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CULTIVATING CHANGE: ENHANCING URBAN AGRICULTURE THROUGH LANDSCAPE
ARCHITECTURE DESIGN

by

PATRICIA CERDA

Presented to the Faculty of the Graduate School of
The University of Texas at Arlington in Partial Fulfillment
of the Requirements
for the Degree of

MASTER OF LANDSCAPE ARCHITECTURE

THE UNIVERSITY OF TEXAS AT ARLINGTON

MAY 2024

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Abstract

CULTIVATING CHANGE: ENHANCING URBAN AGRICULTURE THROUGH LANDSCAPE ARCHITECTURE DESIGN

Patricia Cerda, MS

The University of Texas at Arlington, 2024

Supervising Professor: Letora Anderson

The objective of this research is to examine the advantages of applying landscape architecture design principles to urban agriculture landscapes. The study investigates the current and past instances of implementing agriculture in urban areas to comprehend how they benefit the community and local environment and create a connection between people and the food they consume. The study aims to explore how landscape architecture can be efficiently applied to urban farming practices to establish a meaningful and sustainable connection between individuals and their food. The study will be guided by three research questions: (1) What are the environmental benefits associated with integrating agricultural landscapes into the urban environment? (2) What are the key principles and elements of landscape design that can be effectively integrated into urban agriculture? (3) What are the sustainable challenges associated with maintaining urban agriculture within the community? The research will provide recommendations for design that follow landscape design principles and aim to bridge the gap between people and the food they consume in a sustainable manner.

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April 25, 2024

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Chapter 1. Introduction

The process of obtaining food has undergone significant changes in the United States over the last century. Before the 1900s, individuals would use agricultural practices to cultivate, gather, and farm their food, fostering a natural community. However, food acquisition has shifted to an industrialized model since the Industrial Revolution. As a result, most people, especially in Urban areas, are no longer engaged in the cultivation of their food (Lyson, 2004).

According to Thomas A. Lyson, a sociologist and professor at Cornell, most urban agriculture transpires in rural areas, situated away from the city's inner fabric. This is due to the enormity of current farms, which far surpasses their historical counterparts. In the 1600s, the average farm size in America was 75 acres, with hundreds of farms scattered throughout the country. Today, the most industrialized farms are concentrated in agriculture pockets and are mega-farms averaging 400-plus acres of land (Lyson, 2004). These farms are located far from the average American, resulting in a disconnect between individuals and their food. People are not only disconnected from their food physically but also from a social perspective. Communities are not only physically removed from the landscapes that grow their foods, but they are also far removed from an educational standpoint from their food.

A survey conducted by the Innovation Center of U.S. Dairy found that 16 million people believe that chocolate milk comes from brown cows. Additionally, 40% of California 4th graders didn't know that hamburgers come from cows. Orange juice is the most popular fruit in the nation, while French fries and potato chips are considered the most popular vegetables. This shows the challenge for many Americans to understand the agricultural system who have no exposure to it.

To bridge this gap, food-producing landscapes should be brought into urban cities. By designing spaces that encourage people to grow their food, an authentic connection can be created between people and their food.

This thesis will analyze past research and examples of urban agriculture implementation and examine how it benefits both people and the environment. The ultimate goal is to create a

versatile urban agriculture landscape that connects people with the food they consume. This study does not aim to solve the larger issues that the American food industry faces, but rather focus on using landscape design to create a more sustainable and transparent way of obtaining food.

Landscape architecture and urban agriculture are two fields that work together to create more sustainable and connected communities. By using innovative design solutions and careful planning, these two fields can transform urban spaces and cultivate vibrant communities. Integrating agriculture into urban areas creates opportunities for meaningful engagement, inviting individuals to participate in the cultivation of their surroundings. This approach promotes food production while also encouraging a sense of ownership and stewardship among residents, strengthening community bonds.

Landscape architecture plays a crucial role in connecting urban communities with the natural world. It fosters sustainable lifestyles and promotes social engagement. Combining urban agriculture with landscape architecture creates a perfect blend of aesthetics and practicality, leading to a better future for cities and the environment. According to 'Basics of Landscape Architecture', landscape architecture is a profession that creatively manages and shapes the physical world and the systems people interact with. Natural systems and sciences, such as geology, soils, plants, climate, and water systems, require a strong understanding of ecological systems. Therefore, landscape architects bring a broad contextual knowledge to urban design work. While farms have traditionally been created for production purposes and lacking aesthetics, urban design and urban farming have recently overlapped, designing spaces not just for production but also for their beauty.

1.1 Background

Three contemporary challenges make this research relevant: food insecurity, environmental sustainability, and urbanization. Urban farming can address all of these

challenges. Food insecurity is defined by uncertain ability or inability to procure food, inability to procure enough food, inability to live a healthy life, and feeling unsatisfied (Schroeder & Smaldone, 2015). Urban farming contributes to food security by providing local, fresh produce, reducing dependence on distant food sources, and increasing access to nutritious foods within urban areas, particularly in underserved communities where access to fresh produce may be limited.

Robert Goodland, Author, ecologist, and chief of office of the World Bank in Washington DC. Environmental sustainability is “seeking to improve human welfare by protecting the sources of raw materials used for human needs and ensuring that the sinks for human wastes are not exceeded, to prevent harm to humans” (Goodland, 1995). Environmental sustainability involves responsible practices that meet current needs without compromising future generations' ability to do the same. Urban farming supports this by reducing carbon emissions through local food production, conserving resources like water, and fostering community engagement and education around sustainable practices.

Urbanization is defined as the increasing proportion of a country's population residing in urban areas, which leads to a decreasing proportion living in rural areas. Most of the urbanization occurs due to the migration of people from rural to urban areas. The level of urbanization is the proportion itself, while the rate of urbanization is the rate at which this proportion is changing. It's important to note that urbanization has distinct implications from urban population growth and the physical expansion of urban areas, which are often wrongly considered as synonyms for urbanization (Satterthwaite et al., 2010). In summary, urbanization is the process of concentrating and developing the population in urban areas. It can impact urban farming by reducing available land for traditional agriculture, leading to the emergence of urban farming practices closer to city centers. Urbanization also drives the demand for locally produced food, creating opportunities for urban farmers to contribute to food security and sustainability within cities. As urbanization rapidly expands in the Dallas-Fort Worth area, it brings along a range of social and environmental

challenges. These include issues of social inequality, a rise in homelessness, strains on infrastructure, heightened pollution levels, extreme weather patterns resulting from climate change, deforestation, loss of green spaces, and a lack of diversity in food sources. The increasing urbanization in the Dallas-Fort Worth area has led to a need for urban agriculture to combat climate change threats to food supply chains and the unsustainable practices of industrial farming. This urbanization has also caused a rise in food prices, which disproportionately affects minority communities. Therefore, the purpose and need for urban agriculture is to provide a sustainable solution to these issues. Urban agriculture has numerous benefits for communities' environment, health, economy, and social well-being. For example, environmental benefits include heightened awareness of food systems ecology from production to disposal of waste materials, health benefits allow participants a healthy and therapeutic form of physical activity, economic benefits are that urban agriculture can stimulate local economic activity, and social benefits include providing a green space for community members to gather (City of Dallas Office of Environmental Quality & Sustainability & Agritecture Consulting, with support of TBG Partners, FHEED LLC, KK&P, The Edible Group, and Profound Foods, in collaboration with the Office of Environmental Quality & Sustainability, City of Dallas., 2023).

1.2 Purpose of the Study

The purpose of this thesis is to understand how landscape architecture can enhance urban farming practices to establish a meaningful connection between individuals and their food. Urban farming can address contemporary challenges such as food insecurity, environmental sustainability, and urbanization. It contributes to food security and improves environmental quality by providing local, fresh produce, reduces carbon emissions, conserves resources, and fosters community engagement. As urbanization rapidly expands in the Dallas-Fort Worth area, urban agriculture can be a sustainable solution to combat climate change threats to food supply chains

and the unsustainable practices of industrial farming while enhancing environmental, health, economic, and social benefits for communities.

This research aims to analyze the benefits of integrating landscape architecture into urban agriculture. By examining past research and successful examples, the study will create recommendations for a sustainable urban agriculture landscape that connects people with their food. The goal is to create a versatile urban agriculture landscape that connects people with the food they consume. Based on the information collected and analyzed, the research will provide design recommendations that follow landscape design principles, with the aim of bridging the gap between people and their food in a sustainable way.

1.3 Research Questions

How can landscape architecture effectively be applied to urban farming practices to foster a meaningful and sustainable connection between individuals and their food? This thesis will be guided by three research questions: (1) What are the environmental benefits, associated with integrating agricultural landscapes into the urban environment? (2) What are key principles and elements of landscape design that can be effectively integrated into urban agriculture. (3) What are the sustainable challenges associated with maintaining urban agriculture within the community?

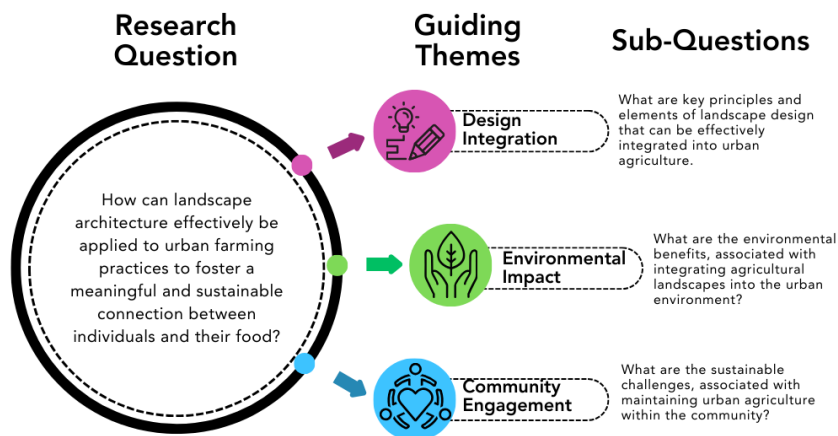


Figure 1. Guiding Themes Diagram

1.4 Definitions

Urban Agriculture: Agriculture encompasses the promotion of food, including meat and fish, and the practices of cultivating, processing, and distributing that food in (urban) or around (peri-urban) the city. (Philips, 2013)

Urban Agriculture: The Food and Agriculture Organization of the United States (FAO) defines urban agriculture broadly, encompassing practices beyond sustainability. It is an industry that produces, processes, and markets food and fuel largely in response to the daily demand of consumers within a town or metropolis on land and water dispersed throughout the urban and periurban area, applying intensive production methods using and reusing natural resources and urban waste to yield a diversity of crops and livestock. (Smit, 2001,1 as cited in Philips, 2013)

Urban Agriculture: The Council on Agriculture Science and Technology defines urban agriculture to include aspects of environmental health remediation and recreation: Urban agriculture is a complex system encompassing a spectrum of interest from a traditional core of activities associated with the production processing marketing distribution and conception to a multiplicity of other benefits and services that are less widely acknowledged and documented. These include recreation and leisure, economic vitality and business entrepreneurship, individual health and well-being, community health and well-being, landscape beautification, and environmental restoration and remediation. (Butler and Moronek 2002 as cited in Philips, 2013)

Landscape Urbanism: The term landscape urbanism has gained momentum in the design industry. It describes a more ecological approach to city building, creating environmental and social sustainability within a city network. Urban agriculture fits within this definition, but it is not necessarily inclusive. Landscape urbanism is a broader way to look at urban sustainability that

balances the creation of resilient and regenerative city landscapes. This approach encompasses the entire city. (Philips, 2013)

Urban Farm: Urban farming refers to small-scale farms located within or on the edge of a city that is typically less than one acre in size. These farms aim to provide income, food production, recreation, and relaxation. They focus on producing fruits, vegetables, and flowers for direct sale to consumers and restaurants or shared and bartered with community organizations and volunteers. Urban farms are distinguished by the diversity of crops in a small area of land and may include small-scale animal husbandry such as beekeeping and chicken rearing. These farms promote sustainability by encouraging energy-saving, local food production, and accessibility to local food in underserved areas of cities. Most urban farms focus on organic food production, which allows for more intensive gardening on a smaller amount of land than traditional rural farms. Some urban farms are also located on rooftops and use greenhouses and hoop houses to extend the regional growing seasons. (Philips, 2013)

Community Garden: Community gardens are created when a diverse group of people in a neighborhood come together to grow food. Each person or family has their own designated plot, and agreements are made for its use. The gardens provide a source of fresh produce and promote personal relationships, cultural exchange, community development, unification, environmental justice, crime prevention, leadership, and self-reliance for the neighborhood as a whole. Some community gardens are located on rooftops, driven by environmental justice concerns, while another new variation is a private development version that incorporates community garden space for high-density residential developments and their residents. (Philips, 2013)

Research/experimental Gardens: These gardens are developed by a learning facility such as a university or research organization to test plans that might be suitable or more productive characteristics for the local environment and are open to the community to learn from. (Philips, 2013)

Learning Gardens: Encourage communities to adopt food and garden-based education by providing them with resources and helping them forge partnerships for mutual benefits. These initiatives can be community-based or school-based. One example of such an initiative is the Learning Gardens Institute in Portland, Oregon, whose slogan is "Growing schools and communities together." (Philips, 2013)

Demonstration Landscapes: A demonstration garden is a useful research, educational, and promotional tool for urban agriculture that generally has a specific purpose. They demonstrate food shed issues such as the large quantity of food one person can grow in a city backyard using intensive organic cultivation methods. They also offer workshops and hands-on experience in both urban agriculture and urban gardening. (Philips, 2013)

1.5 Methodology

This thesis will be approached through qualitative methods, including field research, in-depth case studies, expert interviews, community engagement, and surveys. The main research question will guide the literature review and precedent studies, which will lead to the site selection process. The site selection approach involves a comprehensive assessment of factors such as land availability, water access, current gardening practices, historic involvement, community demand, and proximity to markets and potential consumers. By considering these criteria, a suitable site within the Dallas Fort Worth Metroplex will be identified to maximize the productivity

and sustainability of urban farming initiatives. Additionally, community engagement and stakeholder input will be integral in the decision-making process to ensure alignment with local needs and priorities.

1.6 Significance of the Study

The significance of this research lies in its mission to unite people with their food through the medium of landscape architecture, offering a holistic approach to addressing food security and sustainability challenges. Unfortunately, many Americans today have lost touch with the origins and journey of their meals from farm to table, forfeiting the cultural value and meaningful human connections that food can offer. As urbanization and industrialization continue to shape our world, preserving our relationship with the food we consume becomes increasingly vital, highlighting the importance of integrating landscape architecture into urban farming practices to foster a deeper connection between individuals and their food. This research aims to enhance this connection by creating aesthetically pleasing and productive urban farming spaces that nourish communities and celebrate the traditions and relationships inherent in food culture.

1.7 Limitations

Since this research is qualitative, potential biases may arise from sample size, open-ended questions, observations, and content analysis.

1.8 Delimitations

This research aims to examine urban agricultural landscapes in the Dallas-Fort Worth Metroplex. The research consists of local case studies within the DFW area, and the chosen site will also be in the same area. The study aims to critically analyze the examples provided and use the findings to inform the design for the selected site.

1.9 Summary

In summary, this thesis is about applying landscape design principles to urban farming landscapes. The following chapter is a literature review on urban farming, urban agriculture history, landscape design principles, and community engagement in design and how all of that can effectively be applied to urban farming landscapes.

Chapter 2. Literature Review

This research explores previous and current examples of implementing agriculture in urban areas. The goal is to analyze these studies and understand how they benefit the local environment and community and connect people to the food they consume. The research will provide a clearer understanding of the advantages of urban agriculture and its potential impact in The Garden of Eden. Based on the information collected and analyzed, the research will provide design recommendations that follow landscape design principles, that connect the local community to local food in a sustainable way.

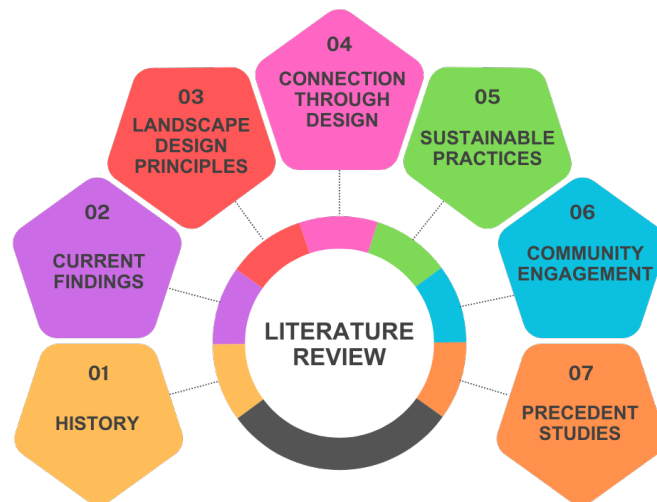


Figure 2 Literature Review Diagram

2.1 Introduction to Urban Agriculture

In "Designing Urban Agriculture", April Philips, a landscape architect, author, and founder and principal at Design Works in California, explains that there are two distinct definitions of urban agriculture. These definitions reflect the traditional viewpoints and the more ecological-based viewpoints, which are both contributing to the changing awareness of urban agriculture as a part of sustainable systems in a city. A traditional definition is the one by the U.S. Department of Agriculture (USDA) which defines Urban Agriculture as the cultivation, processing, and distribution of agricultural products in urban and suburban settings, it includes various forms and techniques like Vertical production, Warehouse farms, Community gardens, Rooftop farms, Hydroponics, Aeroponics, and Aquaponic facilities, and other innovations. Urban farmers' and gardeners' contributions to Urban Agriculture include working among diverse populations to expand access to nutritious foods, foster community engagement, provide jobs, educate communities about farming, and expand green spaces (Urban Agriculture, n.d.).

However, there are less traditional definitions which are more focused on the environmental aspect of agriculture like The Council of Agriculture, Science and Technology (CAST) defines Urban agriculture as a complex system encompassing a spectrum of interest from a traditional core of activities associated with the production, processing, marketing, distribution, and consumption, to a multiplicity of other benefits and services that are less widely acknowledged and documented. These include recreation and leisure; economic vitality and business entrepreneurship; individual health and wellbeing; community health and wellbeing; landscape beautification; and environmental restoration and remediation (Butler and Moronek 2002 as cited in Philips, 2013). This definition will serve as the baseline definition for this research because it includes the importance of individual and community health and well-being, as well as addressing environmental issues associated with agriculture.

2.2 Historical Perspectives on Urban Agriculture

Historically, farming and urban agriculture have been major ways in which food has been obtained in the United States. In years past, farming was very much a part of a person's daily life, not just in rural areas but also in urban areas. Only in recent years has that changed, with Farms being far removed from cities. The Industrial Revolution in the 18th century marked the beginning of mass food production in the United States. Prior to this, more than half of Americans were farmers or lived in rural communities and sourced food locally. This method of sourcing food provides benefits such as environmental sustainability, improved health, and economic growth. Opting to obtain food from local sources can be a viable solution to address the challenges posed by urbanization. The phenomenon of urbanization entails a multitude of changes in the size, density, and diversity of cities, which are frequently accompanied by population movements, segregation, and industrial development. It is a dynamic process that can either result in the expansion or contraction of urban areas (Vlahov & Galea, 2002). As of 2023 Dallas-Fort Worth is one of the country's fastest-growing metropolitan areas. The region added more people than any other U.S. metro between 2021 and 2022, with 170,396 new residents. DFW is the 4th largest metro area in the U.S. following New York, Los Angeles, and Chicago. With the rapid growth experienced in cities, the value of land has significantly increased, leading to debates among stakeholders and city administrations on the appropriate allocation of land use. Since there are various competing needs for the land, most city planners prioritize profit-oriented decisions by allocating the land to the use that will yield the most significant economic benefit to the city. By planning and designing for Urban Farming landscapes cities can move towards a more sustainable and resilient future by harnessing the potential of urban agriculture to produce food, compost waste, and create jobs and community. The separation of urban and rural spaces is a relatively recent phenomenon, driven by the rise of industrial agriculture and fossil fuel-powered transportation. Urban agriculture has a long history, dating back to the origins of cities, and was often a response to economic and social challenges in marginalized urban areas.

Many of the sustainable agricultural practices used in cities today, such as the French intensive

method, have their roots in historical urban farming traditions. Contemporary urban agriculture initiatives, such as Growing Power in Milwaukee, are restoring and building upon these historical traditions to address modern urban challenges (Philpott, n.d.).

The article Past, Present, and Future by Matt Frank highlights the multifaceted benefits of urban agriculture and the diverse stakeholders involved in its development. The potential of urban agriculture to address pressing societal and environmental issues, such as food security, sustainability, and community engagement (Frank et al., n.d.). Urban agriculture is defined as the practice of growing, processing, and distributing food within urban areas. It offers a range of environmental, economic, and social benefits, including reduced environmental impact, job creation, community development, and improved food access. Urban agriculture has a long history in the United States, dating back to the World War I and World War II era "Victory Gardens." Current initiatives, such as the White House Kitchen Garden and the USDA's People's Garden program, have revived interest in urban agriculture. Local governments, entrepreneurs, and non-profit organizations are playing a vital role in promoting and implementing urban agriculture through policy changes, new business models, and community-based projects. Emerging architectural and agricultural integration concepts, such as rooftop farms and vertical farms, present exciting future possibilities for urban agriculture (Frank et al., n.d.).

2.3 Current Findings: Understanding Urban Farming Practices Today

The design and planning of urban and suburban landscapes, and their impact on access to food and food production. Opportunities for incorporating food production and food security considerations into the design of urban buildings and spaces, such as using walls, balconies, and rooftops for growing food. The importance of addressing food security and sustainability challenges, including dependencies on fossil fuels and water, as the country progress into the 21st century. The need for a more food-sensitive approach to urban planning and design, which can help resolve issues of food access, particularly for disadvantaged communities. (Donovan, 2024).

Urban agriculture should not be seen as a disadvantage when considering land allocation. In fact, it can provide numerous benefits such as promoting local food production, improving food security, and reducing carbon emissions. Urban agriculture systems are becoming more crucial in the face of climate change and the growing demand for sustainable food sources. These systems offer a direct source of food for nearby residents, which provides multiple benefits to growers, consumers, and the community. However, it can be challenging to justify the use of urban land for agriculture based solely on production functions. Rather than solely focusing on production functions, urban agriculture should be evaluated based on the concept of landscape multifunctionality. This framework considers the various benefits or services that can be provided by agricultural land uses. Urban agriculture not only offers production functions but also a range of ecological functions, such as biodiversity, nutrient cycling, and micro-climate control, as well as cultural functions, like recreation, cultural heritage, and visual quality. These functions have a positive impact on the nearby community and society (Lovell, 2010). Furthermore, examples of agriculture from around the world would suggest that as land use agriculture is inherently multifunctional, offering several public benefits beyond the provision of commodity outputs however the industrialization of agriculture particularly in the US and other developed countries has resulted in landscapes that are strongly production oriented often neglecting the culture and ecological functions that agricultural activities had previously supported as a result Americans often overlook the enormous benefits that agriculture can provide if these systems were designed as multifunctional (Lovell, 2010). Landscape typically allocated for Urban agriculture does not have to be only production-oriented, farms that typically offer hours for visitation and tourism tend to add additional revenue to the production of their farm this also engages the community and the visitors and educates them on the local production of food and the local ecology. Production is not the only way to assign value to land and if urban agriculture is seen through the lens of multifunctional landscapes, the result would be a layer of systems that work in synergy with the natural landscape.

The multifunctional landscape approach considers the various outputs provided by agroecosystems. These outputs can be both commodity and non-commodity and include ecological

functions like biodiversity, nutrient cycling, and carbon sequestration, as well as cultural functions like recreation and visual quality. The concept of ecosystem services contributes to landscape multifunctionality, and combining multiple functions can improve the overall performance of agricultural systems (Lovell et al., 2010). Urban planners and landscape designers often struggle to incorporate food-systems thinking into urban planning. The challenge and opportunity lie in designing multifunctional urban agriculture spaces that meet the individual needs and preferences of residents while also protecting the environment. (Lovell, S. T. 2010).

2.4 Landscape Architecture Principles and Applications

Modern cities make it harder for many, particularly the disadvantaged, to access quality food and are increasingly separating us from the places of food production. There are various unused and underused spaces that can provide opportunities for food-sensitive urban design, such as rural land subject to speculation/expectation of urban development, future stages of estates awaiting construction, freeway reserves, land under powerlines, traffic islands, poorly used open spaces, railway cuttings/embankments, industrial/commercial land in transition, rooftops/building walls, land blighted by negative associations with dereliction, land cleared before redevelopment, and nature strips and parks. Food-sensitive planning and urban design (FSPUD) is guided by 10 principles, including securing and equitably accessing the food necessary for a healthy and fulfilling life, enabling local, decentralized, and diverse food production, and integrating food production, distribution, and consumption into the built environment. Architects and planners can help address the challenge of improving food access and security by incorporating food-sensitive design principles into the planning and design of the built environment (Donovan, 2024).

2.5 Creating a Meaningful Connection Through Design

The field of landscape ecology emphasizes the importance of acknowledging cultural perspectives and human cognition of landscapes. This is because landscapes can elicit strong

emotional responses in people, both positive and negative. These emotional responses (known as topophilia and topophobia) need to be taken into account when managing landscapes. It is also important to recognize that visitors and local inhabitants may perceive and interact with landscapes differently. Local inhabitants often have a more complex and nuanced understanding of the landscape due to their prolonged exposure to it. Therefore, incorporating local and indigenous knowledge in landscape management is crucial. Additionally, human perceptions and experiences of landscapes are shaped by factors beyond just visual aesthetics, such as sound, smell, and the feeling of being part of or apart from the landscape. To enhance landscape ecological theoretical frameworks and achieve better on-the-ground outcomes, it is important to collaborate with local communities and incorporate traditional ecological knowledge. (Source: Land | Free Full-Text | Acknowledging Landscape Connection: Using Sense of Place and Cultural and Customary Landscape Management to Enhance Landscape Ecological Theoretical Frameworks, 2024)

2.6 Sustainability in Urban Farming Design

Urban agriculture can contribute to a more secure, healthy, and sustainable food system in several ways: It can link socioeconomic and health systems, support education and societal engagement, and contribute to conservation goals like nutrient recycling and biodiversity. Urban agriculture reduces water and carbon footprints when it replaces lawns, but it also faces challenges like labor and time requirements, potential for environmental and nutrient pollution, and scarce water resources. While the economic and nutritional benefits of urban agriculture to urbanites are unclear, some case studies show it can provide benefits when replacing other land uses. Urban agriculture has the potential to meet a significant portion of urban vegetable demand, with studies suggesting developed nations could meet much of their food needs using less than 10% of urban land. Increased urban agriculture is positively correlated with greater awareness of the environmental impacts of food production. Increased urban agriculture is positively correlated with greater awareness of the environmental impacts of food production. Urban food gardens can contribute to biodiversity conservation by increasing and improving habitat within urban areas. The majority of urban

agriculture operations prioritize social objectives over financial ones, with only a quarter reporting market sales as the main goal (Nogeire-McRae et al., 2018).

2.7 Community Engagement and Participation

The article “Extension-Based Community Engagement Project Contributions to Landscape Architecture Core Competencies and Professional Values” examines the role of community engagement in public design for landscape architecture professionals. It focuses on two Appalachian communities, Austinville, VA and St. Paul, VA, and explores the relationship between community values and the physical landscape through three different community engagement methods. The main research question is: What methods can design professionals use to help bridge the gap in understanding between their professional, but "outsider", perspective, and a community's value systems and deep knowledge of local conditions? The initial hypothesis was that strong, underlying community networks, relationships, and family within the Austinville community bind the people together due to the loss of the community's historical economic and social engine.

The study employed three community engagement methods:

1. Adaptation of Buckner's Neighborhood Cohesiveness Survey to measure the level of connectedness among community members in Austinville.
2. Heritage mapping exercise in Austinville to understand the relationship between community values and the physical landscape.
3. Participatory photography (PhotoVoice) in St. Paul to capture the community's perspectives on their built environment and assets.

The Austinville survey found variable levels of community connectedness, contrary to the initial hypothesis. The heritage mapping exercise highlighted the importance of community members' memories and experiences over the physical landscape. The PhotoVoice project in St. Paul revealed diverse perspectives on the town's built environment and development efforts. (Sleipness et al., 2019)

2.8 Precedent Studies

The following precedent studies are vital to this research as they provide contemporary examples of urban agricultural landscapes. These studies showcase agricultural landscapes that serve various purposes, including supporting local communities and their food systems.

City Slicker Farms, Oakland, California

City Slicker Farms is located in West Oakland, an area that has traditionally had limited access to fresh and healthy food. According to cityslickerfarms.org The organization's mission is to empower West Oakland residents by providing them with sustainable urban farming opportunities to meet their basic need for healthy and fresh food. City Slicker Farms offers a variety of urban agriculture initiatives, including educational programs, urban farms, and community gardens that provide resources and support for community members to grow their own food and become self-sufficient. One of the key programs involves creating and maintaining community gardens in West Oakland, which provide accessible spaces for local residents to cultivate fruits, vegetables, and herbs. City Slicker Farms also provides educational workshops on gardening, nutrition, and sustainable agriculture practices to empower community members with the knowledge and skills needed to grow their own food and make healthier food choices. The organization actively works to address the issue of food insecurity in West Oakland by providing fresh produce to local residents. Through their urban farming initiatives, City Slicker Farms contributes to increasing access to nutritious food options in the community. City Slicker Farms values community input and collaboration, actively involving the community in decision-making processes to create a more sustainable and resilient local food system.

Lafayette Green, Detroit Michigan

In downtown Detroit, there is a garden that covers 0.425 acres of land that was previously empty after the demolition of the Lafayette Building in 2010. This garden is located near Compuware headquarters and is surrounded by notable buildings such as the Detroit Federal Building and the Westin Book Cadillac Hotel. Despite the loss of the Lafayette building, the creation of this vegetable garden has brought vitality and productivity to the area. Lafayette Greens was made possible by both private and public collaborations, serving as a positive example of the interim use of empty parcels in the city.

River Park Farms, New York

Riverpark Farm is a temporary Urban Farm, a rare initiative involving urban agriculture and technology for crop harvesting within a densely populated environment. The farm was created by ORE in response to the challenge posed by Riverpark restaurant to provide their kitchen with fresh produce that is not easily available in the city. The location selected for the farm was a stalled construction site adjacent to the restaurant, which would be available until construction resumes on a new tower. To make the farm portable, ORE designed individual planters using milk crates. The design kept the weight low and planting density high so that all 3,000 plants could be moved in as little as one day, as was done in preparation for Hurricane Irene. The milk crates were lined with landscape fabric and filled with top soil, peat moss, and perlite soil, creating an air pocket that allowed for air and water transfer with limited soil erosion. Empty crates were placed underneath the planters to provide aeration and drainage. The modular nature of the milk crate allowed for easy and rapid movement of individual plants, enabling the farmers to rotate them in and out of the sun as needed. The farm was made efficient and sustainable as ORE sourced all the materials from local growers and manufacturers. Additionally, ORE designed a unique dining area integrated into the farm so that guests to Riverpark could dine among the very plants from which their meal comes, providing a one-of-a-kind culinary experience (Riverpark Farm by ORE Design + Technology, 2020).

2.9 Conclusion

The precedent studies were crucial to this research because they took a different approach to using landscape design principles on urban agriculture. For instance, City Slicker Farm successfully advocated for a designed space that allowed them to gather as a community and grow food for profit. Lafayette Greens, on the other hand, capitalized on unused building space by transforming it into an aesthetically pleasing landscape that was productive in producing food for the local community.

Chapter 3. Methodology

This research aims to analyze the benefits of integrating landscape architecture into urban agriculture. By examining past research and successful examples, the study will create recommendations for a sustainable urban agriculture landscape that connects people with their food. The goal is to create a versatile urban agriculture landscape that connects people with the food they consume. Based on the information collected and analyzed, the research will provide design recommendations that follow landscape design principles, with the aim of bridging the gap between people and their food in a sustainable way.

This chapter will introduce the qualitative methodology used to answer the overarching questions and guiding themes that were presented in chapter one. How can landscape architecture effectively be applied to urban farming practices to foster a meaningful and sustainable connection between individuals and their food? This thesis will be guided by three research questions:

(1) What are the environmental benefits associated with integrating agricultural landscapes into the urban environment?

(2) What are key principles and elements of landscape design that can be effectively integrated into urban agriculture?

(3) What sustainable challenges are associated with maintaining urban agriculture within the community?

The following flow chart outlines the process used to arrive at the final design.

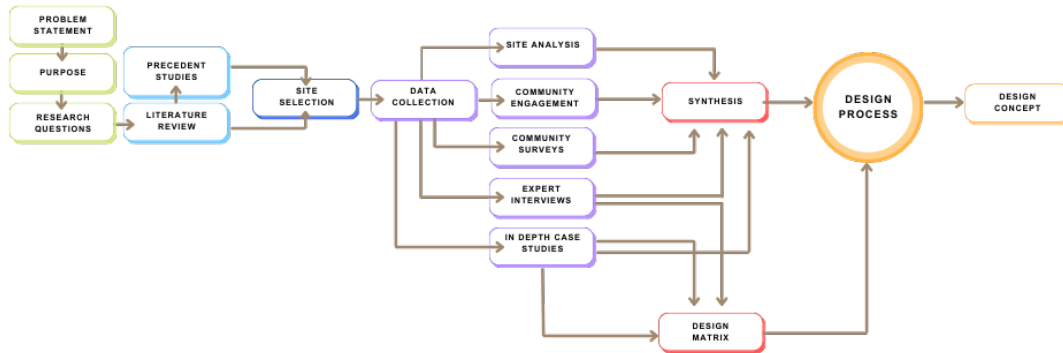


Figure 3. Methodology Flow Chart

3.1 Research Design

This study is qualitative. Qualitative methodology was chosen because it is designed to search for understanding themes, patterns, or casual explanations through the lived experience of the study participants (Kornuta & Germaine, 2019). The main objective of this research is to analyze the benefits of integrating landscape architecture into urban agriculture.

The study began with a research question: How can landscape architecture effectively be applied to urban farming practices to foster a meaningful and sustainable connection between individuals and their food? The literature review included precedent studies that showcased various Urban Farm typologies across the United States, specifically designed examples. The site selection process followed this research. Conducting the literature review and precedent studies before site selection was important because they informed where urban farming had the potential to be most successful and in what places it already existed. Typically, urban farming was successful in locations with community involvement in urban farming practices or an organization leading the urban farming initiatives. After the site was selected, the process of collecting data followed. The data collection

process involved a site analysis and inventory, community engagement, community surveys, expert interviews, and local case studies. After the data collection process was completed, a design matrix was developed based on the case studies, expert interviews, and literature review. The design matrix, community engagement, and precedent studies all directly informed the design of the final concept.

3.2 Site Selection and Rationale: A Case for The Garden of Eden, Fort Worth, Texas

It was crucial to conduct a literature review and study previous cases before selecting a site. The literature review and precedent studies helped to determine where designed urban farming landscapes had been most successful. Typically, designed urban farming landscapes thrived in areas where there was already community involvement or where an organization led urban agriculture initiatives. After careful consideration, the Garden of Eden neighborhood was selected for its strong historical connection to gardening practices and the land's natural resources.



Figure 4. Image of Trina Sanders holding the original layout of the Garden of Eden Farm

The Garden of Eden is a Historic Freedmen's town located in northeastern Fort Worth. It was named for its fertile soil and peaceful existence along the Trinity River bend. Major Chaney was the first African American to purchase land in the Garden of Eden area during the 1880s, and he eventually acquired over 200 acres. The community was strongly connected to the land and natural resources, with 40 acres reserved for gardens, pecan groves, and raising hay. Residents took advantage of the fertile soils to grow a variety of crops, including corn, greens, peas, tomatoes, grapes, peaches, pears, plums, watermelon, and pecans. Both adults and children played a role in harvesting, planting and preparing the soil, while water from the Trinity was used to irrigate crops and water cattle. Additionally, residents raised horses, mules, pigs, milk cows, and beef cattle (Sanders, 2015).

However, the enactment of the Federal Aid Road Act in 1961 and the establishment of the Texas Department of Transportation led to the growth of towns and a demand for gravel. This resulted in gravel mining along the Trinity where the deposits are found, and Major Chaney developed agreements with sand and gravel companies to mine on his property. Over time, the gravel pits formed and later filled due to the Trinity River Aquifer system below, which impacted the Garden of Eden. The community began to experience a loss of land due to the formation of gravel pits, loss of land ownership, and the development of industrial land uses (Sanders, 2015) .

Currently, the Garden of Eden Neighborhood is home to only 20 people, most of whom are descendants of the first settlers. The majority of the land that was once occupied by Major Chaney and his descendants has now been converted into industrial land. Despite this, the community still takes pride in its historical significance and has been honored by the City Council in 2005 as the first African-American cultural district in Fort Worth (Sanders, 2015).

The Cheney/Sanders family has a rich farming legacy that dates back to the 1880s when Major Chaney first arrived. Despite the passage of time, the family still maintains their own individual gardens. Major Chaney, the patriarch of the family, taught his family to survive and this legacy lives on through his descendants. As the saying goes, "If you give a man a fish, you feed him for a day.

Teach a man to fish, and you feed him for a lifetime." The family wants to continue this tradition of self-sufficiency and ensure that future generations also know how to survive (Sanders, 2015) .

The community aims to honor Major Cheney's legacy by creating a heritage museum on the very site where his home once stood. The lot where the museum is intended to be built is still owned by the neighborhood association. It was on this property that Major Cheney's family once ran the farm. At present, the location for the future museum is an empty lot where lush green grass, bushes, and trees have thrived, creating an idyllic setting that houses the rich history that lies beneath the surface. The site where the heritage center will go is the site selected for this study. This study aims to examine past research and successful examples to create recommendations for a sustainable urban agriculture landscape that connects people with their food. The Sanders family has individual gardens where they grow and harvest their own food. They love to share it with their family, friends, and their congregation. However, there is an opportunity to connect with their neighbors outside of their community to teach and bring awareness to the importance of urban farming. Even though the city of Fort Worth has recognized them time and time again, they remain relatively unknown to the city. The Heritage Museum and Farm can be a great opportunity to pay homage to their legacy. The museum will connect can not only the next generation of Sanders but also the next generation of Fort Worthians.



Figure 5. Future location for the Major and Malinda Cheney Heritage Museum

3.3 Participant Selection

Two categories of participants were chosen for data collection: User Surveys and Expert Interviews. On April 4th, 2024, individuals participating in a community bible study via Zoom for the local Valley Baptist Church were invited to participate in the User Survey. The survey was tailored to their specific community, making their input especially valuable.

For Expert interviews, individuals with backgrounds in landscape architecture and experience designing urban farms, community gardens, and other specific agricultural landscapes were chosen.

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Cultivating Change: The Impact of Landscape
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<https://utaedu.questionpro.com/gardenofeden-survey>

GARDEN OF EDEN COMMUNITY
SURVEY



UNIVERSITY OF
TEXAS
ARLINGTON



COLLEGE OF
ARCHITECTURE, PLANNING
AND PUBLIC AFFAIRS

Figure 6. Community Survey Flyer

List of Potential Experts (2-5 expert interviews will be conducted)	List of qualifications used to vet individuals. (at least one must apply to qualify as an expert interview)
<ol style="list-style-type: none"> 1. Expert A 2. Expert B 3. Expert C 4. Expert D 5. Expert E 	<ul style="list-style-type: none"> o Landscape Design Professional o Urban Farmer o Agriculture extension officer o Agricultural Educator o Landscape architecture educator o Horticulturalist o Environmental Planner o Community Gardner o Urban Ecologist o Community Planner o Agricultural economist o Agronomist o Sustainable designer

Figure 7. Expert Interview Criteria Table

3.4 Data Collection Methods

The data collection methods used were site visits. Site visits are important methods of collecting observational data. Before data was collected, the Institutional Review Board had to approve the study. The process of submitting IRB protocol includes 4 forms, one was a primary research application, a survey questionnaire, an expert interview questionnaire, and a minimal risk form. After a few tries and back and forth, all forms were approved on March 19th, 2024. The study was approved as a minimal-risk study that's not federally funded and non-FDA related protocol. After IRB approval, there were three notable community engagements: a site visit with Trina Sanders (Vice President of the Garden of Eden Neighborhood Association), a community clean-up at Valley Baptist Church, and a bible study Zoom meeting where I shared the survey.



Figure 8. Community Engagement Timeline

3.5 Local Case Studies

The case studies selected for this research hold significant importance as they are all local to the Dallas Fort Worth area, which is the location of the Garden of Eden, the subject site of this study. The inclusion of local examples was crucial, especially the ones that have a design element, as it provides valuable insights that can be used to enhance the study's design. By analyzing successful examples from the local area, the study's design can be improved to ensure maximum effectiveness and relevance to the target audience. This approach enables the study to gather rich and in-depth information, which can be used to develop a comprehensive understanding of the subject matter.

Case Study / Opal Lee Farms / Fort Worth, Texas

Located in Fort Worth, Texas, Opal's Farm is a 3-acre garden that overlooks the Trinity River. However, it's much more than just a fruitful piece of land. It's a place where Ms. Opal Lee fosters a sense of generosity, compassion, and motivation, encouraging others to do the same. For several years, Lee and farm manager Greg Joel have collaborated with the USDA Natural Resources

Conservation Service (NRCS) to find the most effective methods of nurturing the land while also producing delicious and nutritious crops. As a USDA People's Garden, the farm supplies food to the nearby Community Food Bank in Fort Worth and offers their produce at a reduced rate for USDA-SNAP customers at the Cowtown Farmers Market in Fort Worth (United States Department of Agriculture, 2023).

On February 19th, I went to Opal Lee Farms as part of a guided tour with Jessee Herrera, who is the co-founder and director of COACT. COACT is working in partnership with an initiative called Grow Southeast, which is an independent initiative between the Office of Commissioner Roy Charles Brooks, The Healthy Tarrant County Collaboration, and COACT. The aim of this initiative is to address food and economic inequities in Southeast Fort Worth. On this site visit, I met the farm manager, Joel, and Dr. Caroline Krejii, associate professor of Engineering at the University of Texas Arlington; she was conducting her own research on urban farming with a student. In summary, this site visit was very informative I learned that although they have 3 acres of land they don't farm on all three acres, and because the farm is designated by the USDA as a people's garden most of the produce goes to the community food bank in fort worth, the farm sits on the trinity river in bottomland which makes the soil fertile and great location to farm and lastly these acres were granted to Opal

Lee by the Tarrant Regional Water District (TRWD) for the express purpose of creating an urban farm (Opals Farm | Fort Worth | Grow Southeast, n.d.).



Figure 9. Opal Lee Farms, Fort Worth Texas. Image Credit: Patricia Cerda



Figure 10. Opal Lee Farms, Fort Worth Texas. Image Credit: Patricia Cerda

Case Study / Tabor Farms / Fort Worth, Texas

Tabor Farms is located in Fort Worth, Pastor Elvis Bowman created a community farm in southeast Fort Worth to increase access to healthy food options for Southeast Residents. The farm also provides agriculture knowledge and stabilizes income for the community members. Greater Mount Tabor serves as an example of the faith community's impact through community-centered servitude.



Figure 11. Tabor Farms. Image Credit: Patricia Cerda

Case Study / Mill City Farms / Dallas, Texas

The Mill City Teaching Farm is a non-profit organization based in Dallas, Texas, that has been providing nature-based learning programs for children since 2019. Its main goal is to offer the community a safe and inviting environment where they can learn and have fun. The Mill City Teaching Farm encourages children to explore the natural world, gain an appreciation for it, and develop a sense of community. The organization focuses on teaching children relevant and current

subjects while in an outdoor learning environment. The Mill City community, where the non-profit is located, is a low-income area that lacks access to fresh food. Therefore, the Mill City Teaching Farm is committed to teaching children how to grow their own food and promoting healthy eating habits (Home | Mill City Teaching Farm, n.d.). Located in Dallas, Mill City is a historically black neighborhood that dates back to 1903. It was founded with the purpose of opening a factory to provide training opportunities for residents of color. Over the years, Mill City has enjoyed a vibrant economy and a strong sense of community pride. However, due to years of disinvestment, the area has suffered from blighted buildings, illegal dumping, loitering, and high crime rates.

Mill City Teaching Farm is currently located in Ms. Lyon's front yard. However, it has plans to merge with Unity Community Gardens, which is only a few streets away, still within Mill City. Ms. Alendra Lyons is Mill City Farms' biggest advocate. She aims to expand and allow many more activities and community gathering spaces. One of the experts interviewed for this study also had the opportunity to partner with Mill City Teaching Farm and design the farm that would be the joint project between Mill City Teaching Farm and Unity Gardens. This expert kindly gave me access to their project presentation for the purpose of this study. This presentation included a history and background on Millcity, a master plan, a detailed plant list, concept diagrams, and site analysis, all of which informed the design for this project.

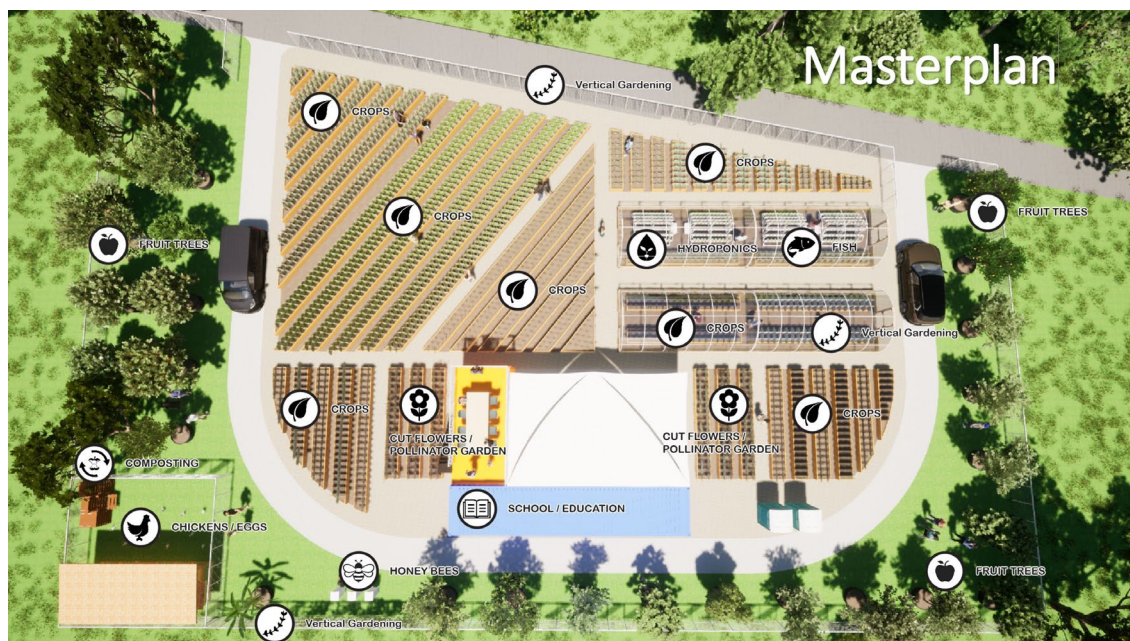


Figure 12. Mill City Teaching Farm. Image Credit: Mill City Presentation provided by Corrin Breeding

Case Study / Bonton Farms / Dallas, Texas

Bonton Farms is located in the Bonton neighborhood, which is an area in South Dallas that has been historically underserved and economically disadvantaged. According to the Bonton Farm website, the primary goal of Bonton Farms is to transform the community by providing access to fresh, locally grown food, creating job opportunities, and fostering community development. The organization aims to address issues of food deserts and poverty through sustainable agricultural practices. Bonton Farms is both an urban farm and a market, producing a variety of fruits, vegetables, and herbs. This provides the local community with access to nutritious, affordable, and locally sourced produce. The farm also raises livestock such as chickens, goats, and pigs. Bonton Farms places a strong emphasis on community engagement and empowerment. The organization involves residents in various aspects of the farming process, providing job opportunities, and educational programs on nutrition and sustainable agriculture. The farm not only addresses food insecurity but also contributes to the economic development of the community by creating jobs and supporting local businesses. Bonton Farms is one example of how sustainable agriculture can have a positive impact

on both individuals and the broader community. To support its initiatives, Bonton Farms collaborates with various organizations, volunteers, and donors. Partnerships with local businesses, nonprofits, and government entities play a crucial role in the success and sustainability of the farm.

Bonton Farm is a relevant example to study because of how it addresses food insecurity. USDA defines food insecurity as “(1) Lacking enough money to buy the amount and variety of food one needs or wants. (2) Limited or uncertain availability of nutritionally adequate and safe foods. (3) Limited or uncertain ability to acquire acceptable foods in socially acceptable ways.”

Bonton Farms is unique in that it provides a source of income to the community by offering jobs within the farm. Bonton Farms is more than just a garden; it is an urban agricultural site with multiple functions, such as a café and restaurant, coffee shop, fresh market, and a patio with seating and an entertainment stage. Because of its multiple programming, it can do more than just provide food.



Figure 13. Bonton Farms / Dallas, Texas / Image Credit: Patricia Cerda

Case Study / Mind your Garden / Fort Worth, Texas

Mind Your Garden Urban Farm is in the Glen crest neighborhood, in Southeast Fort Worth, Texas. According to the Grow Southeast Fort Worth Website, the area is a food desert with few fresh and healthy food options. In 2013 Steven and Ursula Nuñez bought a 3.5-acre property to establish a sustainable urban farm. In 2015, Steven attended the week-long Armed to Farm agriculture training workshop hosted by the National Center for Appropriate Technology. Steven gained insights on how farmers could provide healthy food to their communities. The workshop also highlighted the therapeutic potential of farming. In 2016, Steven returned to graduate school to pursue a degree in landscape architecture. His coursework became a platform to advance his research on creating healthy, safe, and sustainable communities through farming and social engagement. In December 2018, Steven graduated with a Master of Landscape Architecture degree from the University of Texas at Arlington. His thesis, “Addressing Issues Relating to Food Deserts Through Empowerment,” proposed a community garden in the Glen crest neighborhood. The design for this garden is currently in the finalization stage. (Addressing Food Insecurity | Fort Worth | Grow Southeast, n.d.)



Figure 14. Mind Your Garden Urban Farm / Fort Worth, Texas / Image Credit: Patricia Cerda



Figure 15. Mind Your Garden Urban Farm / Fort Worth, Texas / Image Credit: Patricia Cerda

3.6 Data Analysis

In qualitative research, data analysis involves gathering data in the field by listening and observing as the researcher interacts with the subjects. Once the data is collected, the analysis process begins, and its main objective is to organize and code the information obtained from various sources, specifically for this study includes expert interviews, community surveys, and firsthand data collected at the case study locations. This process requires careful attention to detail, as the data must be accurately categorized and interpreted to draw meaningful conclusions and insights. The researcher must also be open to unexpected findings and be able to adapt their approach as needed to ensure a thorough and comprehensive analysis (Kornuta & Germaine, 2019b) .

3.7 Design Process

In the book *Research in Landscape Architecture: Methods and Methodology*, the author writes the following about design: 'Design as a noun is described as the outcome of the design process in which a product, that is, the design, has been drawn and given shape, and, in the case of a positive outcome, decision-making may be implemented.' (Van Den Brink et al., 2016).

To create a comprehensive and well-informed design, this study employs a multifaceted approach that incorporates a range of different sources and techniques. These include a thorough review of relevant literature, a detailed analysis of precedent studies and case studies, a deep dive into the history of the subject matter, and a meticulous examination of the site in question. By synthesizing all of these different elements into a single design, the study is able to produce a result that is a direct reflection of the design process.

3.8 Summary

In chapter three, the methodology for this study was outlined. The methods used will be a combination of different techniques such as literature review, precedent studies, site selection and analysis, inventory, community engagement, community surveys, expert interviews, and local case studies. Once all the data is collected, a design matrix will be created based on the case studies, expert interviews, and literature review. The design matrix, community engagement, and precedent studies will all be used to inform the final concept design. The following chapter, Chapter Four, will present the analysis and findings of the methods used in Chapter Three.

Chapter 4. Analysis and Findings

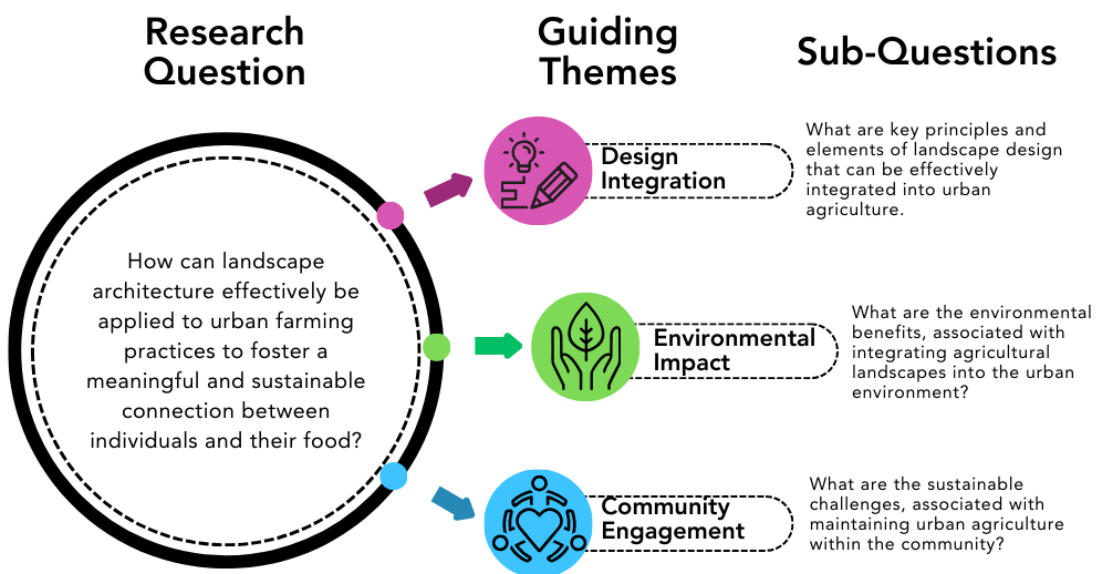
The purpose of this study is to analyze the benefits of integrating landscape architecture into urban agriculture. By examining past research and successful examples, the study will create recommendations for a sustainable urban agriculture landscape that connects people with their food. The goal is to create a versatile urban agriculture landscape that connects people with the food they

consume. Based on the information collected and analyzed, the research will provide design recommendations that follow landscape design principles, with the aim of bridging the gap between people and their food in a sustainable way.

4.1 Background and Settings

Qualitative methodology was chosen for this study because it is designed to search for understanding themes, patterns, or casual explanations through the lived experience of the study participants (Kornuta & Germaine, 2019). The main objective of this research is to analyze the benefits of integrating landscape architecture into urban agriculture.

The study began with a research question: How can landscape architecture effectively be applied to urban farming practices to foster a meaningful and sustainable connection between individuals and their food? which led to the study's purpose and guiding themes.



4.2 Participant Profiles: User Surveys

Two categories of participants were selected for data collection: User Surveys and Expert Interviews. On April 4, 2024, participants of a community bible study organized by the Valley Baptist Church were invited to participate in the User Survey. The survey was tailored to their specific community, making their input particularly valuable. As mentioned earlier, user surveys were conducted on April 4, 2024, after the community bible study on Zoom. Trina Sanders, the vice president of the neighborhood association and my primary point of contact with the community, invited me to attend and present the survey. After the bible study ended, I was given the opportunity to share the survey with the community. The survey was conducted online through the Question Pro platform and consisted of 25 questions. The survey focused on specific questions about urban farming to determine the extent of the community's knowledge of urban farming practices and their current involvement..

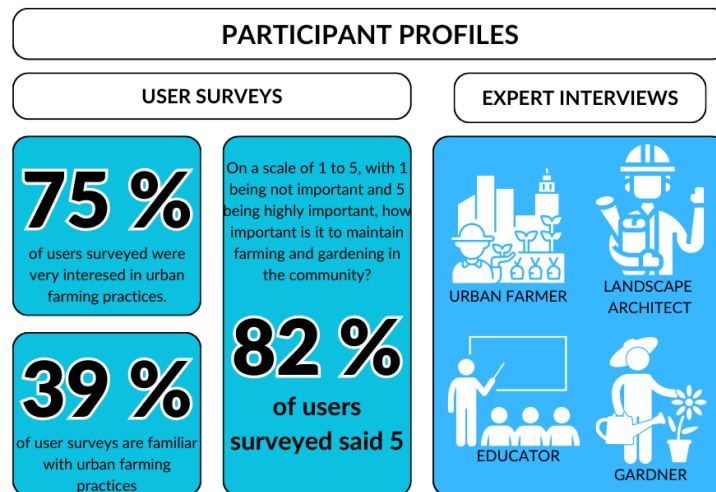


Figure 16. Participant Profiles Diagram

4.3 Participant Profiles: Expert Interviews

For the expert interviews, individuals who have a background in landscape architecture and experience in designing urban farms, community gardens, and other specific agricultural landscapes

were selected to be part of the study. The first expert was recommended by my thesis adviser and chair, Professor Letora Anderson. She recommended this expert because of his involvement and design of Mill City Teaching Farm in Dallas, Texas. The second expert is an adjunct professor at the University of Texas Arlington; I was familiar with his expertise in urban farming because I had previously taken his course where we had the opportunity to work on his farm, a for-profit farm called Mind Your Garden in Fort Worth, Texas. Although I had a list of questions to guide the interview, both conversations were more organic in nature but stayed on the topic of urban farming and the implementation of landscape design principles on agricultural landscapes.

Expert Interview 01 / Landscape Architect / Land Development / Familiar with Urban Farming Design Projects

In my discussion with the urban farming expert 01, several key themes emerged regarding the implementation of landscape architecture in urban farming initiatives. Firstly, understanding the site was highlighted as crucial, taking into account factors such as sun patterns, utility availability, and community dynamics. The expert emphasized the importance of community involvement and identified various stakeholders who could potentially benefit from urban farming projects. Collaboration was seen as essential, exemplified by initiatives like Mill City Farms Dallas, which showcased the power of collaborative efforts in urban agriculture.

In terms of design elements, the expert mentioned the use of cedar planters to repel bugs and the implementation of drip irrigation systems for efficient water management. Teaching and programming were also highlighted as integral components, fostering community-wide passion and desire for urban farming while providing educational opportunities. Additionally, the expert emphasized the need for a maintenance plan to ensure the longevity and success of urban farming projects, including considerations for past, present, and future growth plans.

Furthermore, funding sources such as support from the city were discussed as vital for sustaining urban farming initiatives. The expert suggested incorporating grow boxes, composting

facilities, and even bee farms into urban farming designs to maximize productivity and environmental sustainability. Overall, the insights gleaned from the expert underscored the multifaceted nature of urban farming endeavors, emphasizing the importance of community engagement, collaboration, and thoughtful design in fostering meaningful and sustainable connections between individuals and their food.

Expert Interview 02 / Landscape Architect / Architect / Business owner / Urban Farmer in Fort Worth, Texas

In my discussion with the urban farming expert 02, we delved into the core mission and vision of such initiatives, emphasizing the importance of purpose-driven endeavors and the unique perspective that landscape architects bring to the table. Environmental impact considerations were thoroughly examined, including sustainable water management practices, the addition of green spaces, and innovative waste redirection strategies like composting to mitigate landfill waste. The expert highlighted key sustainable challenges such as manpower shortages and the necessity to expand networks and forge partnerships to overcome them.

Economic sustainability emerged as a critical aspect, with the expert noting the inherent challenges in generating substantial income solely from farming endeavors, prompting a need for diversification through agro-tourism and educational programs. Design solutions were discussed, focusing on practicality, functionality, and adaptability to varying soil conditions and site constraints, with considerations for enclosed composting systems and efficient space utilization.

Case studies like Mind Your Garden Farm illustrated the integration of for-profit farming with agro-tourism, landscape design, and educational outreach, emphasizing a mission-driven approach to community health improvement. Design criteria prioritized functionality and simplicity, with a focus on creating versatile spaces conducive to gathering, learning, and agricultural activities. The expert underscored the importance of building community and fostering connections through well-designed gathering spaces, access points, and amenities like outdoor kitchens and washing stations.

Additionally, the incorporation of animals, such as chickens, was highlighted for their role in nutrient cycling and natural fertilization, contributing to the overall sustainability of urban farming endeavors.

4.4 Classification of Data

One method used to synthesize the data that was compiled is a design matrix based on a diagram presented in April Philips' book "Designing Urban Agriculture." Philips provides a graph that illustrates different design typologies suitable for various projects. The graph aims to help identify the key features of the proposed site to create a strong foundation and build resiliency (Philips, 2013). For this study, I compiled the precedent studies, case studies, and the current site into the design matrix. The matrix aims to find patterns of physical and programmatic features and use successful ones in designing the Garden of Eden Heritage Museum Farm.

		PHYSICAL FEATURES										PROGRAMMATIC FEATURES											
		PUBLIC	FOR PROFIT	NON-PROFIT	FAITH BASED	INGROUND BEDS	ROOFTOPS	PLANTERS	PORTABLE PLANTERS	GREEN HOUSE	HYDROPONICS	AQUACULTURE	BEEKEEPING	AQUATIC CROPS	FRUIT TREES	KIDS AREA	COMMUNITY PLOTS	CHARITY/ FOOD PANTRY	CSA	TRAINING EDUCATION	RESEARCH	COMMERCIAL SALES	RESTAURANT / KITCHEN
PRECEDENT STUDIES	CITY SLICKER FARMS																						
	LAFAYETTE GREENS																						
	RIVER PARK FARM																						
CASE STUDIES	BONTON FARMS																						
	MILL CITY FARMS																						
	TABOR FARMS																						
	OPAL LEE FARMS																						
	MIND YOUR GARDEN																						
	GARDEN OF EDEN (CURRENTLY)																						
	GARDEN OF EDEN - HERITAGE FARM (FUTURE)																						

Figure 17. Design Matrix

After conducting the expert interviews, I synthesized the information gathered into a comprehensive graphic that presents the various topics we discussed. These topics include site understanding and analysis, design elements, collaboration, aesthetics, accessibility, and more. The purpose of this graphic (Figure 20) was to facilitate a comparison of interview responses between the two experts, allowing for an identification of any overlap or contrast between their perspectives.

TOPIC	EXPERT 01	EXPERT 02
SITE UNDERSTANDING + ANALYSIS	Conduct a thorough analysis of the site, considering factors such as sun patterns, utility availability, and community dynamics. Utilize this understanding to optimize the layout and placement of farming elements for maximum efficiency and community engagement.	X
COMMUNITY INVOLVEMENT	Prioritize community involvement throughout the design and implementation process. Identify and engage various stakeholders who could benefit from or contribute to the urban farming project, including residents, local businesses, schools, and community organizations.	X
STAKEHOLDER INVOLVEMENT	Prioritize community involvement throughout the design and implementation process. Identify and engage various stakeholders who could benefit from or contribute to the urban farming project, including residents, local businesses, schools, and community organizations.	X
COLLABORATION	Foster collaboration among different stakeholders, exemplified by successful initiatives like Mill City Farms Dallas. Encourage partnerships between public and private entities to enhance the project's impact and sustainability.	Recognize and address challenges such as manpower shortages through partnerships and network expansion. Collaborate with local organizations, businesses, and community groups to leverage resources and expertise.
DESIGN ELEMENTS	Incorporate cedar planters to repel bugs and enhance plant health. Implement drip irrigation systems for efficient water management and conservation. Integrate teaching and programming spaces into the design to facilitate educational opportunities and community engagement.	Prioritize functionality and simplicity in design criteria, creating versatile spaces conducive to gathering, learning, and agricultural activities.
MAINTENANCE PLANS	Develop a comprehensive maintenance plan to ensure the longevity and success of the urban farming project. Consider past, present, and future growth plans to adapt the maintenance strategy accordingly.	X
MAXIMIZING PRODUCTIVITY AND SUSTAINABILITY	Incorporate grow boxes, composting facilities, and bee farms into the design to maximize productivity and environmental sustainability. Design with a focus on maximizing yields while minimizing environmental impact and resource usage.	Implement sustainable water management practices to minimize water usage and runoff. Incorporate green spaces and vegetation to enhance biodiversity and improve air quality. Integrate innovative waste redirection strategies such as composting to reduce landfill waste and promote soil health.
FUNDING AND SUPPORT	Seek support from the city or other funding sources to sustain the urban farming initiative. Explore innovative funding models and partnerships to secure ongoing financial support.	Diversify revenue streams through agro-tourism and educational programs to supplement income from farming endeavors. Design with economic sustainability in mind, considering the practicality and functionality of various income-generating activities.
ACCESSIBILITY AND INCLUSIVITY	Ensure that the urban farm is accessible to all members of the community, including those with disabilities or limited mobility. Design with inclusivity in mind, considering the needs and preferences of diverse community members.	Ensure that the urban farm is accessible to all community members, regardless of age, ability, or background. Design with inclusivity in mind, considering the diverse needs and preferences of the community.
AESTHETICS AND RECREATION	Integrate aesthetic elements into the design to enhance the visual appeal of the urban farm and its surroundings. Create recreational spaces within the farm where community members can gather, relax, and engage with nature.	X
CONTINUED INVOLVEMENT AND EVALUATION	Establish mechanisms for ongoing evaluation and feedback to continuously improve the urban farming project. Adapt the design and operations based on lessons learned and changing community needs over time.	Establish mechanisms for ongoing evaluation and improvement, adapting the design and operations based on feedback and evolving community needs.
MISSION DRIVEN DESIGN	X	Align the design with a clear mission and vision for the urban farming initiative, emphasizing purpose-driven endeavors that prioritize community health and environmental sustainability.
PRACTICAL AND ADAPTABLE	X	Design for practicality, functionality, and adaptability to varying soil conditions and site constraints. Consider enclosed composting systems and efficient space utilization techniques to maximize productivity and resource efficiency.
COMMUNITY BUILDING AND CONNECTION	X	Design gathering spaces, access points, and amenities such as outdoor kitchens and washing stations to foster community engagement and connection. Incorporate animals like chickens for their role in nutrient cycling and natural fertilization, enhancing the overall sustainability of the urban farm.
CASE STUDY INTEGRATION	X	Draw inspiration from successful case studies like Mind Your Garden Farm, integrating for-profit farming with agro-tourism, landscape design, and educational outreach.

Figure 18. Expert Interview Matrix

After conducting a thorough comparison and contrast of all the topics discussed with the experts, I cross-referenced the information with the analysis and data gathered from each case study and precedent study. This process led to the development of twelve design guidelines (Figure 19). This report presents twelve design guidelines for urban farms based on insights from two expert interviews. The

guidelines are intended to address the complex challenges of sustainability, community engagement, and economic viability while fostering meaningful connections between people and their food.

The first guideline recommends conducting a thorough analysis of the site to inform the design process effectively. This analysis should consider factors such as sun patterns, soil conditions, drainage, and existing utilities. The second guideline highlights the importance of community involvement throughout the design process to ensure the urban farm meets the needs and desires of the local community. The third guideline emphasizes the need for collaboration with various stakeholders, including local residents, businesses, and government agencies, to leverage diverse expertise and resources for the success of the urban farming project. The fourth guideline promotes sustainable design practices to minimize environmental impact and promote long-term viability. These practices include efficient water management, composting facilities, and renewable energy sources. The fifth guideline recommends designing flexible spaces that can accommodate a range of activities, from agricultural production to educational programming and community gatherings, ensuring the farm's multifunctionality and adaptability. The sixth guideline prioritizes practicality and functionality in infrastructure design, including access paths for farming machinery, storage facilities for tools, and efficient irrigation systems to optimize farm operations. The seventh guideline emphasizes maximizing productivity through design elements such as raised beds, drip irrigation, and optimized planting layouts while minimizing resource inputs and maintenance requirements. The eighth guideline suggests designating spaces within the farm for educational programming aimed at teaching community members about gardening, nutrition, composting, and other relevant topics to foster a culture of learning and empowerment. The ninth guideline advocates exploring diverse revenue streams beyond agricultural production, such as agro-tourism, educational programs, and landscape design services, to ensure economic sustainability and resilience. The tenth guideline promotes creating inviting gathering spaces within the farm, including outdoor kitchens, seating areas, and event spaces, to facilitate social interaction, community bonding, and shared experiences. The eleventh guideline highlights the benefits of incorporating animals like chickens into the farm ecosystem to provide natural fertilization, pest control, and additional educational

opportunities while promoting biodiversity and sustainability. The twelfth guideline emphasizes paying attention to aesthetics in farm design, incorporating elements of beauty, harmony, and cultural relevance to create an attractive and inspiring environment that enhances the overall well-being of the community.

Overall, these guidelines provide a comprehensive framework for designing urban farms that are functional, sustainable, and economically viable while fostering community engagement and empowerment.

Design Guidelines

- 1 Site Understanding and Assessment:** Conduct a thorough analysis of the site, considering factors like sun patterns, soil conditions, drainage, and existing utilities to inform the design process effectively.
- 2 Community Engagement and Stakeholder Involvement:** Prioritize community involvement throughout the design process to ensure that the urban farm meets the needs and desires of the local community while fostering a sense of ownership and pride.
- 3 Collaborative Design Approach:** Embrace collaboration with various stakeholders, including local residents, businesses, and government agencies, to leverage diverse expertise and resources for the success of the urban farming project.
- 4 Functional and Sustainable Design:** Integrate sustainable design practices such as efficient water management, composting facilities, and renewable energy sources to minimize environmental impact and promote long-term viability.
- 5 Versatile and Adaptable Spaces:** Design flexible spaces that can accommodate a range of activities, from agricultural production to educational programming and community gatherings, ensuring the farm's multi functionality and adaptability.
- 6 Practical and Efficient Infrastructure:** Prioritize practicality and functionality in infrastructure design, including access paths for farming machinery, storage facilities for tools, and efficient irrigation systems to optimize farm operations.
- 7 Maximizing Productivity:** Incorporate design elements such as raised beds, drip irrigation, and optimized planting layouts to maximize productivity while minimizing resource inputs and maintenance requirements.
- 8 Educational Programming Integration:** Designate spaces within the farm for educational programming aimed at teaching community members about gardening, nutrition, composting, and other relevant topics to foster a culture of learning and empowerment.
- 9 Economic Diversification:** Explore diverse revenue streams beyond agricultural production, such as agro-tourism, educational programs, and landscape design services, to ensure economic sustainability and resilience.
- 10 Community Gathering Spaces:** Create inviting gathering spaces within the farm, including outdoor kitchens, seating areas, and event spaces, to facilitate social interaction, community bonding, and shared experiences.
- 11 Integration of Livestock:** Consider incorporating animals like chickens into the farm ecosystem to provide natural fertilization, pest control, and additional educational opportunities while promoting biodiversity and sustainability.
- 12 Aesthetic Considerations:** Pay attention to aesthetics in farm design, incorporating elements of beauty, harmony, and cultural relevance to create an attractive and inspiring environment that enhances the overall well-being of the community.

Figure 19. Design Guidelines

The guidelines presented above draw on principles of landscape design to provide comprehensive recommendations for establishing urban farms that not only prioritize the sustainable production of locally grown produce but also encourage community involvement and empowerment.

Chapter 5. Design

The purpose of this study is to analyze the benefits of integrating landscape architecture into urban agriculture. By examining past research and successful examples, the study will create recommendations for a sustainable urban agriculture landscape that connects people with their food. The goal is to create a versatile urban agriculture landscape that connects people with the food they consume. Based on the information collected and analyzed, the research will provide design recommendations that follow landscape design principles, with the aim of bridging the gap between people and their food in a sustainable way.

The Garden of Eden is the research site due to its potential to bridge urban farming practices with the larger community, spreading awareness about the importance of sustainable agriculture. Despite consistent recognition from the city of Fort Worth, the Garden of Eden remains relatively unknown. The Heritage Museum and Farm offers a unique opportunity to honor the Sanders family legacy and connect not only future generations of Sanders but also future generations of Fort Worth residents

5.1 Site Inventory and Analysis

Analyzing a site involves several stages. The first step is to collect basic information about the location, size, topography, soil conditions, hydrology, climate, and existing vegetation. This data is typically obtained through surveys, maps, aerial photographs, and on-site inspections.

For this research, I replicated this process by conducting two site visits and collecting physical data on-site through images. Next, images to assess the existing gardening in the area were taken, as well as the overall site conditions and the surrounding homes within the community. The researcher also obtained street views of the site, the water body, and the local church. In addition, we used GIS, Google Maps, the city of Fort Worth, and the Tarrant County public map viewer to obtain aerial images of the site and its surrounding conditions. Collecting aerial images was important as it provided a comprehensive view of the site. The Garden of Eden is located in the northeastern part of Fort Worth, just a few miles from

downtown. It sits along the bend of the Trinity River on bottomland, which provides fertile soil for farming. However, the Garden of Eden is currently facing various environmental challenges due to past sand and gravel mining activities and being surrounded by industrial lots. The contour map (Figure 20) displays the grading of the site. The site naturally drains into the water reservoir that was formed from the remnants of the sand and gravel pit.

The sand and gravel pits located on the site were intended to be filled in, but they were never actually filled. Since the Trinity River aquifer system is present under the pits, they were naturally filled with water from the Trinity River. Over the years, the community has utilized the resulting pond

for recreational purposes such as boating, fishing, and swimming. The water from the pond has been going through a list of tests, but unfortunately, the tests are currently still being processed.

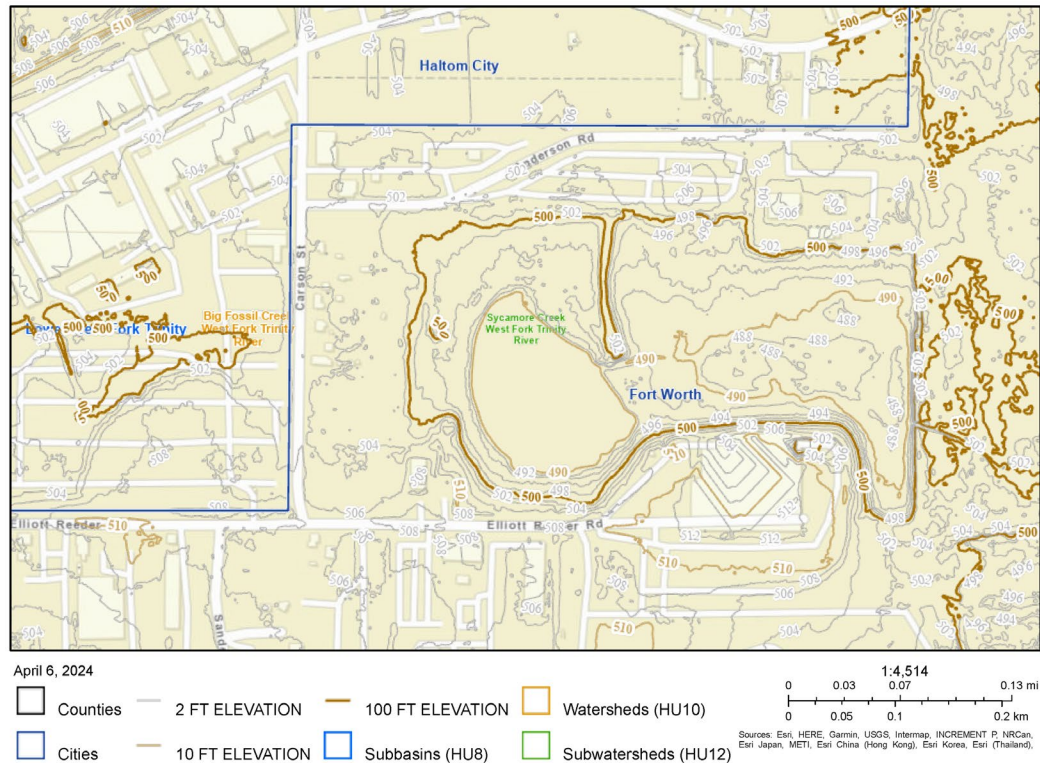


Figure 20. Contour Map GIS

Generations of farmers have cultivated the land in the Garden of Eden neighborhood. However, due to industrialization, the remaining community is now surrounded by industrial warehouses, which raises concerns regarding soil quality. The soil in the Garden of Eden is currently undergoing tests, but results are pending. For the purposes of this study, it's crucial to consider the possibility of contamination from the surrounding industries. Moreover, the contour map reveals that the site will receive runoff from the industrial warehouse located to the east and from Carson Street. Because of this, rain gardens and other forms of filtering water before it gets to the in-ground beds will be

important. If the soil is found to be contaminated, the design will be flexible enough to where planters will be used instead of planting crops in the ground.



Figure 21. Site Analysis and Inventory

A thorough analysis of the site's past uses, historical landmarks, heritage values, and any archaeological considerations is conducted by landscape architects. To create functional designs, it is crucial to assess how different areas of the site will be utilized and their relationship with each other. The Site Inventory and Analysis process assumes particular importance for the Garden of Eden, given its rich history. During my research, the term "palimpsest" came to mind, which refers to something that has been re-used or altered but still bears visible traces of its earlier form. In landscape design, it is often the case

that there is already something on the site where the new design will be implemented, and it is critical to consider its previous use when planning the new space. In the case of the Garden of Eden, their identity is ingrained in the land, and their legacy and heritage are visible in their gardens. Therefore, it is essential to ensure that these elements are incorporated into the design to honor their history and legacy.

The analysis and inventory of the site is represented in Figure 21. It was significant to take note of the existing gardens, homes, streets, church, and industries around the site. The graphic is an aerial view with marks indicating various key features, and it displays the proximity of what's happening within the Garden of Eden. Considering factors such as circulation patterns, zoning requirements, spatial relationships, and activity nodes is important to Landscape designers. Evaluating the site's visual qualities, including its beauty, character, and sense of place, helps in creating designs that enhance the overall aesthetic experience. This involves considering factors such as scale, proportion, rhythm, texture, color, and visual focal points. Understanding the social dynamics of the site, including its demographic characteristics, community needs, and cultural values, is important for creating inclusive and engaging spaces that promote social interaction and well-being.

5.3 Program Diagram

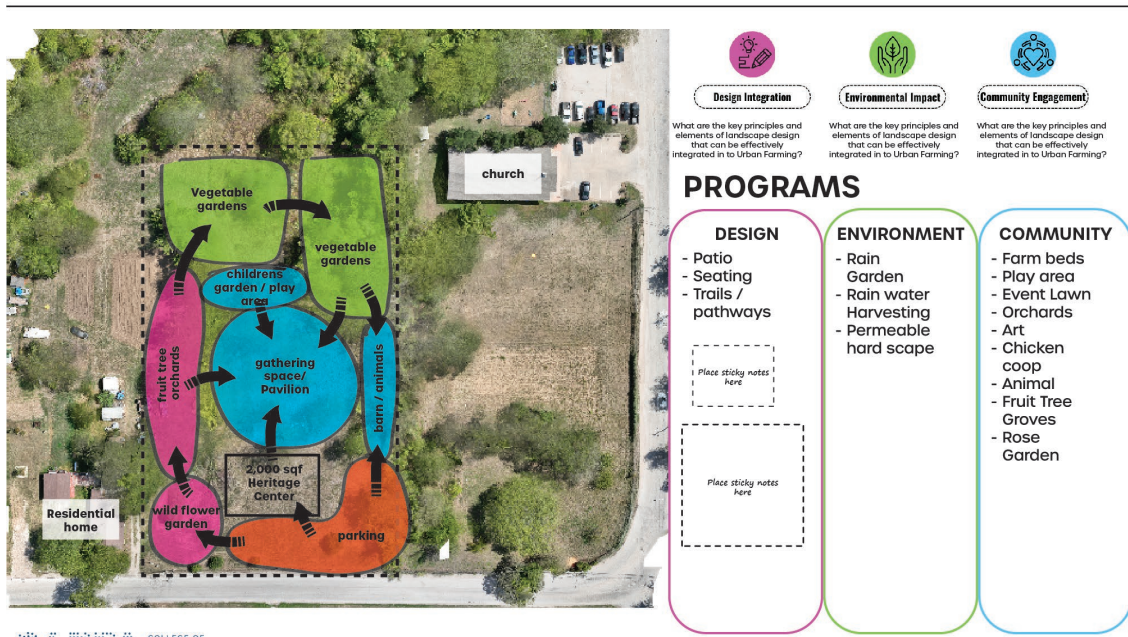


Figure 22. Concept Diagram

After completing the site analysis process, the next step was to create a program diagram for the landscape design project. A program diagram is a visual representation of the project's functional requirements and spatial relationships, which helps to organize and communicate various programmatic elements and their interconnections. For this project, I kept the diagram simple and intended to present it to the community for feedback on the layout and spacing of the programs. In Figure 22, you can see that I began a list of programs but intentionally left it unfinished. I wanted the community to provide their input. The main programs I highlighted were gardens of various typologies, a children's play area, a barn area for animals, parking, and fruit tree groves. During the community engagement process, the participants had the opportunity to speak with me and add sticky notes to the map above indicating where certain programs were best. This gave me a better understanding of circulation. Although I provided some ideas about programs, they also had the opportunity to add programs as they saw fit. The entire process was very informative.

The program diagram also shows how different programmatic elements relate to each other spatially within the site. It indicates the arrangement of spaces, the connections between them, and any hierarchical relationships that exist. Additionally, it emphasizes the hierarchical organization of spaces and functions within the landscape design, reflecting an understanding of the site users' needs and preferences, including how they will interact with and utilize the various programmatic elements.

5.4 Schematic Design Plan

A schematic plan is a preliminary design document that provides an overview of a proposed project. It includes circulation patterns, the layout of outdoor spaces, major features, hardscape elements, water features, and vegetation changes. These plans are presented in a simple form and help the client understand the proposed design direction before more detailed plans are developed.

For this project, after the program and community engagement concluded, I began working on the schematic (Figure 25). The plan is quite detailed and shows pathways, as well as programs like a children's playground, fruit orchards, community gardens, vegetable gardens, goat barn area, chicken coop, composting, teaching barn, grape vines, faith garden, pecan tree grove, fruit tree orchards, parking lot, rain gardens, storage container, open lawn, and outdoor classroom.

All the features of the program were developed based on the feedback I received from the community, extensive research, and case studies. The children's playground offers a safe and fun environment for kids to play and learn while their parents can attend gardening classes or participate in other activities at the farm. Various gardens with in-ground beds and planters cater to different interests. The faith garden is designed to reflect the community's beliefs and provides a peaceful space for prayer and contemplation. The barn houses goats and a chicken pen where visitors can learn about animal husbandry and composting. The compost area is an excellent teaching opportunity for composting techniques. Additionally, the farm has fruit orchards, and during the pecan season, the community can come and pick pecans from the pecan tree groves.

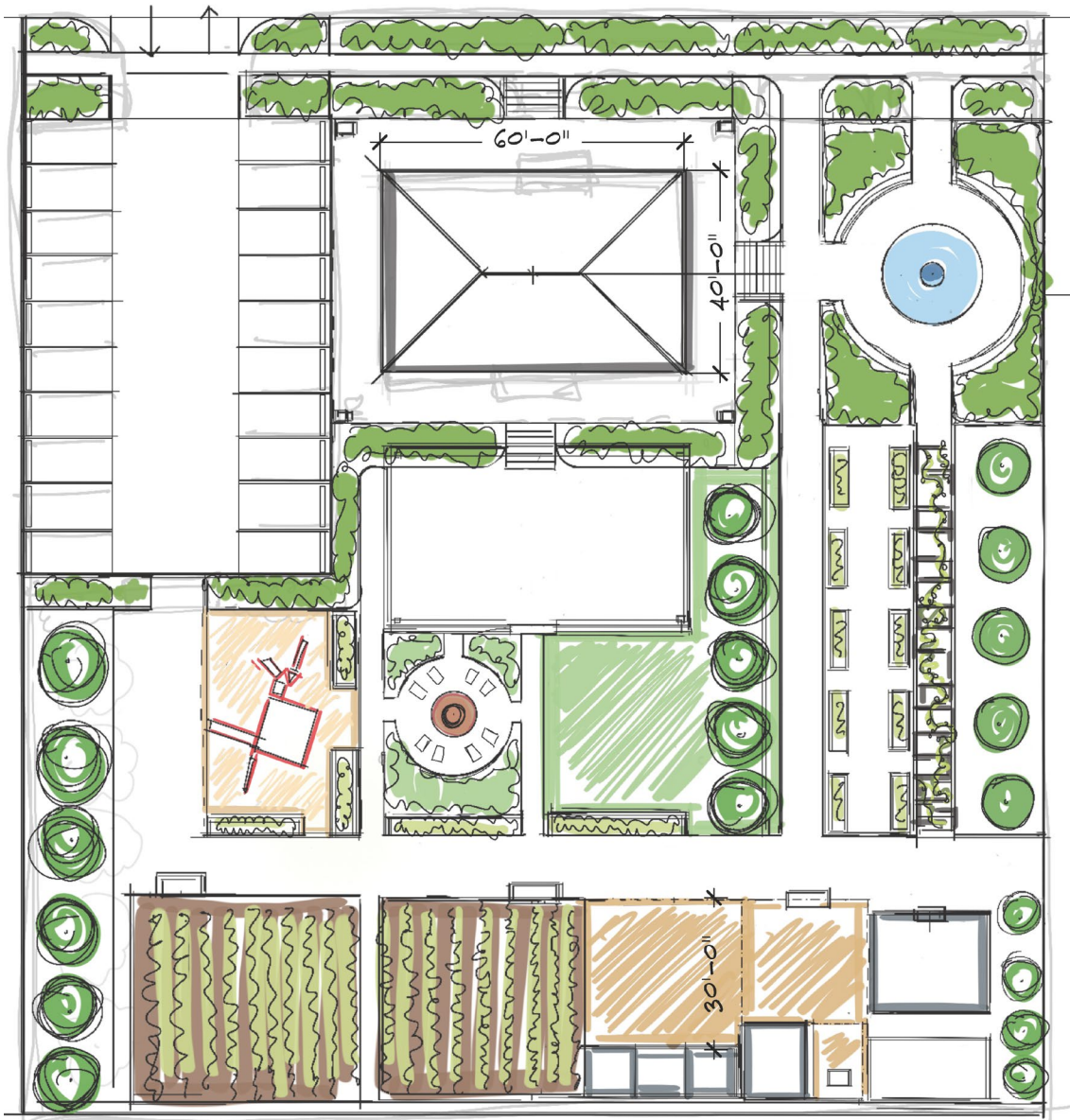


Figure 25. Hand-drawn illustration Schematic Design Plan

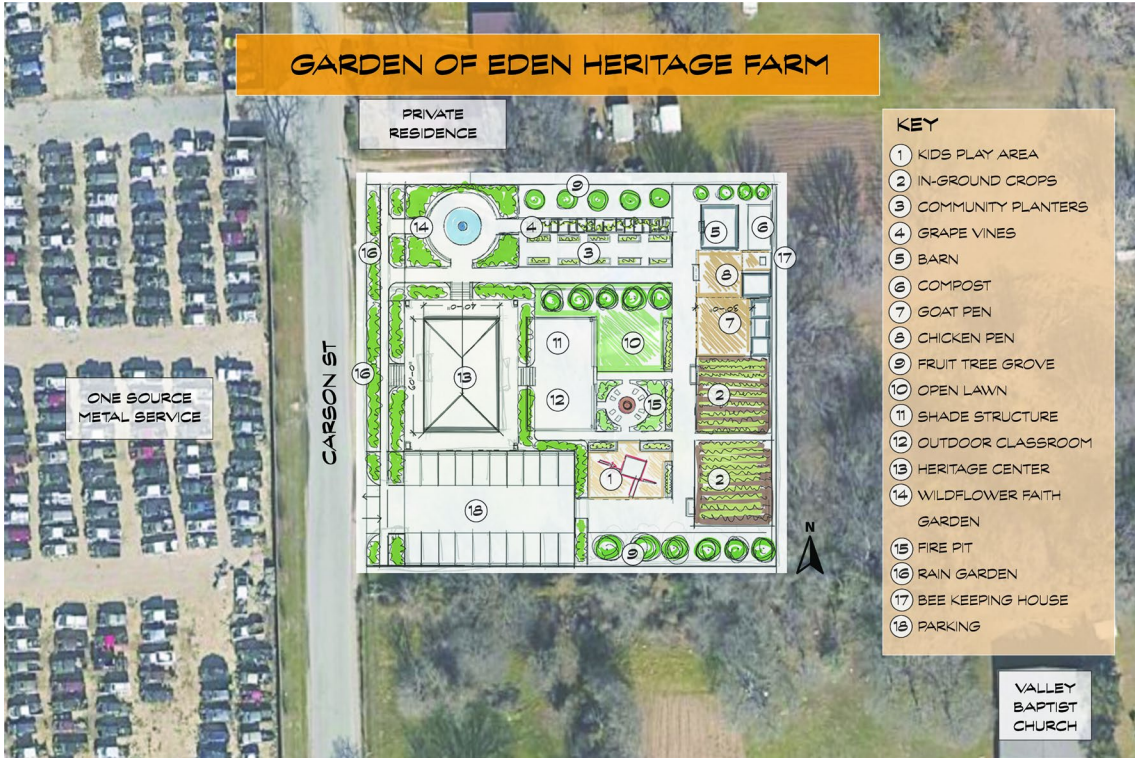


Figure 26. Concept Design

5.5 Design Feedback

The final step involved obtaining feedback on the design. The heritage farm underwent an engagement process that included receiving input from a field expert and the community. The process involved careful examination of the design, incorporation of feedback into the design, and use of simulation and modeling software. This iterative approach ensured that the farm design was viable and aligned with the site's characteristics and community needs.

EXPERT FEEDBACK	COMMUNITY FEEDBACK
<ul style="list-style-type: none"> • Workshop Functionality: Confirm if the barn will serve as a workshop for building and repairing tools/equipment. • Storage Considerations: Ensure there is sufficient storage space, such as a large shed or shipping container. • Sunlight for Grow Beds: Verify that the in-ground grow beds will receive adequate sunlight, considering their proximity to large trees. • Seating in Community Garden: Consider adding a seating area to the community garden space for visitors. • Adequacy of Open Lawn Area: Assess if the open lawn area is large enough for planned activities. • Layout Optimization: Evaluate the possibility of flipping the firepit and lawn spaces to better connect the open lawn to the kids' play area. • Detailed Garden Designs: Consider zooming in to design specific gardens, such as the Wildflower Faith garden and the fire pit area, to highlight the community's faith-based purpose. • 3D Renderings and Fly-Through Video: Determine if 3D renderings or a fly-through video will be created for the final presentation to enhance visualization. • Scale on Plan: Remember to include a scale on the plan for accurate measurements 	<ul style="list-style-type: none"> • Consider the proximity of the Wildflower Faith area and the Bee Area. It might be beneficial to place them closer together due to bees likely pollinating from the wildflowers and fruit tree blooms. • The overall layout looks balanced and inviting to all visitors, including humans and other living creatures.

Figure 27. Expert and Community Feedback Table

I sent an email to the community and attached a PDF of the concept design that included labels and an aerial view for context (Figure 26). The community raised concerns about the distance between the bee area and the pollinator garden, suggesting that it would be better if they were in the same space. Nevertheless, they found the overall layout to be well-balanced and welcoming to all visitors. I also shared the same concept with a field expert who had some concerns about workshop functionality, storage considerations, sunlight exposure for the grow beds, seating arrangements, and the location of the open lawn and fire pit area in relation to the playground, he suggested that it would be more logical to have the lawn adjacent to the playground rather than the fire pit area.

In summary, I have incorporated the feedback provided by the community into the final design recommendations (Figure 28). The primary modifications made include relocating the bee to the pollinator garden in accordance with best practices for beekeeping and community suggestions. Additionally, we swapped the fire pit and open lawn, which allowed for the open lawn to become an extension of the play area. To cater to storage needs, I included a storage container adjacent to the barn. Once all the necessary modifications were made to the main plan, I proceeded to create a 3D model of the farm and began the rendering process. You may find the final renderings on the following pages.

5.4 Final Site Specific Recommendations

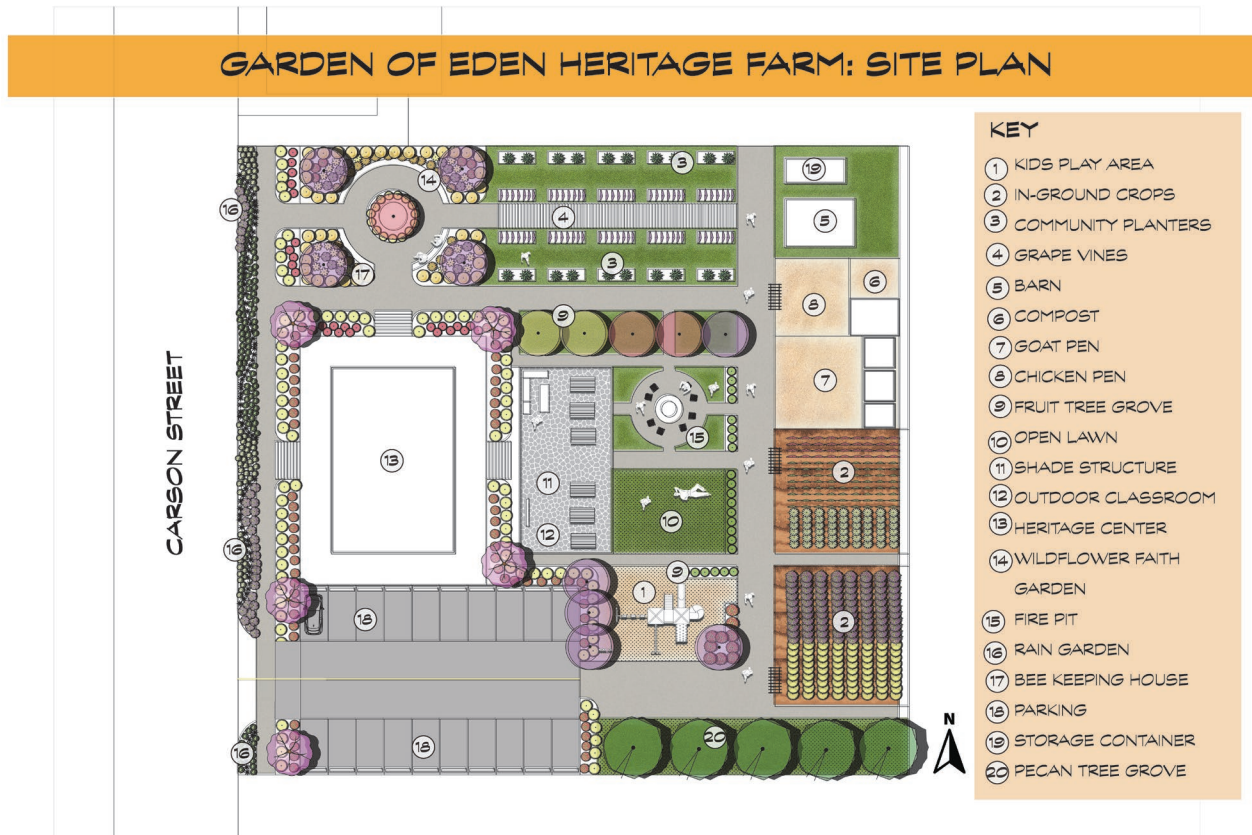


Figure 28. Garden of Eden Heritage Farm; Site Plan

Figure 28 illustrates the final site plan rendering for the Garden of Eden Heritage Farm. This comprehensive visual representation serves as a blueprint for executing the design. The farm's design is rectilinear because it was important to keep the pathways simple for farming purposes. Additionally, the rectilinear design offers flexibility in programming. For instance, the in-ground bed area can easily be transformed into raised beds if the soil is found to be contaminated.

GARDEN OF EDEN HERITAGE FARM: BIRDS EYE VIEW

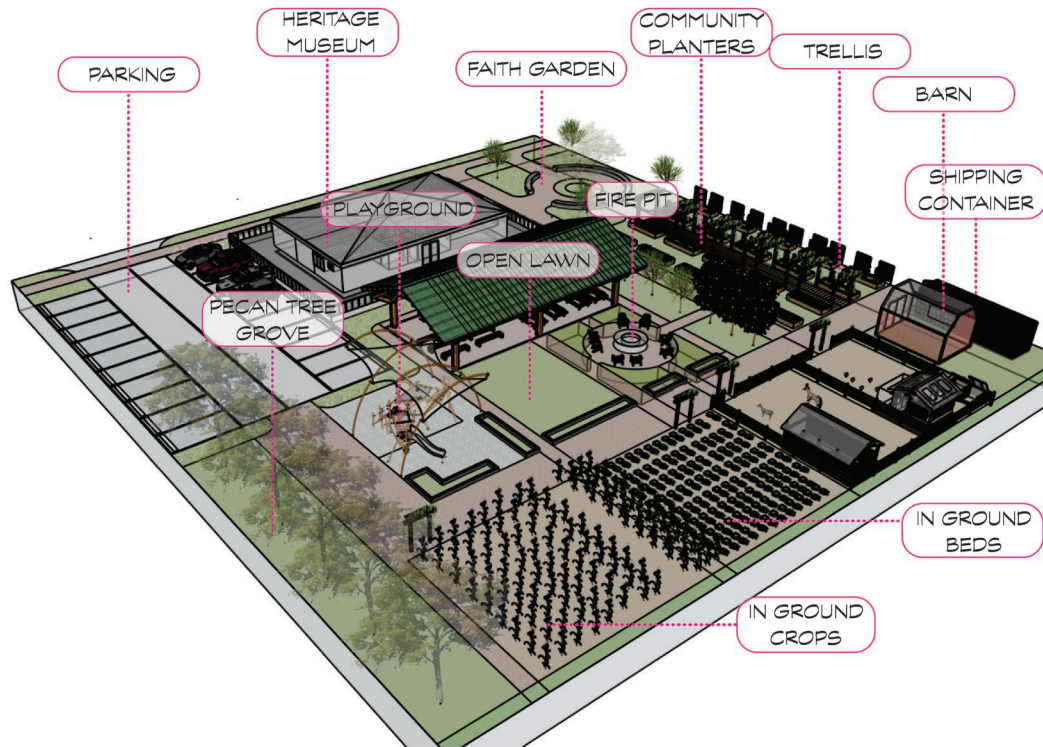


Figure 29. Garden of Eden Heritage Farm; Birds Eye View

Figure 29, provides a comprehensive aerial view of the farm. The image is incredibly useful in highlighting the flow of activity and how different programs are interrelated within the area. This 3D rendering offers an immersive perspective, illustrating how individuals would move around the space and use the pathways to access various areas.

GARDEN OF EDEN HERITAGE FARM: PERSPECTIVE 01

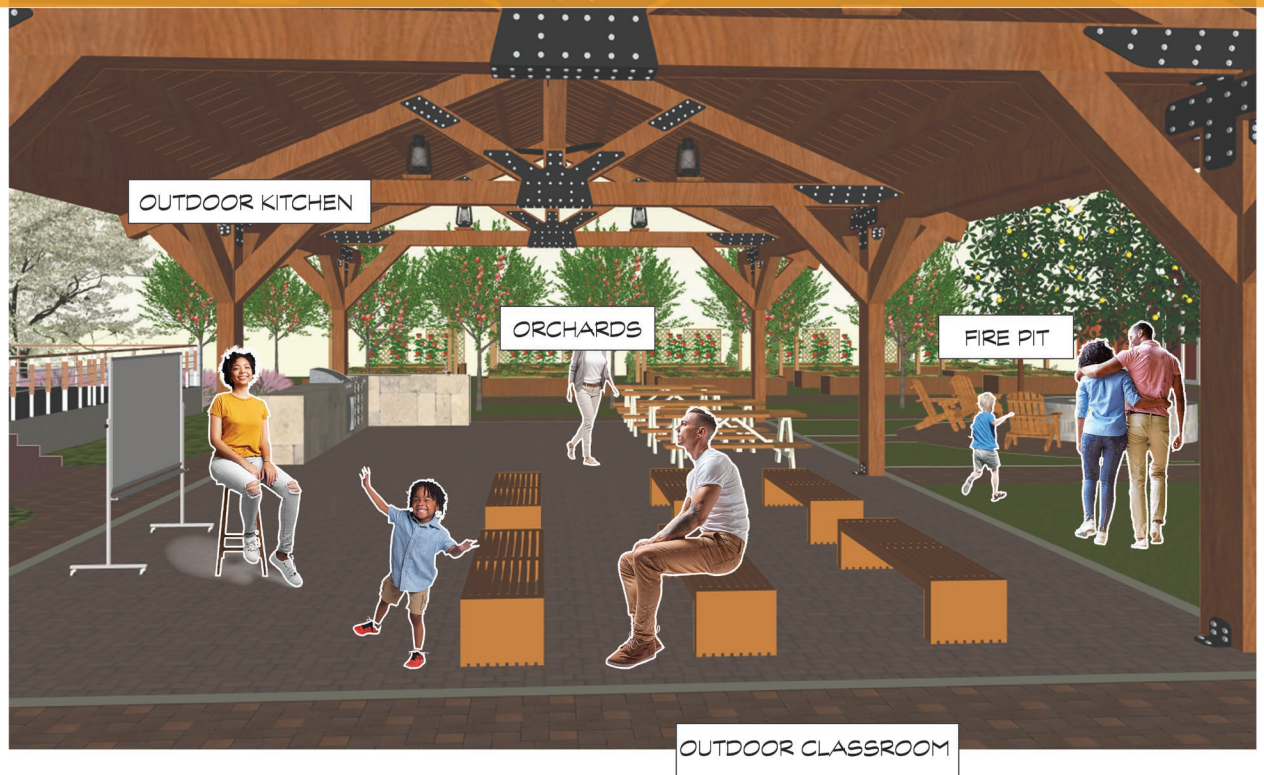


Figure 30. Garden of Eden Heritage Farm; Perspective 01

The image displayed above, Figure 30, showcases the wooden pavilion that is intended to accommodate the kitchen and outdoor classroom underneath it. This space holds significant importance as the educational aspect of the Farm was one of the key features the community desired. They were keen on having a designated area where they could conduct cooking and farming classes.

GARDEN OF EDEN HERITAGE FARM: PERSPECTIVE 02

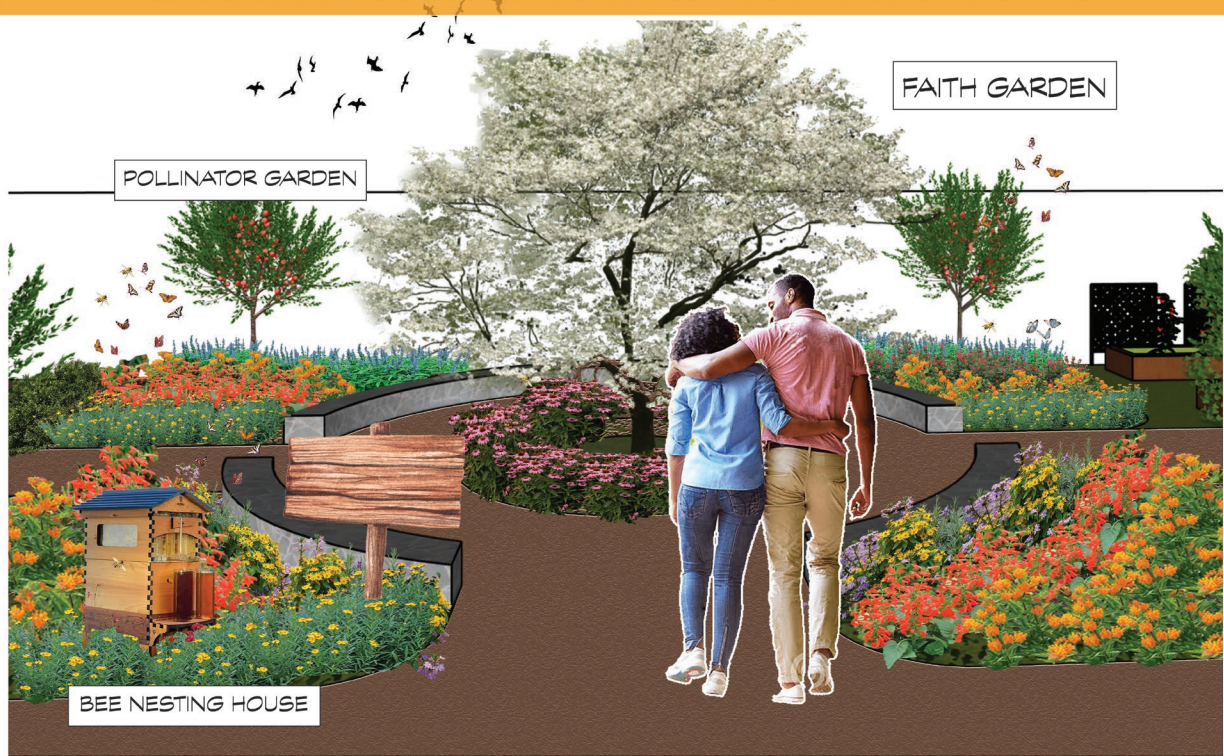


Figure 31. Garden of Eden Heritage Farm; Perspective 02

Perspective of the Faith Garden is shown in Figure 31. The Faith Garden has been designed with pollinating perennials and bushes, and it will also be the home of a bee nesting house. This area is significant because the community gathering space is currently their church. All community events and meetings take place at the church, so it was important to bring the church into the farm through this faith garden. The idea is to create a place for prayer and contemplation, where people can connect with nature.

GARDEN OF EDEN HERITAGE FARM: PERSPECTIVE 03

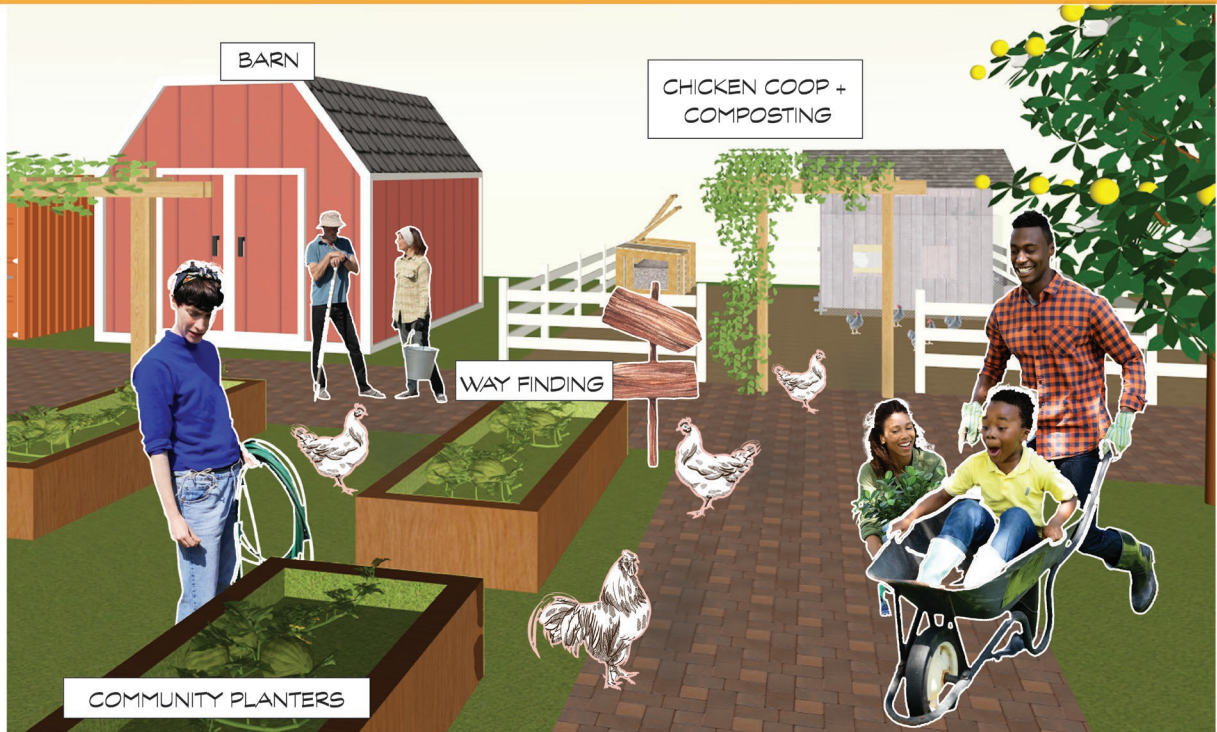


Figure 32. Garden of Eden Heritage Farm; Perspective 03

Figure 32 depicts a perspective of the farm, highlighting the community planters area, the barn, way finding signage, and the chicken coop and composting area. The community planters are an essential part of the farm's design, providing a space for the community to participate in gardening activities. The chickens play a crucial role in composting, making them a vital part of composting education. The barn will serve as a place for animal husbandry classes to take place, and lastly, signage will be an important way of directing visitors through the farm.

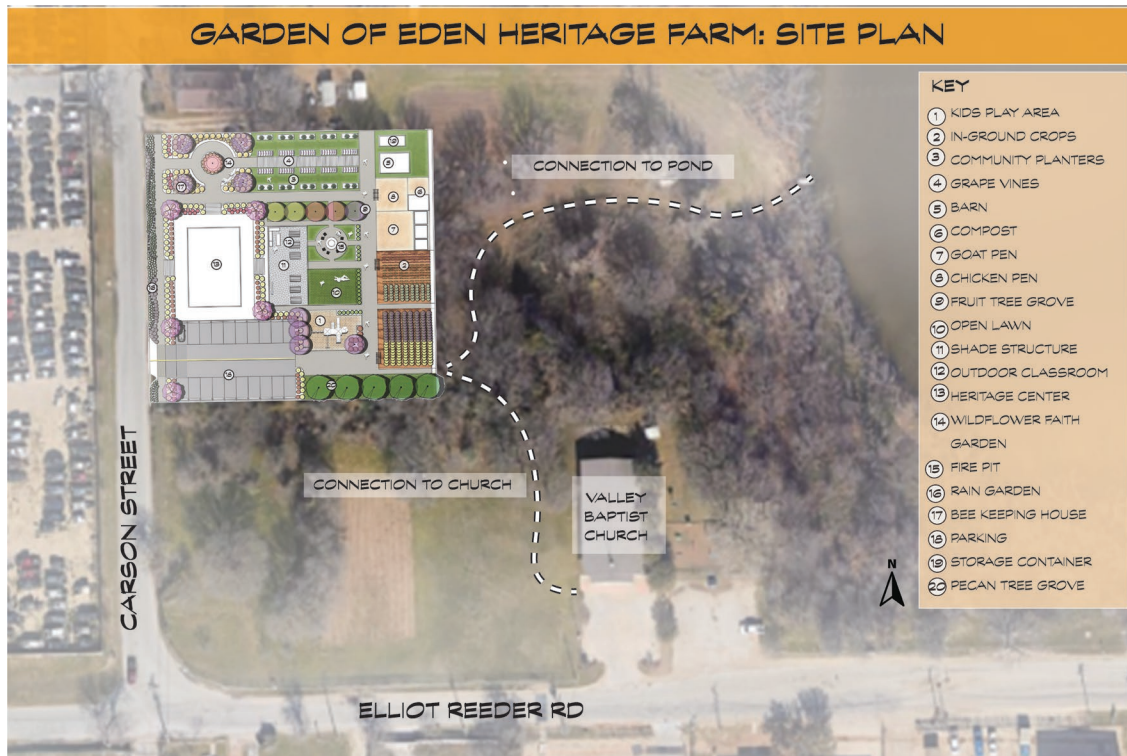


Figure 33. Garden of Eden Heritage Farm; Site Context Plan

Figure 33 shows an aerial view of the final concept, highlighting the potential connection between the pond and the Valley Baptist church.

Chapter 6. Conclusion and Discussion

Qualitative methodology was used for this study because it is designed to uncover themes, patterns, or casual explanations through the lived experience of the study participants (Kornuta & Germaine, 2019). The main objective of this research is to analyze the benefits of integrating landscape architecture into urban agriculture. The study began with a research question: How can landscape architecture effectively be applied to urban farming practices to foster a meaningful and sustainable connection between individuals and their food? which led to the study's purpose and guiding themes.

This study focuses on analyzing the benefits of integrating landscape architecture into urban agriculture to create a sustainable urban agriculture landscape that connects people with their food. By examining past research and successful examples, the study aims to provide design recommendations that follow landscape design principles to bridge the gap between people and their food in a sustainable way.

To develop the recommendations, a thorough comparison and contrast of all the topics discussed with the experts were conducted. The information collected was cross-referenced with the analysis and data gathered from each case study and precedent study, which led to the development of twelve design guidelines (Figure 21). These guidelines are intended to address the complex challenges of sustainability, community engagement, and economic viability while fostering meaningful connections between people and their food.

The report presents twelve design guidelines for urban farms based on insights from two expert interviews. The guidelines aim to create a versatile urban agriculture landscape that links people with the food they consume. After developing these 12 guidelines, the information was applied to make an informed design recommendation for the Garden of Eden Heritage Farm.

6. 1 Summary of Findings

In conclusion, to answer the main research question, How can landscape architecture effectively be applied to urban farming practices to foster a meaningful and sustainable connection between individuals and their food? This thesis will be guided by three research questions: (1) What are the environmental benefits associated with integrating agricultural landscapes into the urban environment? (2) What are key principles and elements of landscape design that can be effectively integrated into urban agriculture? (3) What are the sustainable challenges associated with maintaining urban agriculture within the community? We have to go back to the field experts, the literature, the case studies, and the 12 design guidelines.

- (1) Incorporating agricultural landscapes into urban environments can have significant environmental benefits. To promote sustainable design practices that minimize environmental impact and promote long-term viability, the fourth guideline recommends several measures. These measures include efficient water management, composting facilities, and the use of renewable energy sources. By implementing these practices, urban areas can reduce their environmental footprint and become more sustainable.
- (2) Urban agriculture can benefit from incorporating key principles and elements of landscape design. To ensure an attractive and inspiring environment that enhances the overall well-being of the community, the twelfth guideline recommends paying attention to aesthetics in farm design. By incorporating elements of beauty, harmony, and cultural relevance into the design, a cohesive and appealing environment can be created.
- (3) Urban agriculture within the community faces several sustainable challenges. To address these challenges, the eighth guideline recommends designating spaces within the farm for educational programming. The educational programming aims to teach community members about gardening, nutrition, composting, and other relevant topics. By doing so, the community can foster a culture of learning and empowerment.

6. 1 Further Research

There is an opportunity for further research on the Garden of Eden neighborhood in Fort Worth, Texas. This research should delve deeper into the cultural and historical context of the community as a Freedman's town along the Trinity River. Given its historical significance amid times of segregation and social unrest, a comprehensive exploration of the neighborhood's past can provide valuable insights into the community's resilience and identity.

Moreover, considering the neighborhood's location in a heavily industrialized zone, it's essential to conduct thorough testing of soil and water quality. This testing will help assess potential impacts on the viability and sustainability of urban farming initiatives.

This extended research will enrich our understanding of the complex interplay between cultural heritage, environmental conditions, and urban agricultural practices in the Garden of Eden neighborhood.

Appendix A: IRB Approval Form



3/19/2024

IRB Approval of Minimal Risk (MR) Protocol

PI: Patricia Cerda

Faculty Advisor: Letora Anderson

Department: Landscape Architecture

IRB Protocol #:2024-0206

Study Title: *How can landscape architecture principles and design strategies effectively be employed in urban farming initiatives to enhance community economic empowerment?*

Effective Approval: 3/19/2024

The IRB has approved the above referenced submission in accordance with applicable regulations and/or UTA's IRB Standard Operating Procedures. The IRB team has reviewed and approved this non-federally funded, non-FDA regulated protocol in accordance with the UTA IRB Internal Operating Procedures. The study is approved as Minimal Risk.

Principal Investigator and Faculty Advisor Responsibilities

All personnel conducting human subject research must comply with UTA's [IRB Standard Operating Procedures](#) and [RA-PO4, Statement of Principles and Policies Regarding Human Subjects in Research](#). Important items for PIs and Faculty Advisors are as follows:

- ****Notify [Regulatory Services](#) of proposed, new, or changing funding source****
- Fulfill research oversight responsibilities, [IV.F and IV.G](#).
- Obtain approval prior to initiating changes in research or personnel, [IX.B](#).
- Report Serious Adverse Events (SAEs) and Unanticipated Problems (UPs), [IX.C](#).
- Fulfill Continuing Review requirements, if applicable, [IX.A](#).
- Protect human subject data ([XV](#).) and maintain records ([XXI.C](#)).
- Maintain [HSP](#) (3 years), [GCP](#) (3 years), and [RCR](#) (4 years) training as applicable.

REGULATORY SERVICES

The University of Texas at Arlington, Center for Innovation
219 W. Main, Arlington, Texas 76010
(Phone) 817-272-3723 (Email) regulatoryservices@uta.edu (Web) www.uta.edu/rs

Appendix B: Survey Questionnaire



UNIVERSITY OF TEXAS  ARLINGTON

scroll/tap to continue to
survey

My name is Patricia Cerda, and I am asking you to participate in a UT Arlington research study titled *"Cultivating Change: The Impact of Landscape Design on Agriculture in an Urban Environment."* This research aims to analyze the benefits of integrating landscape architecture into (existing) urban agriculture. By examining past research and successful examples, the study will create recommendations for a sustainable urban agriculture landscape that connects people with their food. You are eligible to participate in this research study if you are 18 years or older and fall under any of the following categories: community members, visitors to the community, or individuals interested in urban farming initiatives that can promote economic empowerment within the community.

Reasons why you might want to participate in this study include to share your experiences as a community member of the Garden of Eden.

If you decide to participate in this research study, the list of activities that I will ask you to complete for the research is to complete the following survey. It should take about 15 - 25 minutes. Although you probably won't experience any personal benefits from participating, the study activities are not expected to pose any additional risks beyond those that you would normally experience in your regular everyday life or during routine medical / psychological visits.

You will not be paid for completing this study. There are no alternative options to this research project.

The research team is committed to protecting your rights and privacy as a research subject. We may publish or present the results, but your name will not be used. While absolute confidentiality cannot be guaranteed, the research team will make every effort to protect the confidentiality of your records as described here and to the extent permitted by law. If you have questions about the study, you can contact me at patricia.cerda@mavs.uta.edu. For questions about your rights or to report complaints, contact the UTA Research Office at 817-272-3723 or regulatoryservices@uta.edu.

Select an option for documenting the subject's consent:

You are indicating your voluntary agreement to participate by clicking on the "Accept" button below.

- I accept and wish to participate
 - I do not accept and do not wish to participate
-

1. What is your age?

- Under 18 years old
 - 18-24 years old
 - 25-34 years old
 - 35-44 years old
 - 45-54 years old
 - 55-64 years old
 - 65 years or older
-

2. Gender

- Male
- Female

- Do not wish to identify
 - Other
-

3. How do you identify your ethnicity or race? (Select all that apply)

- Asian or Pacific Islander
 - Black/ African American
 - Hispanic/ Latino
 - Native American or Alaska Native
 - White
 - Do not wish to identify
 - Other
-

4. How long have you lived in this community?

- Less than 1 year
 - 1-5 years
 - 6-10 years
 - 11-20 years
 - More than 20 years
 - I do not live in the Garden of Eden Community
-

5. What is your connection to this community?

- Resident
 - Visitor
 - Former Resident
-

- Family member of resident
 - Volunteer
 - Business owner
 - Other
-

6. As a community member, what interests you most about The Garden of Eden?

- Culture
 - Historical significance
 - Community
 - Landscape
 - Urban Farming/ Gardening
 - All the above
 - Other
-

7. What is your level of interest or involvement in urban farming?

- Very Interested
 - Somewhat Interested
 - Neutral
 - Not Very Interested
 - Not Interested at All
-

8. How familiar are you with the concept of urban farming?

- Very Familiar
-

- Somewhat Familiar
 - Neutral
 - Not Very Familiar
 - Not Familiar at All
-

9. Are you aware of any existing urban farming initiatives within The Garden of Eden?

- Yes
 - No
 - Not Sure
-

10. Would you be interested in participating in community-led urban farming projects or initiatives?

- Definitely Interested
 - Interested
 - Neutral
 - Not Very Interested
 - Not Interested at All
-

11. If yes, in what capacity would you like to be involved? (Select all that apply)

- Volunteering
 - Donating resources or land
 - Attending workshops or training sessions
 - Providing expertise
 - Other
-

12. What types of urban farming activities would you like to see in The Garden of Eden?
(Select all that apply)

- Community Gardens
- Community Orchards
- Urban Animal Farming
- Agriculture Education
- Children's garden
- Cooking classes
- Farm-to-Table Initiatives
- Beekeeping
- Composting
- Water harvesting
- Farmers market
- Wild Flower Garden
- Other

13. In your opinion, what are the potential benefits of promoting urban farming for The Garden of Eden community? (Select all that apply)

- Increased access to fresh, locally grown produce
- Community building and social interaction
- Environmental sustainability
- Educational opportunities
- Economic benefits for local residents

Other

14. On a scale of 1 to 5, with 1 being not important and 5 being highly important, how important is it to maintain farming and gardening in the community?

- 1
 - 2
 - 3
 - 4
 - 5
-

15. How long have you or your family been part of The Garden of Eden?

- Less than 10 years
 - 10-25 years
 - 25-50 years
 - Over 50 years
-

16. How do you perceive the cultural identity of The Garden of Eden?

- Strongly connected
 - Somewhat connected
 - Neutral
 - Not connected
-

17. Which cultural practices or traditions if any do you consider most significant in the community?

- Celebrations and festivals
 - Traditional music and dance
 - Religious ceremonies
 - Gardening/ Farming
 - All the above
 - Other
-

18. What do you believe is the most pressing challenge the community has faced in recent years?

- Gentrification
 - Economic challenges
 - Educational disparities
 - Little to no access to healthy and fresh food
 - All the above
 - Other
-

19. Are there ongoing efforts to preserve the historical and cultural aspects of the Garden of Eden?

- Yes, actively preserving
 - Some efforts underway
 - Limited preservation efforts
 - No preservation efforts
-

20. How important do you think education has been in preserving the history of the Garden of Eden?

- Very important
 - Somewhat important
 - Neutral
 - Not important
-

21. Which historical landmarks or structures in the community do you believe are most important to preserve?

- Historic homes
 - Churches or religious buildings
 - Schools or educational institutions
 - Gardens
 - All the above
 - Other
-

22. How engaged do you feel the community is in preserving its history and culture?

- Very engaged
 - Somewhat engaged
 - Neutral
 - Not engaged
-

23. To what extent do you think local government supports the preservation of The Garden of Eden?

- Strong support
- Some support

- Neutral
 - Limited support
 - No support
-

24. What do you believe should be the community's top priority for the future?

- Preserving historical sites
 - Economic development
 - Education initiatives
 - Gardening/ Farming Initiatives
 - Housing Development
 - All the above
 - Other
-

25. What do you consider to be the greatest strengths of the Garden of Eden community?

- Strong community bonds
 - Rich cultural heritage
 - Resilience in the face of challenges
 - All the above
 - Other
-

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Biographical Information

Patricia Cerda is a devoted scholar and practitioner in the field of landscape architecture, with a great passion for community-centered design and sustainable urban development. Cerda, who was the first in her family to graduate from college, has shown resilience and determination throughout her academic journey.

Cerda received her Bachelor of Science degree from the University of Texas Arlington (UTA) and then pursued further studies to obtain a Master's degree in Landscape Architecture from the University of Texas at Arlington. During her graduate studies, Cerda focused on her research interests, which included urban farming, community-involved design, and landscape architecture's role in sustainable development.

Cerda's academic journey is characterized by a strong commitment to hands-on learning and applying her knowledge in practical ways. She advocates for design-build projects that empower communities and instill a sense of ownership and pride in shared spaces. Cerda's academic pursuits are driven by a desire to address critical societal issues, such as food insecurity and environmental degradation, through innovative design solutions.