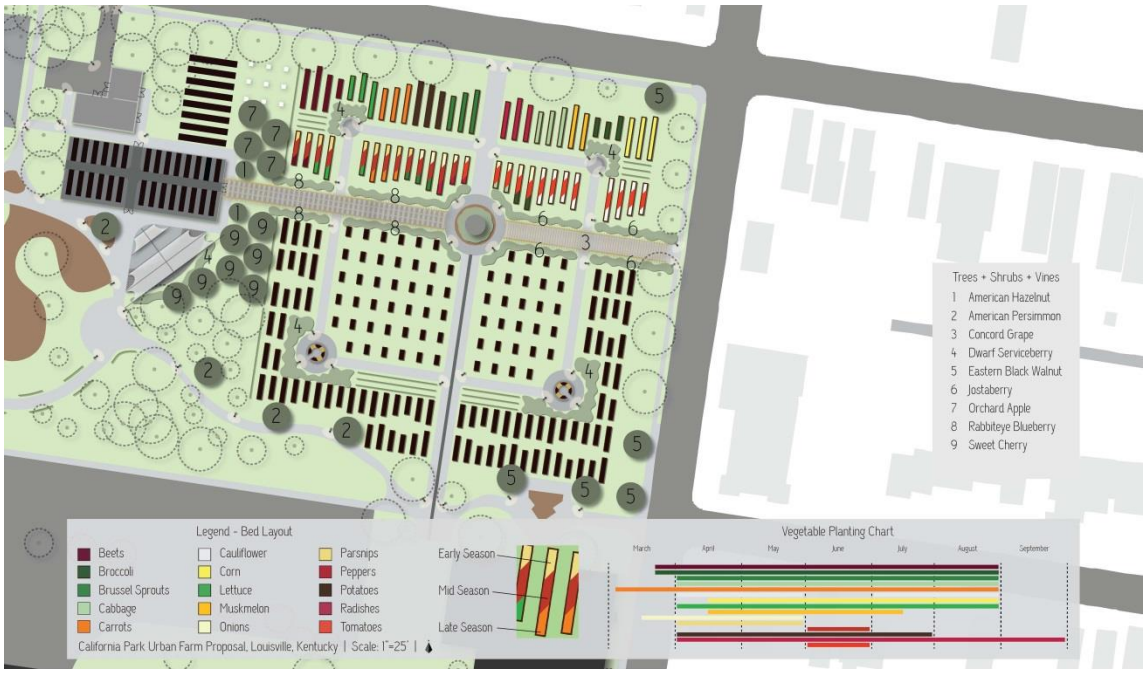

Figure 52. Planting Plan and Planting Chart.

On the western portion of the site there is a small orchard. Selected species have been chosen for their appearance, hardiness, and quality of fruit. This is true for the shrubs also. Additionally, these plantings will help to shape the outdoor rooms created at the farm. The tree and shrub species are: American Hazelnut, American Persimmon, Concord Grape, Dwarf Serviceberry, Eastern Black Walnut, Pecan, Jostaberry, Orchard Apple, Plum, Rabbiteye Blueberry, and Sweet Cherry. More form is given by the vertical element of the green screens located throughout the site. This vertical form of production can accommodate pole beans, peas, cucumbers, and tomatoes.

The greenhouse on the western side of the site serves as a production space as well (Figure 51.). This structure's size is based on others that are currently in use for food production. It could house all of the different types of fruit and vegetable production year-round to be able to provide some produce for local residents even when they cannot grow for themselves. These indoor plants will also be tended to by the farm staff and volunteers to ensure their success and quality. The greenhouse will also be vital in stretching the opportunity to propagate seeds for a head start to the outdoor growing season. This is an economical, and widely-utilized, method to optimize production.

There is certainly the potential to grow a great amount of food on this site and really change the food dynamic of the California neighborhood and the surrounding area. How does this food reach the plates of the community residents? First, the community garden within the design allows for them to grow their own food for a very minimal cost. The food they grow does not even have to

Figure 53. Pergola Market Perspective.

go to their own family. They can sell it at the weekly farmer's market that will take place on the pergola-covered walkways (Figure 53.). This space is wide enough to provide space on both sides of the path for small tables/booths of produce and other food items to be sold or bartered. Not only does a resident have the chance to save money growing his or her own food, but they can actually make a little money selling it to neighbors as well. The second way the food gets distributed is through this regular market.

A community member does not have to participate in this way to receive food. The third method of distribution will partner with the Healthy in a Hurry corner store initiative to provide for the existing, and increase the number, of these healthy-option convenience stores. These stores have already agreed to

carry produce within their walls, so why not provide this produce for them right down the road? This serves to make the whole operation even healthier and more sustainable.

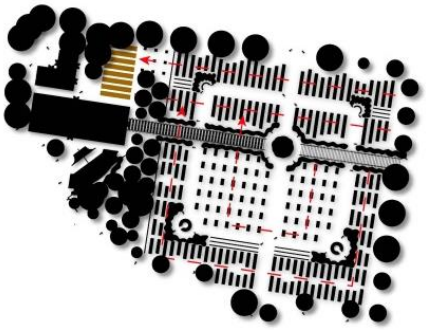

Figure 54. Compost Diagram.

Incorporating sustainability into the design and operation is the final objective of the farm. Food grown organically begins with the soil. Having a healthy, living soil enables the plants to grow large, quick, and receive all the nutrients necessary to provide full, healthy fruit. Therefore, it is important to have good quality compost on site. This compost area (Figure 54.) would start with food waste generated by the farm itself, the Wheatley Elementary School, and other surrounding buildings to create a nutrient-rich soil base. This can be supplemented with local composting programs around the city, including one provided by the Heine Bros. coffee shops throughout the city. Heine Bros. is a sustainably-minded business that provides around sixty tons each year of old coffee grounds for the public to use for composting through a program called "Breaking New Grounds" ("Breaking New Grounds"). This compost generates valuable topsoil and increases the productiveness of

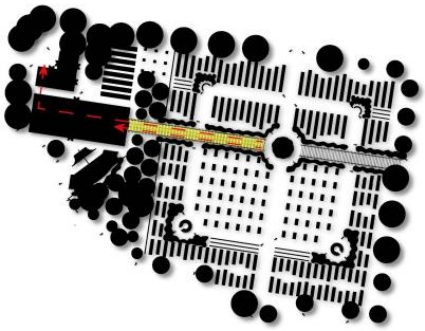

Figure 55. Solar Electricity Diagram.

the soil at the farm. Additionally, municipal leaf collection in the Fall could provide an abundant source of organic compost material at virtually no cost.

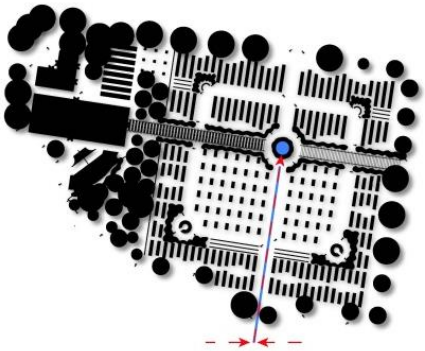

Figure 56. Water Flow Diagram.

Sustainability isn't just for the soil. Production of the plants themselves can be made more environmentally-friendly too. By designing the western portion of the pergola with Photovoltaic panels on top, the sun's ever-present energy can be collected and used to power the adjacent greenhouse (Figure 55.).

The greenhouse will operate year-round and provide food for the community even after the growing season ends. The greenhouse will not require all of the electricity produced by the extensive solar array; therefore the design has incorporated two electric vehicle charging stations to be mounted on the northern side of the Storage/Office building (Figure 56.). This way, farm workers are encouraged to incorporate sustainability into their own lives and drive cleaner, more efficient vehicles.

Plants require more than soil and light to survive. Just as with humans, water is the source of life for plants as well. This is symbolized in the design of the farm by the location of the irrigation silo at the center of the site (Figure 56.).

Again, with sustainable methods in mind, stormwater from the roofs of the Wheatley Elementary School and California Community Center will be collected and channeled onto the site along the main north-south axis. Here, an open grate

is present so the sound of flowing water can be heard after a large rain event. This serves to remind people of the process and keep sustainability at the front of their minds.

Once the water has reached the center of the site it is piped and pumped into the irrigation silo, where it is stored for a period of time (Figure 57.). The silo

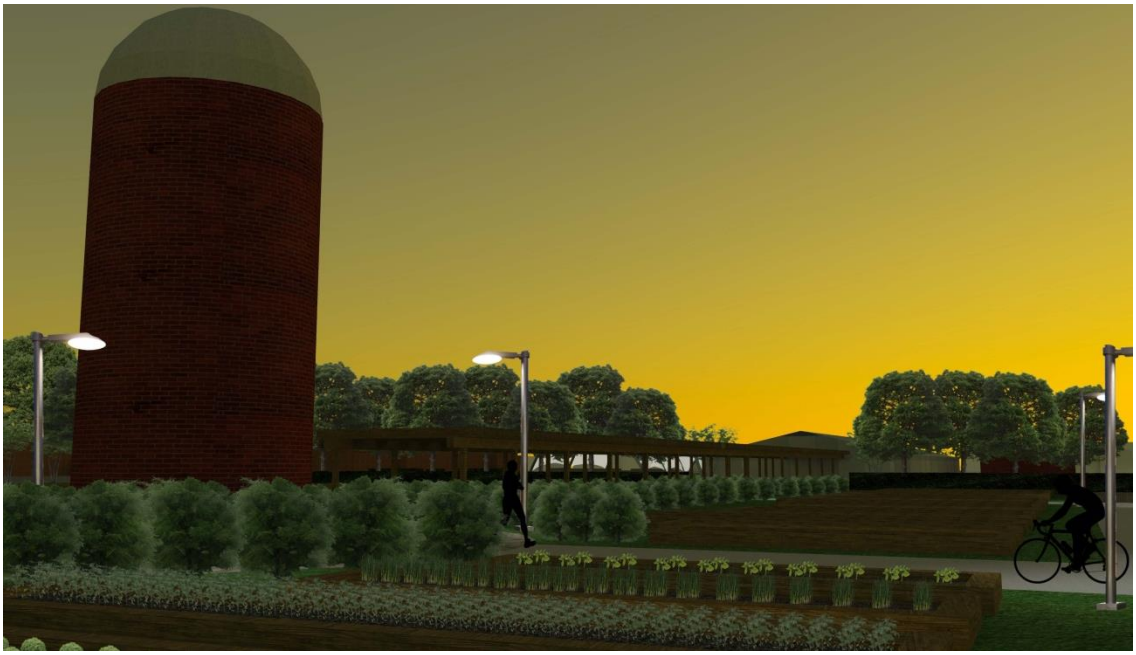

Figure 57. Irrigation Silo Perspective.

design is meant to invoke thoughts of traditional agricultural landscapes, but has adapted a new use in the urban farm: water storage. The silo's size allows for a great amount of water to be stored inside of it. Additionally, its elevated position allows it to act like a typical water tower and provide gravity-fed flow for irrigation purposes. A bonus visually is an iconic landmark that will serve as a reminder of the important presence of the urban farm in the California neighborhood.

At just over 6,000 cubic feet of volume, the silo can hold up to 45,000 gallons of water at a time. According to my calculations, at an irrigation requirement of only one acre-inch per week, this supply would provide one hundred percent of irrigation needs on the farm for over a month. This may need to be supplemented with city water from time to time, during periods of little to no rainfall. Ultimately, the silo would provide the majority of irrigation to the various crops on the site through installed drip-lines. This enables the irrigation requirements of the plants to be met exactly, with little to no water being wasted.

Overall, the farm has many goals that seek to make it more sustainable. This benefits the community and the world by cutting down on the use of harmful chemical additions and the release of carbon dioxide into the atmosphere. It also uses less water and generates its own electricity to demand less from the city of Louisville. The farm even promotes the incorporation of sustainable practices into individuals' lives outside of the farm with the provided electric vehicle charging stations and community garden plots.

Overall Design Summary

The many objectives of this project are achieved through a landscape design (Figure 46.) that incorporates urban agriculture through both *indoor and outdoor production space,* as well as *demonstration and education space*. The farm design also includes a large *gathering space* to constantly promote bringing people onto the site. It also ties in the *use of sustainable systems* to create a more socially and environmentally responsible design.

By placing this project on a site that currently exists as a park, there is an opportunity to benefit the California community by creating a vibrant and productive landscape in a place the residents already know and use. The urban fabric of a place is very important to the residents, and by integrating the farm into the neighborhood, their acceptance of this project will be greatly enhanced.

The need for facilities that produce both healthy and local food is increasingly pressing and this creation of an urban agricultural space seeks to rectify this. The food service within the grounds can prepare and transport food items to the Healthy in a Hurry corner stores for people to buy. The ideal situation is for food grown in this neighborhood to be distributed directly to its residents.

By creating this opportunity in one neighborhood in Louisville, it will inspire the complete reintroduction of food and food processes in urban regions. This is the start of a grassroots movement to provide people with healthy, community-wide food sources. The educational programs demonstrate to residents how to grow and cook food for themselves. This information is invaluable when promoting new diets and eating habits. Kaufman and Pothukuchi summarize the overall importance best, “In fact, food is very much an urban issue, affecting the local economy, the environment, public health, and quality of neighborhoods” (Kaufman and Pothukuchi, 217).

Elements such as these, within the California Park Urban Farm, can help to make a better neighborhood, a healthier city, and a more sustainable nation. Many urban residents currently desire these changes, and seek to break the fast food chain in America.

CHAPTER VI
FOOD IN THE FUTURE

Food Justice Achieved

Bringing the California Park Urban Farm into the picture alters the landscape of food in the California neighborhood significantly. The traditional

Figure 58. Traditional Food Path.

cycle of food (Figure 58.) where food is produced on a distant farm, often transported across the country (or world), and eventually ends up in a landfill, is being altered in this community. Instead, food is produced locally, transported down the street, and consumed by residents of the neighborhood (Figure 59.). Even the waste is used for compost and rainwater used for irrigation, to produce more food in the future. Everything stays local and gets recycled.

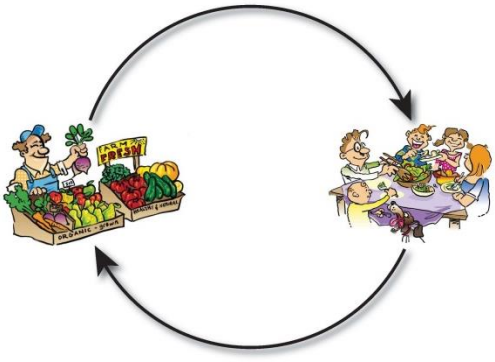

Figure 59. Updated Food Cycle.

Figure 60. Farmer's Market.
Image by: Mog, 2013.

Sustainability and health are improved along with food knowledge and access. When residents are able to grow and harvest their own crops, they learn to value this food more than ever before (Figure 60.). Simply having access to healthy food can change lives of children and their families. The existing food justice map has been altered to include this urban farm production, as well as other Healthy in a Hurry corner stores that can be created as a result of more supply and demand for it (Figure 61.). Here, one can see that a substantial difference is being made in this community.

The Bigger Picture and the Commission

Questions about food systems abound in America these days. What is in our food? How is it produced? What is actually healthy to eat? These are just a few of many questions with no widely accepted answers. It falls to our generation, as consumers and citizens' with a voice, to eat *with our brains*. It sounds odd, but the best solution to these problems is to prevent them altogether. If we think and act as a group of consumers, we can control the fate of the food industry.

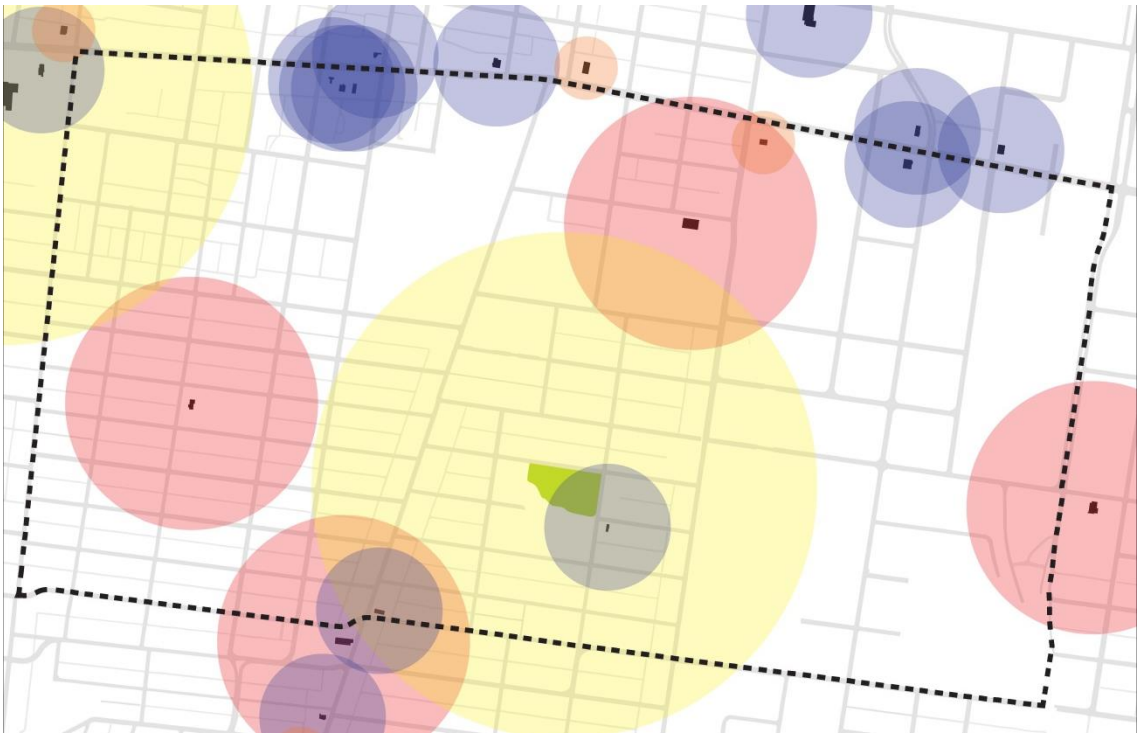

Figure 61. Food Inventory Map Updated.

By continuing to eat highly processed, fast food items, we will further lose touch with the healthier items that should be incorporated into our diets. If we cast a wide net and alter food systems to be built on several varieties of crops, prevent the use of chemicals that harm our environment, and keep health and sustainability as our primary goals, then a bright future for food awaits.

The reintroduction of food production into cities is necessary so all people can access food and food systems again. There are times when finding a healthy meal in the city is hard. This should not be the case. Direct access to healthy food should be an opportunity for all, and through the demand for it, the supply will only increase. People are beginning to put the pieces together and discover that there are problems with our eating habits in this country. Warren James

Belasco, author of the book *Meals to Come: A History of the Future of Food*, states that,

> "Even many cornucopian think tankers stipulate that the world will be able to feed itself adequately *only if* we behave in altruistic ways that can seem hopelessly unattainable in light of real world politics…Yet even though we may dine on a daily diet of depressing news and apocalyptic entertainment, in America, at least, a hopeful culture endures…"(Belasco, 149).

While our industrial food system may be flawed, the minds and hearts of people are not. It is time that we work together and create projects that serve to build food justice in America. Let's ensure that each neighborhood, in every city, has access to a transformative landscape that provides its residents with *food, education, health, and the promise for a better future of food*. The California Park Urban Farm and similar initiatives emerging across the United States are a hopeful beginning.

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APPENDIX

Figure 46. Design Plan.

Figure 48. Educational Space Perspective.

Figure 50. Gathering Space Perspective.

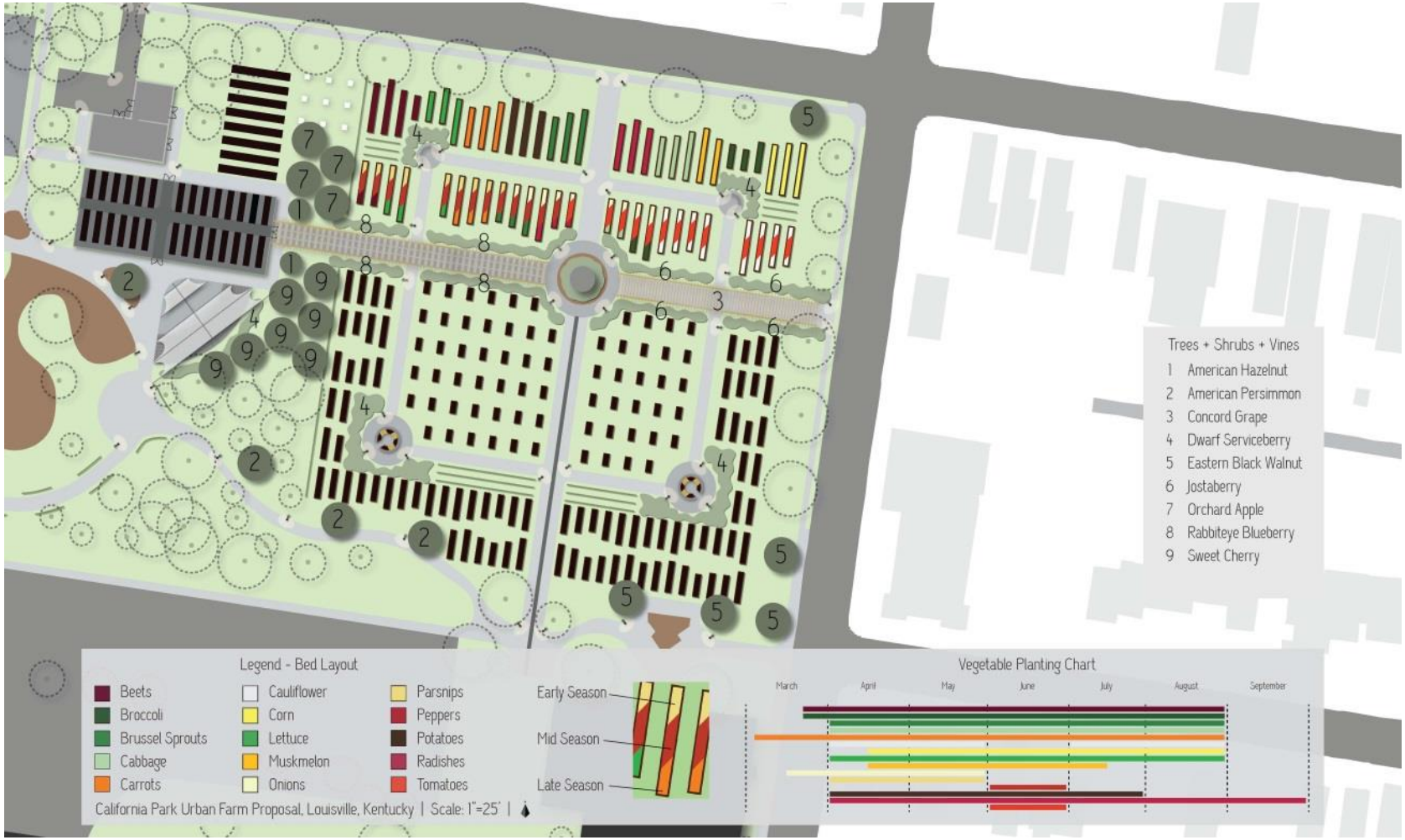

Figure 52. Planting Plan and Planting Chart.

Figure 53. Pergola Market Perspective.

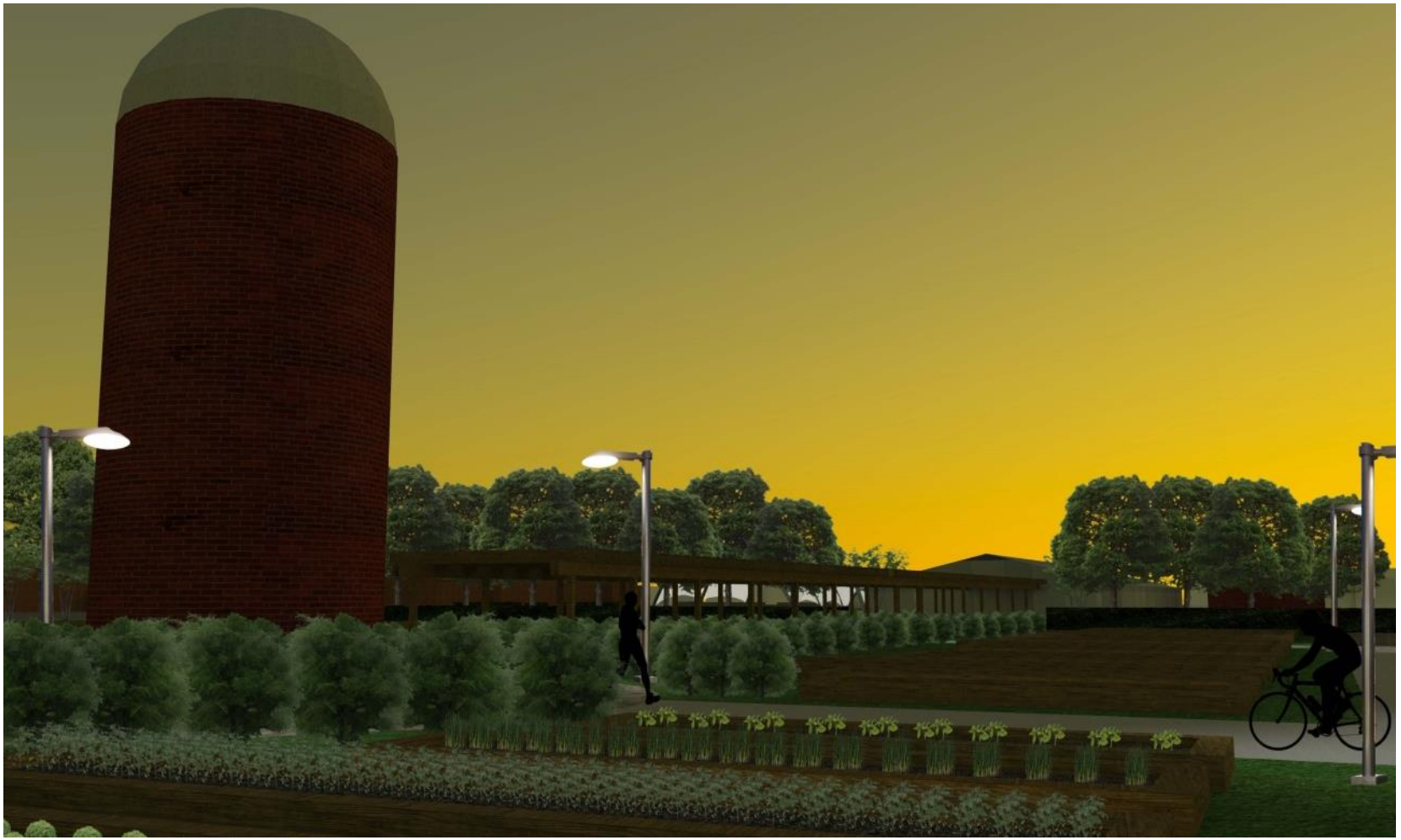

Figure 57. Irrigation Silo Perspective.

VITA

Justin Dean Bruno was born in Athens, Ohio in 1988. He has lived the majority of his life with his parents and sister in the small city of Bardstown, Kentucky, which was recently voted Most Beautiful Small Town in America by Rand McNally and USA Today. He attributes much of his love for the outdoors to Bardstown's rural southern landscape. A graduate of Nelson County High School, he spent most of his young life with his father, becoming an Eagle Scout, and with his mother on camping trips where he learned to respect nature and enjoy a hearty bowl of chili. Being a young man in constant pursuit of knowledge in every realm, he attended Miami University in Oxford, Ohio, and graduated with a Bachelor's Degree in Architecture. Still unsatisfied with the longevity of his educational pursuits, he has undertaken an additional three years of coursework and written this thesis to obtain a Master of Landscape Architecture Degree from the newly accredited University of Tennessee program. Along the way he has developed many dreams, not the least of which he might be able to encourage people to exercise more wisdom in their daily food choices. He plans to reside in Louisville, Kentucky with his fiancée, Jennifer, his ever-present hunger for knowledge, and his hope for applying his idealism in a positive way within the community.