SOCIAL REVITALIZATION, URBAN DEVELOPMENT, AND COMMUNITY FOOD GARDENS FOR "THE COVE" IN ORANGE, TEXAS: CAN CREATING TINY LIVING AND MICRO AGRI-HOOD SPACES REVITALIZE A DIVERSE LOW INCOME NEIGHBORHOOD?

by

April Angela Henderson, BA

THESIS

Presented to the Faculty of

The University of Houston-Clear Lake

In Partial Fulfillment

Of the Requirements

For the Degree

MASTER OF ARTS

in Cross-Cultural and Global Studies

THE UNIVERSITY OF HOUSTON-CLEAR LAKE

May, 2019

SOCIAL REVITALIZATION, URBAN DEVELOPMENT, AND COMMUNITY FOOD GARDENS FOR "THE COVE" IN ORANGE, TEXAS: CAN CREATING TINY LIVING AND MICRO AGRI-HOOD SPACES REVITALIZE A DIVERSE LOW INCOME NEIGHBORHOOD?

by

April Angela Henderson

APPROVED BY

_____
Maria Curtis, Ph.D., Chair

_____
Michael McMullen, Ph.D., Committee Member

RECEIVED/APPROVED BY THE COLLEGE OF HUMAN SCIENCES AND HUMANITIES

_____
Samuel Gladden, Ph.D., Associate Dean

_____
Rick Short, Ph.D., Dean

Dedication

For my late father, Gilton Lamar Brown

Acknowledgements

I cannot express the love and gratitude I have for the continual support of my family. I thank my husband Raymond who has encouraged me to pursue my higher education even when it was financially difficult. I thank my five children for their patience and for forfeiting so much quality time. My path has been long but blessed with many wonderful instructors and professors from Roberta Miller, my mentor, whose advice was to just do what I need to do to get there, to Dr. Chang who introduced me to study abroad, and of course the help of UHCL's faculty and staff. Without their expertise and advice I would have floundered. To my advisor Maria Curtis, you have made me work but you have also taught me so much and I could never express my appreciation. To Dr. Mike McMullen thank you for being my sounding board and helping me to better understand the process. Dr. Amy Lucas thank you for your motivation and for allowing me to come to you with concerns and questions. And finally, to all my peers, friends, and co-workers for your support and help.

ABSTRACT

SOCIAL REVITALIZATION, URBAN DEVELOPMENT, AND COMMUNITY FOOD GARDENS FOR "THE COVE" IN ORANGE, TEXAS: CAN CREATING TINY LIVING AND MICRO AGRI-HOOD SPACES REVITALIZE A DIVERSE LOW INCOME NEIGHBORHOOD?

April Angela Henderson
University of Houston-Clear Lake, 2019

Master's Thesis Chair: Maria Curtis, Ph.D.
Committee Member: Michael McMullen, Ph.D.

In this study, two methods being utilized to combat the issues affecting many of the low income or run down neighborhoods in the United States will be examined as possible solutions for revitalization in the Cove neighborhood in Orange, TX. The first method, the tiny house movement, has become a new housing solution to address several housing issues, including: housing industry waste, temporary housing, reducing spatial footprints, homeless housing, mobile housing, and urban crowding. It has become a popular way to minimalize, de-clutter and downsize (Ford, Gomez-Lanier 2017). There are several shows on HGTV which has increased the popularity of the idea. The second method, Agrihoods, are another popular movement across the nation often found in an urban setting as part of a master planned community. Micro-agrihoods, usually one to

nine acres in size, are being used to provide quality food to neighborhood residents. Food sustainability, food deserts, soil sampling, and alternative growing options like hydroponics and aquaponics will also be discussed. This paper will review the current literature on both movements, report soil sampling results, and research existing programs. In the second chapter, quantitative data analyses of a survey given to community members are used to examine the viability of combining these two movements as an acceptable approach to revitalize a neighborhood located in a food desert and to evaluate the correlations between community needs and acceptance of the use of these movements. This study purposefully collected surveys from residents, property owners, neighborhood employees and others who are directly involved with the neighborhood: 1) to increase the generalized findings, and 2) to highlight the importance of the needs in the neighborhood. Through the analysis, the needs of low income neighborhoods like the Cove will be discussed, as well as the attitudes about implementing either or both of these revitalization methods. The culmination of these chapters will provide a much needed insight to neighborhoods like the Cove.

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER I:

INTRODUCTION

As a concerned citizen, living in the neighborhood known as “The Cove” located in Orange, Texas, myself and several other residents want to revitalize the community. The term “cove” stems from the fact that until the area was filled with sediment and became a marsh, there was a cove of the Sabine River, deep enough to serve as an anchorage for ships in former days, in the vicinity. The City of Orange got its name because of a rather large grove of Orange trees growing wild in what is now the Cove (Las Sabinas, 1992). The unique location of the Cove places it between the chemical plant industry and the shipyard industry. The DuPont Company started planning their Sabine River Works site in 1944; this was the beginning of the industrial potential that later became known as “Chemical Row” which is the home of multiple chemical plants that begins at the edge of the Cove neighborhood (Williams, 1986). Even with both these industries on each end of the community, the Cove has become a forgotten and neglected neighborhood that people have to drive through to get to their destination.

The city of Orange is located in Orange County. The County has a population is estimated at 85,047 people, and the city population estimation is 19,072 people according to the U.S. Census Bureau estimations from July of 2018 (census.gov 2019). The Cove neighborhood’s estimated population is not available but there are about 600 homes in the neighborhood. The city demographics show Caucasian at 62%, African American at 23%, Asian at 4%, and Hispanic at 7%. The demographics for the Cove neighborhood are unknown.

Most of Orange County, including the Cove neighborhood, is a food desert where residents do not have access to fresh fruits and vegetables due to a lack of stores within a few miles of their homes. This became a topic of discussion between several community

members at an event held at a neighborhood church. Several aspects of smart growth was also discussed. In 2011, the National Association of Realtors published a module on smart growth in the twenty first century (NAR, 2011). Smart growth is about recognizing and understanding the various facets of a community. It is the pursuit of neighborhoods, towns, and cities that simultaneously promotes sustained economic development, healthy natural environments, and a high quality of life for residents (NAR, 2011). Smart Growth requires reshaping of the neighborhood to achieve improvement and applies several principles including: mixed land use, creating a range of housing opportunities, creating a walkable neighborhood, preservation of open space, farmland, and natural beauty, making cost effective development decisions, and encouraging community collaboration in development decisions.

These two reasons brought about a conversation, and then an idea to establish a non-profit organization to begin a revitalization project in the Cove by community members. The proposed plan to begin an agrihood and tiny living community for socially marginalized citizens in the area including: homeless, returning veterans, and those in need of low-income housing has been proposed. This community plan will include multiple tiny homes, a community garden, and an orchard. This revitalization program has room for future growth by breaking the project into several phases throughout the neighborhood.

Plan Proposal and Phases

Phase one, Gateway Village, will be designated for veterans. The initial 1.5 acres belonging to a community member has been offered for the Gateway Village. The beneficiaries of the program would include the residents living in the tiny homes, and the existing community members. The volunteers, community members and new residents will all be involved in this program and will benefit from it, not just in the products

produced, or the revitalization of the neighborhood, but in being a part of something bigger than themselves.

Gateway Village will include an estimated 12 homes, garden spaces, orchard space, an outdoor kitchen, and a fire pit. The tiny homes will be no more than 500 square feet. The idea is for the design to be similar to a military layout used by several existing veteran housing programs to promote familiarity and solidarity. It will have a communal building where Veteran services can be facilitated. This will include mentoring, counseling, case management, and a computer center.

During phase two, additional vacant lots will be acquired to build slightly larger tiny homes throughout the neighborhood. These lots, known as Gateway Cottages, will also include growing spaces. They will average 600-1000 square feet and be built on a pier and beam foundation. This housing phase will be for single parents, young adults and small families. Each parcel or lot of land will hold one to three cottages and also have small gardening areas and fruit trees. The goal is to place twelve cottages throughout the neighborhood.

During this phase, providing produce to the residents and to the households in the community will begin. Neighborhood members may begin to garden in their own yards and will begin to volunteer in the neighborhood gardens and orchards. The proposed non-profit organization plans to have a volunteer coordinator to organize volunteers, and a master gardener to plan planting and harvesting work days and events to promote cohesion between community members and residents.

Phase three of the proposed plan will utilize production of fruits and vegetables to earn money to help maintain the program. This will be done by acquiring one of the empty business locations within the neighborhood, and opening a market stand to provide fruits and vegetables for purchase to visitors. During this phase a rain water collection

program will be established throughout the neighborhood for watering garden and orchard areas. Growing spaces at existing residences will continue to be created, and several other projects to bring money into the program will begin including a tiny living bed and breakfast, called Gateway Escapes, that will be for visitors or those wanting to experience tiny living. It will be six tiny living homes between 400 and 700 square feet. The purpose of this phase is to provide a vacation spot that people can come to and experience tiny living. The money made from this endeavor will help to support the program over time. The Escapes will also have gardening areas, fruit trees and landscaping to create a retreat. The details and marketing strategies for phase three are pending.

The plan will reach this stage by the eighth year of the program. Once this stage is reached a significant revitalization throughout the neighborhood both aesthetically and in population growth should be visible. The concerned citizens of the community want to create a non-profit organization depending on the analysis of resident's attitudes. Once their nonprofit is created they hopes to accomplish their mission, which is to revitalize the community by providing housing solutions, promoting healthy living through agricultural projects, and by helping the community members to help themselves.

This project is needed to revitalize a neighborhood that has a shrinking population due to deterioration, death, natural disasters, and being a neighborhood that has seen very little growth and prosperity. The above-mentioned natural disasters, Hurricane Ike and Hurricane Harvey, destroyed both homes and livelihoods throughout the neighborhood, causing some evacuees not to return. This flooding, also effected the Chemical industry and the shipping industry located on either side of the neighborhood, creating community concerns about land pollution. The decline in population over time has left many empty

lots and homes throughout the Cove neighborhood, and many of the existing homes have been turned into rental properties creating a transient neighborhood of renters.

According to the Department of Housing and Urban Development, the area median income or AMI, is $40,126 a year for Orange residents, and the median rent for the city is $726 a month (HUD, 2018). HUD develops income limits based on median family income estimates and fair market rent costs for metropolitan and non-metropolitan counties. Households who pay more than thirty percent of their gross income are considered to be rent overburdened. In Orange, a household making less than $2,420 a month would be considered overburdened when renting at or above the median rent. In Orange, 40% of the households are renters and 44% of those households who rent are overburdened in Orange (HUD, 2018). By creating new housing solutions and providing a heathier diet for those in need, we can bring new residents into the community, create a more cohesive group of neighbors, supplement fresh food, promote healthier lifestyles, and revitalize the neighborhood in a way that shows “low income” does not have to mean “poor”. This study will assess the feelings of the local population towards these revitalization ideas and establish if it is feasible and safe to cultivate food in the soil in the neighborhood through extensive soil testing.

CHAPTER II:
LITERATURE REVIEW

Tiny Living Movement

Currently there are over fifteen tiny house villages across the United States that are redefining what home means (Sullivan, 2018). Some of them are still in their planning phase and one located in Washington, D.C. is a demonstration village to show creative urban infill and promote the benefits of tiny houses. This location was part of the case studies conducted by Ford and Gomez-Lanier (2017). They also looked at the Kyosho Jutaku which is the Japanese term for "micro-home". According to Ford and Gomez-Lanier the Japanese have been living small for decades due to dense population (2017, p.398). Other tiny villages are designed specifically for veterans like the James A. Peterson Veterans Village in Racine, Wisconsin, which has fifteen houses and a community center with showers, laundry, kitchen, food pantry and a recreation area. They offer Alcoholics Anonymous meetings, counseling and other forms of therapy. There is also the Veterans Village in Clackamas, Oregon that is on 1.5 acres. It has fifteen houses that are finished and were built by students and volunteers. The next fifteen under construction in the Veterans Village are being built by the veterans. This village was modeled after another village run by Catholic Charities for women in Portland, Oregon. Kansas City has the Veterans Community Project, in which fifty tiny homes are built. The Veterans Community Project features a community center for residents and offers mentoring, case management, and counseling (veteranscommunityproject.org, 2018).

There are also some tiny living communities that are for homeless or people with low incomes like the Cass Tiny Homes in Detroit, Michigan. This community has twenty-five 200-400 square feet homes and was founded by Reverend Faith Fowler, head

of Cass Community Social Services. These homes are rent-to-own over a seven year period and pricing is based on the square footage. In addition, Martin Wach, who is a resident on Wheeling Island, is a farmer who decided to add tiny homes to urban gardens to reduce theft of his produce (Junkins, 2017).

One community, known as Eco Cottages of East Point, is building homes from 500-1000 square feet in size and is creating a diverse community near their historic downtown Atlanta. Their plan includes forty lots, gardens, bike trails, and a swimming pool (epecocottages.com, 2018). Many other examples are designed for the homeless and working poor. They include: Community First in Austin, Texas, a twenty seven acre planned community that includes tiny homes, RV's, and mobile homes; Quixote Village in Olympia, Washington that now has thirty tiny houses, a community garden, a common space, laundry, showers and dining spaces; Opportunity Village, Emerald Village in Eugene, Oregon; Micro Community in Portland, Oregon; Second Wind Community in Ithaca, New York; and Occupy Madison Village in Madison, Wisconsin.

Academic discussions are beginning to emerge over the tiny house movement. Ford and Gomez-Lanier (2017) have related this to the movement's recent emergence. They have however been covered in blogs, television shows, and periodical articles. The academic examination of this movement as a feasible long-term housing solution has not been established. Ford and Gomez-Lanier (2017) review what literature is available to examine the movement using the "triple bottom line" approach of sustainability. This approach, taken from Susan Winchip, advocates a holistic definition that encompasses environmental, social, and economic considerations (Ford, Gomez-Lanier, 2017, p.395). For the purpose of this study, the definition of sustainability is something that paves the way for positive change over the long term and allows future generations to live in a physically healthy environment that also promotes social and economic equality. Ford

and Gomez-Lanier's (2017) article looks at the social considerations within the community by examining how the neighborhood relates to the community and what kinds of amenities are available. They also look at the environmental issues to be considered with tiny homes (2017). This includes volatile organic compounds (VOCs) and other construction pollutants. The third way they evaluate is through economic considerations. The smaller a space the less it costs to build. Combining this with using energy efficient appliances can significantly reduce the expenditures incurred by a homeowner.

The average house size in America has grown from 1660 to 2596 sq. ft. between 1973 and 2013. Beockermann and others (2018) discusses that the price of a home has risen nine times the average price since 1970. The increase in urban sprawl has caused a 50% increase in the negative environmental impact on housing since the1950's. The primary motivation for involvement in tiny living includes an interest in simpler living, sustainability and environmentalism, cost, freedom and mobility, preconceptions and occasionally a lack of financing (Mutter, 2013, p.4). Sustainability is a common thread between the tiny living literature. They also all state that additional research is needed for the tiny living movement.

Agrihoods

Traditional agrihoods are actually in the center of a master planned community like Harvest Green located in Richmond, Texas where houses range from $450,000 to $800,000. Residents at this agrihood can rent a designated spot in the farm to grow their own garden, they can go to the farmers market and buy fresh produce on Saturdays, or they can join the Community Supported Agriculture program provided by Loam Agronomics. Loam Agronomics is a 288-acre farm adjacent to Harvest Green that delivers fresh produce to your door for a monthly fee.

Over two hundred “agrihood” projects exist nationwide (Harrington, 2017, p. 15). They are farm-to-table living in a cooperative environment. Buczynski’s (2014) talks about twelve of these farm-to-table agrihoods. He begins with Agritopia, which is located in Phoenix, Arizona. It hosts 450 residential lots and the farm includes lambs, chickens, a citrus grove, and vegetable gardens. In Atlanta, there is the Serenbe Community which is over 1000 acres. Twenty-five of these acres is an organic farm that also supplies three restaurants in the community (Buczynski, 2014, p.3). These agrihoods come in both big and small sizes and the smaller ones that range from one to nine acres are sometimes called a micro-agrihood or micro-farm. This smaller size would be the most ideal size for the cove neighborhood. South Village in Vermont is only a four acre organic farm that even has one acre for a 528 panel photovoltaic solar array that produces 150 kilowatts of electricity for the community. A place called Urban Agrihood in Detroit, Michigan has a three acre farm in a neighborhood among vacant land. They grow 300 types of vegetables and supplies 2,000 households, many of which are low income, within two square miles of the farm.

A micro-agrihood or micro-farm can also be called a community garden. Urban agriculture represents an opportunity for improving food supply, healthy conditions, local economy, social integration, and environmental sustainability (Orsini. Et.al. 2013). Another name for an agrihood or community garden is a foodscape. Foodscapes are more than simply food production sites; they serve as important sources of social support (Bosschaart, 2015). There seems to be a gap in the literature regarding the use of an agrihood in a mix use neighborhood like the Cove in Orange, Texas. The few agrihood projects being used within existing neighborhoods have not been established long enough to determine their long term effects.

Food Sustainability

Food sustainability is a global problem directly affected by clean air, clean water, healthy soil, and climate conditions. Food is essential to our survival as a species according to Garnett (2013). The world food supply chain is not adequately able to do its job with the number of people still hungry around the world. The U .S. Department of Agriculture (USDA) classifies families as "high food security," "marginal food security" "low food security," and "very low food security" (2017). According to the USDA the Cove neighborhood is located in a food desert. A food desert refers to an area that does not have a supermarket within one mile (USDA.gov, 2018). In 2016, 41.2 million people lived in food-insecure households (USDA.gov 2018).

Garnett (2013) looks at food sustainability through three perspectives: a production efficiency perspective, a demand restraint perspective, and the system transformation perspective. Garnett applies this third perspective on a global scale, but it could be related to this project on a micro level because it focuses on low income rural populations. It addresses accessibility, affordability, utilization, and stability over time. Similarly, Fitzwilliam's (2017) dissertation focuses on not just socio-cultural, environmental, health and food security elements of urban agriculture, but on the economic development potentials and limitations of urban food cultivation and addresses how gentrification is beginning to surface as an issue (Fitzwilliam, 2017, p. 3). The impact on property values, racial tensions, and economic segregation of residents will need to be evaluated in establishing the feasibility of this project.

The Southeast Texas Food Bank reports that approximately 12,000 households receive food each month from one of their eleven member agencies. They serve the counties of Jefferson, Orange, Hardin, Jasper, Newton, Polk, Sabine, and Tyler, and distribute to approximately 130 nonprofit agencies within these eight counties.

Additionally, the partner agencies that prepare meals provide approximately 90,000 meals to people in need each month. Cove resident's benefit from the Southeast Texas Food Bank partner agencies but the number of households participating is unknown. In the State of Texas, one in every four children lives in poverty and about 15% of the elderly in Southeast Texas live in poverty (setxfoodbank.org, 2019).

The article *The Plant-An-Experiment in Urban Food Sustainability*, by Chance and others, addresses indoor farming and food production systems (Chance, 2017). The Plant is a former meat-packing facility in Chicago, which was repurposed into a collaborative community of food businesses who are committed to reduce waste. It also illustrates the social impacts and the sustainability impacts on the facility (Chance, et. al., 2017, p. 1). This inner working collaborative can be compared to the Cove project.

Soil Sampling

The success of an agrihood concept will only work if the soil in the area is feasible for food cultivation. Two testing labs were considered for the soil sampling of the Cove: the TPS Lab located in Edinburg, Texas and the Texas A&M Agrilife Extension Lab located in College Station, Texas. The Texas A&M Extension lab was chosen to send soil samples for testing. This lab was chosen for their cost and turnaround time for samples. Two possible growing locations was selected from the neighborhood and per the instructions from the lab ten soil samples were taken from each location, dried, and then mixed together from site 1. These steps were repeated for site 2. Each location was then bagged separately and shipped to the testing site. Results were returned via email after about three weeks. Both locations conduct the same tests; however, the TPS Lab does more advanced testing. Should this project take place additional testing of exact growing locations should be sent for testing. According to the

TPS Lab website, soil samples must be representative of the major root zone in the area of interest (2018). The results from the Texas A&M Extension lab show that both sites need to be fertilized before planting. The recommendations are for Nitrate, Potassium, Sulfur, and Limestone to be added to the soil and the required amounts to add are included in the report.

Table 2.1

Texas A &M Extension Lab
Soil Sample Analysis

Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.
pH	**5.9** (6.2)	-	**Mod. Acid**							
Conductivity	**99** (-)	umho/cm	**None**			CL*			**Fertilizer Recommended**	
Nitrate-N	**0** (-)	ppm**								**2** lbs N/1000sqft
Phosphorus	**58** (50)	ppm								**0** lbs P2O5/1000sqft
Potassium	**20** (175)	ppm								**2** lbs K20/1000sqft
Calcium	**637** (180)	ppm								**0** lbs Ca/1000sqft
Magnesium	**88** (50)	ppm								**0** lbs Mg/1000sgft
Sulfur	**9** (13)	ppm								**0.25** lbs S/1000sqft
Sodium	**27** (-)	ppm								
Iron	**68.10** (4.25)	ppm								
Zinc	**4.37** (0.27)	ppm								
Manganese	**17.01** (1.00)	ppm								
Copper	**0.81** (0.16)	ppm								
Boron										
Limestone Requirement										**10.00** lbs/1000sqft

Socially Marginalized Citizens

Alienation or disenfranchisement applies to Cove residents who have been referred to disparagingly as “Cove Rats”. Their experiences with social exclusion can be connected to social class, race, skin color, educational status, or living standards. Social marginalization or social exclusion is a social phenomenon by which a minority or a sub group who are excluded or disadvantaged are pushed to the edge or fringe of society. They are denied access to fundamental resources like housing or employment. The United States Census Bureau reports that in Orange 89% of people 25 and older are high school graduates, and that 18% have a Bachelor’s degree or higher (Census Bureau, 2017). There are no housing or education statistics for just the Cove neighborhood. Subgroups in Orange County who are socially marginalized include homeless, veterans, foster care graduates, and single parents. These groups would benefit from tiny living housing options being located in the Cove neighborhood.

As of January, 2019, the foster care system in Texas has 28.732 children 3,784 of them are available for adoption (DFPS, 2019). More than 250,000 children are placed in foster care in the United States every year. Each year more than 23,000 children will age out of the US foster care system. After reaching the age of 18, 20% of the children who were in foster care will become instantly homeless (Wallach, 2017). Only 1 out of every 2 foster kids who age out of the system will have some form of gainful employment by the age of 24. There is less than a 3% chance for children who have aged out of foster care to earn a college degree at any point in their life (Wallach, 2017).

During a phone interview, Mark Hammer from the Orange County Veterans office stated that there is a small group of homeless or nearly homeless veterans in Orange County who could benefit from a program to assist them with housing (Hammer, 2018). Phase one of the proposed project focuses on the tiny village designated for

veterans. The U.S. Department of Veteran Affairs (VA) states that about 11% of the adult homeless population are veterans (va.gov). About 1.4 million other veterans are at risk of homelessness due to poverty, lack of support networks and dismal living conditions (NCHV.org). This homeless population is also at risk for early deaths. In *Mortality and Cause of Death in Younger Homeless Veterans*, Schinka and others, concluded that younger and middle aged homeless veterans had higher mortality rates than those of non-homeless veterans (Schinka et.al. 2018, p.177). Garcia-Rea and LePage assessed 250 veterans with substance dependence in early remission using the WHOQOL-100 developed by the World Health Organization (2008). It is a cross-cultural way of assessing quality of life (Garcia-Rea, LePage, 2008). They concluded programs must take a broader approach and cover more than the standard services of food and housing (Garcia-Rea, LePage, 2008). These findings emphasize the need to address veteran homelessness in a way that helps the veterans to re-enter society confidently.

According to the 2018 Annual Homeless Assessment Report, on a single night in 2018, roughly 553,000 people were experiencing homelessness in the United States. About two-thirds (65%) were staying in sheltered locations—emergency shelters or transitional housing programs—and about one-third (35%) were in unsheltered locations such as on the street, in abandoned buildings, or in other places not suitable for human habitation (AHAR, 2018). The Point-in-Time (PIT) count is a count of sheltered and unsheltered homeless persons on a single night in January. U.S. Department of Housing and Urban Development requires that Continuums of Care conduct an annual count of homeless persons who are sheltered in emergency shelter and transitional housing on a single night. Orange County does not have an independent count. Southeast Texas Coalition for the Homeless produces a combined report for Hardin, Jasper, Orange, and Jefferson counties. The 2019 report shows that there are 257 homeless people within

those counties. This number includes 244 adults (78 females and 167 males), 13 children, 12 young adults (18-24 years old), 20 chronically homeless and 10 veterans (HUD, 2019). These numbers to not include the veterans previously mentioned from the Orange County Veterans office. Those veterans, though essentially homeless, are currently staying with a friend or relative.

CHAPTER III:
METHODOLOGY

Hypothesis

Establishing a tiny living, micro agri-hood community can create revitalization and sustainability by addressing the following problems: housing needs, food supplementation, community cohesion, and beautification. Current literature suggests that both methods are being used successfully across the country. The goal of the present study is to determine whether the respondents will or will not support Veteran housing, the use of an agrihood, and tiny living housing as revitalization solutions in their community. It is hypothesized that each of these independent variables from respondants: income, education, housing status, and the respondents connection to the community are associated with attitudes towards implementing one or more of the dependent variables: veteran housing, tiny living and agrihood. The following exploratory research questions have been developed:

1) Is the soil in the neighborhood acceptable for growing the desired produce and fruits?
2) What demographic factors influence whether or not a resident would support these revitalization ideas in the Cove?
3) What demographic factors influence whether or not a resident would support additional veterans living in the Cove?

Looking at the Cove from an urbanism perspective brings to mind Durkheim's theory about mechanical and organic solidarity. According to Durkheim, urbanites do not lack social bonding, they just organize their social life differently than those who live in a rural environment. Durkheim describes a traditional rural life as mechanical

solidarity. Mechanical solidarity is when a person's social bolds are based on common sentiments and similar moral values. He says that an individual is not their own master and that solidarity is something that society posseses (Giddens, 1972). Durkheim felt that urbanization eroded mechanical solidarity. This allowed for a new type of social life based on a division of labor called organic solidarity which says social bonds are based on specialization and interdependence. Implementing the agrihood and tiny living movement in the Cove would create greater social cohesion or togetherness. When people perform similar work, share similar experiences, customs, values, and beliefs, mechanical solidarity can emerge.

Procedure

Prior to collecting data, approval was received from the Committee for the Protection of Human Subjects at the Universtiy of Houston-Clear Lake. The study used a quantative method of data collection consisting of a survey available via Qualtrix or a printed copy made available to Cove residents, property owners, employees in the community and others who are involved within the community. The Community survey was conducted throughout the Cove neighborhood to get statistics on demographic data, household status, income, ethnic diversity, as well as household needs and opinions on the establishment of the project.

Once Institutional Review Board approval was received, simple random sampling was used to determine which residences would be surveyed. A map of the Cove was acquired from the Orange County Tax Appraisers office outlining the exact area of the Cove neighborhood. All the street names were assigned a number and entered into an online random generator. Ten street names were randomly selected for distribution of the survey. Surveys were distributed door to door on the selected streets. A small amount of snowball sampling was also used. While distributing door-to-door

surveys several respondents had visiting guests who were also neighborhood residents living on streets not selected in the random generator. They were also given surveys to complete. In addition to the paper surveys the online version was posted to the Cove social media page. This is a convenience sampling strategy that was employed to account for non response from the simple random sample. A total of 53 survey responses were collected, although five were removed from analysis due to missing data (n=48).

CHAPTER IV:

FINDINGS

Results

The current study examined respondent's opinions on two neighborhood revitalization ideas currently being utilized in low income or run down neighborhoods in the United States. Survey results revealed that of the mean number of members in the home was three. The ethnicity of respondents included 75% Caucasian, 8% African American, 13% Hispanic, and 4% defined as other. The questions focused on the attitudes of respondents towards three dependant variables. The first variable, the tiny house movement, has become a new housing solution to address several housing issues. The second variable, an agrihood, is another popular movement across the nation often found in an urban setting that is being modified to fit smaller communities. A third dependant variable examimed was the acceptance of additional veteran residents to the neighborhood.

In an effort to establish respondent's opinions on the tiny living movement six questions were given on a five point Likert Scale. They evaluate participant's attitudes on using tiny living as affordable housing and providing housing to different groups of socially marginalized citizens. The following opinions were assessed and percentages represent respondents who strongly agree or somewhat agree: affordable housing (75%), Veteran housing (83%), homeless housing (81%), low income housing (85%), aged out foster children (83%), and single moms (85%).

With the Cove being located in a food desert, there were several questions within the survey to determine if there was a need within the households for additional fresh fruits and vegtables. Forty five of the forty eight surveys responded. The percentages are

as follows for respondent's experiences in the last 30 days: experienced a shortage of food (27%), unable to afford balanced meals (33%), eat less food or skip meals (22%), hungry due to lack of food (12%). Respondents were also asked how much they spend monthly on groceries. The average monthly expense for respondents was $426. Respondents also report a monthly average of $156 for eating out. Participants were asked the amount of money spent specifically on fruits and specifically on vegtables. The monthly average for both of these was approximately $60.

Table 4.1

Descriptive Statistics

	N	Range	Minimum	Maximum	Mean	Std. Deviation
monthy food cost	45	880	120	1000	426.22	213.137
monthly fastfood cost	45	700	0	700	155.78	154.765
Monthly fruit cost	45	200	0	200	60.00	57.810
monthly veg cost	45	200	0	200	60.78	52.472
Valid N (listwise)	45					

Findings from the current research shows that only 27% of the respondents from the Cove community have an education above an associates degree. The results also show that regardless of attained educational levels, the respondents support the idea ofan agrihood. The same can be said for the support of tiny living and veteran housing. Per Chi-square results there is no relationship between education attainment and the support of agrihoods, tiny living or veteran housing. See Table 4.2

Table 4.2

Education/Microagrihood Cross Tabulation and Chi-Square

			reduc		
			no degree	associates or higher	Total
microagrihood in cove support	strongly support	Count	23	8	31
		% within reduc	65.7%	61.5%	64.6%
	somewhat support	Count	9	3	12
		% within reduc	25.7%	23.1%	25.0%
	neutral	Count	2	2	4
		% within reduc	5.7%	15.4%	8.3%
	somewhat oppose	Count	1	0	1
		% within reduc	2.9%	0.0%	2.1%
Total		Count	35	13	48
		% within reduc	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.487[a]	3	.685
Likelihood Ratio	1.628	3	.653
Linear-by-Linear Association	.113	1	.736
N of Valid Cases	48		

a. 5 cells (62.5%) have expected count less than 5. The minimum expected count is .27.

The use of an agrihood in the Cove will require community participation. To evaluate the willingness of community members to garden, the survey included questions to assess attitudes and participation in gardening. About 46% of respondents currently garden. The type of gardening varied by participant: herb gardening (4%), flower gardening (10%), vegetable rows (19%), potted plants (8%), potted vegtables (2%), and other (8%). Respondents were also asked if they would garden if materials were

available to them (87%). Volunteering to garden is essential to this proposed idea for the community. In the survey, participants were asked if they would volunteer in a community garden; 23% said they would volunteer often, 60% said they would volunteer sometimes and 16% said never.

The income levels of respondents varied from very low to high. The median income level of respondents was $34,000-43,000 or middle class. The income variable was recoded into low, middle, and upper class values. This process reduced the income variables from ten labels to three. Based on Chi-square results, similarly to education, income does not have a relationship with respondents' support of agrihoods, tiny living or veteran housing. See Table 4.3.

Table 4.3

Does Income Influence Support of Tiny Living

			rincome			
			lower class	middle class	upper class	Total
support tiny living in cove	strongly support	Count	11	8	7	26
		% within rincome	52.4%	50.0%	63.6%	54.2%
	somewhat support	Count	8	6	2	16
		% within rincome	38.1%	37.5%	18.2%	33.3%
	neutral	Count	2	1	1	4
		% within rincome	9.5%	6.3%	9.1%	8.3%
	somewhat oppose	Count	0	0	1	1
		% within rincome	0.0%	0.0%	9.1%	2.1%
	strongly oppose	Count	0	1	0	1
		% within rincome	0.0%	6.3%	0.0%	2.1%
Total		Count	21	16	11	48
		% within rincome	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	6.720[a]	8	.567
Likelihood Ratio	6.639	8	.576
Linear-by-Linear Association	.090	1	.764
N of Valid Cases	48		

a. 10 cells (66.7%) have expected count less than 5. The minimum expected count is .23.

The respondents were asked to clarify how they were involved in the Cove community. The responses show residents (41%), property owners (2%), church members (13%), neighborhood employees (6%) or otherwise involved in the neighborhood (38%). The results show that none of the possible community involvement options are related to the support of agrihoods, tiny living or veteran housing.

Table 4.4

Does Community Involvment effect support for more veteran citizens

			community involvment					
			resident	church	employee	Property	other	Total
support more vets in cove	strongly support	Count	13	2	1	1	8	25
		% within community involvment	65.0%	33.3%	33.3%	100.0%	44.4%	52.1%
	somewhat support	Count	5	2	1	0	8	16
		% within community involvment	25.0%	33.3%	33.3%	0.0%	44.4%	33.3%
	neutral	Count	2	2	1	0	2	7
		% within community involvment	10.0%	33.3%	33.3%	0.0%	11.1%	14.6%
Total		Count	20	6	3	1	18	48
		% within community involvment	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	6.060[a]	8	.641
Likelihood Ratio	5.939	8	.654
Linear-by-Linear Association	.374	1	.541
N of Valid Cases	48		

a. 11 cells (73.3%) have expected count less than 5. The minimum expected count is .15.

Limitations

Regrettably, this study's sample size from respondents was proportionately small. The window of time to collect data was limited due to weather conditions. Random selection of streets could have also played a part in the limited collection of responses. Throughout the neighborhood many of the streets have empty lots or vacant houses reducing the number of possible respondents to be surveyed on a given street. The survey did not collect information on the condition of residents' current homes. Future data should be collected that examines current home conditions as this can further support that there is a need for new and alternative housing in the cove. The times used to survey could also have limited the survey collection due to individual's work schedules. These limitations were inevitable and any future studies should allow for additional distribution and collection time.

Soil sampling also had some limitations. Should the project procede, soil sampling will need to be done at exact planting locations. The soil sample outcomes from exact growing locations for this project and costs for fertilization recommendations will need to be assessed. The soil testing also did not test for soil contaminates. Local contaminate companies were contacted for soil testing; however, they do not test for individuals, only companies. Since testing could not be done for contaminates, any further planning of this project should include contaminate testing. It may become necessary to look at alternative growing ideas like indoor growing or raised beds.

CHAPTER V:

CONCLUSION

The intent of this research was to assess the attitudes and needs of individuals who are a part of the Cove community concerning revitalization. The statistics showthat the community would be supportive of creating tiny living housing and an agrihood within the neighborhood. There is also strong support for having additional veterans in the community which will validate the idea of phase one of the proposed plan dedicated to veterans. The survey also revealed that there are members of the community who could benefit from additional food sources. Attitudes about gardening was also evaluated and the results show that 46% of those surveyed are already gardening. Respondents also answered favorably to volunteering and participating in a community garden. These findings support the idea of Durkheim's idea that people who perform similar work, share similar experiences, customs, values, and beliefs create collective experiences of mechanical solidarity.

The tiny living movement has great benefits including: lower expenses, no mortgage, low energy usage, less maintenance, and often a freedom of movement. It also means less living space, less luxury, less storage space, and does not allow for entertaining space. Acquiring financing is also a problem for buyers. The biggest problem is zoning rules. Almost every state, county and city has zoning rules and most do not allow for tiny living. There are minimum square footage requirements that often cause people to not be able to put their tiny homes within a city. City requirements will have to be determined, and what steps will need to be taken to have any changes made to zoning.

Gentrification is beginning to surface as an issue in communities utilizing some form of agrihood (Fitzwilliam, 2017, p. 3). This involves renovating and improving an

area to what is considered middle-class tastes. This can impact property values, taxes, increase racial tensions, and cause economic segregation of residents. If this plan is pursued the possibility of gentrification will need to be evaluated and steps taken to combat the problem.

Future research could include vertical farming, aquaponics and hydroponics as an alternate growing resource. Aquaponics and hydroponics can provide additional employment, resources for sustainability, and additional food sources. Sustainability paves the way for positive change over the long term and allows future generations to live in a physically healthy environment that also promotes social and economic equity. This proposed plan by the community will need to consider ways to make the program sustainable. Since the tiny living movement and the use of an agrihood model are both new concepts, and currently have very few academic resources, a longitudinal study on neighborhoods utilizing tiny living housing or an agrihood model would help determine the validity of these types of programs. If the project is established a future study based on the foodscape framework would offer analysis on how food, places and people are interconnected and how the community interacts.

REFERENCES

"Agrihoods: Development-Supported Agriculture." (2016). Lavender Production, Products, Markets, and Entertainment Farms | ATTRA | National Sustainable Agriculture Information Service. Retrieved form http://www.attra.ncat.org/attra-pub/summaries/summary.php?pub=545.

Background and Statistics. (n.d.). Retrieved June, 2018, from http://nchv.org/

Boeckermann, Lauren M., et al. (2018). "Dreaming Big and Living Small: Examining Motivations and Satisfaction in Tiny House Living." *Journal of Housing and the Built Environment*. doi:10.1007/s10901-018-9616-3.

Bosschaart, Wim. (2015). Spatial Strategies towards Urban Foodscapes (thesis). Retrieved from https://www.wur.nl/upload_mm/e/3/3/139e256a-ad8c-4f11-b289-d2c5e69211dd_Wim_Bosschaart_BTHE_LUP80812_201503.pdf

Brown, Edward. (2018). "Tiny Homes, Big Ideas." Fort Worth Weekly, 31 Retrieved from http:// www.fwweekly.com/2018/01/31/tiny-homes-big-ideas/.

Buczynski, Beth. (2014). "12 Agrihoods Taking Farm-To-Table Living Mainstream ..." Shareable. Retrieved from http://www.shareable.net/blog/12-agrihoods-taking-farm-to-table-living-mainstream.

Campbell, Matt. (2018). "'Housing with dignity': First 13 homeless veterans to move into tiny houses in KC." Kansascity, The Kansas City Star. Retrieved from http:// www.kansascity.com/news/local/article197241499.html.

Chance, Eva, et al. (2017). "The Plant--An Experiment in Urban Food Sustainability." *Environmental Progress and Sustainable Energy*, 37(1) htts://doi-org.libproxy.uhcl.edu/10.1002/ep.12712.

Chick, Nina. (Eds.). (1992). *Las Sabinas*. Orange, TX: Southeast Texas Arts Council.

Dunn, E. (2017). Are "Agrihoods" the Cure for the Common Suburb? Retrieved January, 2018, from http://www.amtrakthenational.com/serenity-now

Durkheim, E. (1972). *Selected Writings. Edited, Translated, and With an Introd. by Anthony Giddens*. Cambridge: University Press.

Feighan, Maureen. (2016). "Detroit Tiny House Project is 'Game Changer'". Detroit News. Retrieved from http://www.detroitnews.com/story.news/local/detroit-city/2016/09/08/detroit-tiny-homes-project/90005674/.

Ferretti, Christine. (2016). "'Agrihood' project focuses on farm-To-Table in Detroit." Www.detroitnews.com, 30. Retrieved from http://www.detroitnews.com/story/news/local/detroit-city/2016/11/30/detroit-agrihood/94694044/.

Fitzwilliam, Hanna G. (2017). *Neighbourhood to Agrihood: Exploring the Extent to Which Urban Agriculture Can Support Inclusive Redevelopment in Detroit*. Retrieved from Https://Foodgeographies.files.wordpress.com/2017/09/Ms-Hannah-Gillie-Cambridge.pdf.

Ford, Jasmine, and Lilia Gomez-Lanier. (2017). "Are Tiny Homes Here to Stay? A Review of Literature on the Tiny House Movement." *Family and Consumer Sciences Research Journal*, 45(4), 394–405. doi:10.1111/fcsr.12205.

Garcia-Rea, Elizabeth, James P. LePage. (2008). "Reliability and Validity of World Health Organization Quality of Life-100 in Homeless Substance-Dependent Veteran Population." *The Journal of Rehabilitation Research and Development*, 45(4) 619–626. doi:10.1682/jrrd.2007.03.0048.

Garnett, Tara. (2013). “Future Food and Health.” The Author, *Food Sustainability: Problems, Perspectives, and Solutions*, 72, 29–39.

Hammer, Mark. (2018, May 30). Orange County Veterans Office. Personal phone communication.

Harrington, Lisa M. Butler. (2017) “Alternative and Virtual Rurality: Agriculture and the Countryside as Embodied in American Imagination.” *Geographical Review*, 108(2) 250–273. doi:10.1111/gere.12245.

Home- The Eco Cottages at East Point. (2018). Retrieved From http://www.epecocottages.com/.

Housing and Urban Development. (2018). Retrieved from https://www.huduser.gov

Housing and Urban Development, Continuums of Care.(2019). Point in Time Report. Retrieved from https://www.thn.org/data/point-time-pit-count-reports/

Johnson, Cat. (2014). “11 Tiny House Villages Redefining Home.” Retrieved from http://www.shareable.net/blog/11-tiny-house-villages-redefining-home.

Kertesz, Stefan G., et al. (2014) “Making Housing First Happen: Organizational Leadership in VA’s Expansion of Permanent Supportive Housing.” *Journal of General Internal Medicine*, 29(S4)835–844. doi:10.1007/s11606-014-3025-4.

Lockie, Stewart, et al. (2006). *Going Organic: Mobilizing Networks for Environmentally Responsible Food Production*. CABI

Montgomery, Rick. (2017). “Tiny houses for veterans: Upstart project moves ahead, ruffling some in old guard.” The Kansas City Star, 30. Retrieved from http:// www.kansascity.com/news/business/development/article141538624.html.

Mutter, Amelia. (2013). "Growing Tiny Houses Motivations and Opportunities for Expansion through Niche Markets." *Lup.lub.lu.se*, *Lund University*, Iiiee.

National Association of Realtors. (2011). Smart Growth for the 21st Century. Chicago,IL:National Association of Realtors

National Coalition for Homeless Veterans. (2019). Retrieved from http://NCHV.org

Nazano, Kyle. (2016). A tiny house village is being planned for East Point - ajc.Com. The Atlanta Journal-Constitution. Retrieved from http:// www.ajc.com/classifields/homes/tiny-house-village-being-planned-for-east-point/zcsfq.

Orsini, F., Kahane, R., Nono-Womdim, R., & Gianquinto, G. (2013). Urban Agriculture in the Developing World: A Review. *INRA,33*, 695-719. doi:10.1007/s13593-013-0143-z

Parkin, Kellie. (2016). "Australia's first tiny home project approved for NSW homeless." Tiny Homes Foundation. Retrieved from http:// www.tinyhomesfoundation.org.au/australia_s_first_tiny_home_project_approved_for_nsw_homeless.

Pilgeram, Ryanne, and Russell Meeuf. (2014). "Good Food, Good Intentions: Where Pro-Sustainability Arguments Get Stale in US Food Documentaries." *Environmental Communication*, 9(1), 100–117.doi:10.1080/17524032.2014.967706.

Raman, Saroja. (2007). *Agricultural Sustainability: Principles, Processes and Prospects*. Food Products Press.

Rudyk, Mike. (2017). "Tiny house project proposed for downtown Whitehorse." CBCnews, CBC/Radio Canada. Retrieved from http:// www.cbc.ca/news/canada/north/tiny-homes-blood-ties-four-directions-whitehorse-1.4436589.

Schinka, John A., et al. (2018) "Mortality and Cause of Death in Younger Homeless Veterans." *Public Health Reports,* 133(2), 177–181. doi:10.1177/0033354918755709.

South East Texas Food Bank. (n.d.). Retrieved February, 2019, from https://setxfoodbank.org/

Sullivan, Deirdre. (2018). "15 Real World Tiny House Communities." *The Spruce*, The Spruce. Retrieved from http://www.thespruce.com/livable-tiny-house-communities-3984833.

"Tiny Houses for Homeless Veterans | Veterans Community Project." (2018). *Tiny Houses for Homeless Veterans | Veterans Community Project*. Retrieved From http://www.veteranscommunityproject.org/.

Texas A&M AgriLife Extension. (2018). Submittal Forms for the Soil, Water and Forage Testing Laboratory. Retrieved from http:// www.soiltesting.tamu.edu

Texas Department of Family and Protective Services, & Hhsc. (n.d.). Texas Department of Family and Protective Services (DFPS). Retrieved January, 2019, from http://www.dfps.state.tx.us/

Tiny Houses for Homeless Veterans | Veterans Community Project. (n.d.). Retrieved June 12, 2018, from https://www.veteranscommunityproject.org/

TPS Labs. (2018). Taking a Good Soil Sample. Retrieved from https://www.tpslab.com

U.S. Census Bureau (2018). Quick Facts. Retrieved from https://www.census.gov/quickfacts/fact/table/orangecitytexas,orangecountytexas/PST045218

U.S. Department of Agriculture (2017). USDA, Retrieved from http:// www.usda.gov/.

U.S. Department of Housing and Urban Development, Office of Community Planning and Development (2018). *The 2018 Annual Homeless Assessment Report (AHAR) to Congress PART 1: Point-in-Time Estimates of Homelessness.* Retrieved from http:// www.hudexchange.info/resources/documents/2018-AHAR-Part-1.pdf

U.S. Department of Veteran Affairs. (2018). Retrieved from http://va.gov/.

Wallach, D. (2017, January 13). Texas officials seek foster care help through church alliances. Retrieved from https://www.beaumontenterprise.com/news/article/Texas-officials-seek-foster-care-help-through-10855569.php

Williams, Howard (Eds.). (1986). *Gateway to Texas: The History of Orange & Orange County*. Austin, TX: Wind River Press.

APPENDIX A:

COVE REVITALIZATION SURVEY

---

1. How are you involved with the cove community? (Please check all that apply. If you are not a resident, after answering question 1 please skip to question 9 and complete the survey)

- ○ Resident of the Cove (1)
- ○ Attend Church in the Cove (2)
- ○ Employed in the neighborhood (3)
- ○ Own property but not a resident (4)
- ○ Other (5) _____

---

2. How many people live in your household? (Please write in your answer)

_____

---

3. How many people of each age and sex are in your household?

	0-4 years (1)	5-18 years (2)	19-24 years (3)	25-34 years (4)	35-44 years (5)	45-54 (6)	54-64 (7)	65 and Older (8)
Male (1)								
Female (2)								

4. What type of home does your household live in? *Please tick one box*

- ○ Duplex
- ○ Recreational vehicle
- ○ Apartment
- ○ Mobile Home
- ○ Slab or peer and beam house
- ○ other _____

5. Does your household own or rent this home?

- ○ Owns (with mortgage)
- ○ Owns (without mortgage)
- ○ Rents privately
- ○ Rents from Housing authority
- ○ Rents (shares with other tenants)
- ○ Other _____

6. If you rent, what is your monthly rate? (Please write in your answer)

_____

7. How long have you lived in...? Please tick one box per option

	Less than 1 year	1 to 3 years	4-10 years	More than 10 years
Current residence	○	○	○	○
Cove community	○	○	○	○

8. In the past 30 days, have you moved two or more times?

- ○ Yes
- ○ No

9. In the past 12 months, have you moved two or more times?

- ○ Yes
- ○ No

10. Did your house flood during hurricane Ike (September 13, 2008) or during hurricane Harvey (August 30, 2017)?

- ○ Just during Hurricane Ike
- ○ Just during Hurricane Harvey
- ○ Both Times
- ○ I do not know
- ○ Did not flood during either hurricane
- ○ Other _____

11. What do you identify as your ethnicity? (Select all that apply)

- ○ Caucasian
- ○ African American
- ○ Hispanic/Latino/Latina/Latinx
- ○ Asian American
- ○ American Indian/ Native American
- ○ Middle Eastern
- ○ Pacific Islander
- ○ other _____

12. Please select your highest level of education.

- ○ No high school diploma or GED
- ○ High School Diploma or GED
- ○ Some College
- ○ Associate's Degree
- ○ Bachelor's Degree
- ○ Master's Degree
- ○ Doctorate/Professional Degree
- ○ Other _____

13. What is your current occupation?

_____

14. What is our spouse/partner/roommate's occupation? (Answer if this applies toyour household)

_____

15. How many working vehicles at your household?

- ○ None
- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 5-More

16. Please indicate your approximate annual family income.

- ○ $5000- $15,999
- ○ $16,000-$24,999
- ○ $25,000-$33,999
- ○ $34,000-$42,999
- ○ $43,000-$51,999
- ○ $52,000-$68,999
- ○ $69,000-$89,999
- ○ $90,000-$99,999
- ○ $100,000 or more

17. Approximately how much does your household spend on food monthly?

_____

18. Approximately how much do you spend on eating at fast food/ restaurant locations monthly?

_____

19. Approximately how much does your household spend on fresh fruits monthly?

_____

20. Approximately how much does your household spend on vegetables monthly?

_____

21. Please answer the following: In the last 30 days...

	Never	Sometimes	Often
The food that I bought just did not last, and I did not have money to get more.	○	○	○
I could not afford to eat balanced meals.	○	○	○
Did you ever cut the size of your meals or skip meals because there was not enough money for food?	○	○	○
Did you ever eat less than you felt you should because there was not enough money for food?	○	○	○
Were you ever hungry but did not eat because there was not enough money for food?	○	○	○

26. Please answer the following: In the last 12 months...

	Never	Sometimes	Often
The food that I bought just didn't last, and I didn't have money to get more.	○	○	○
I couldn't afford to eat balanced meals.	○	○	○
Did you ever cut the size of your meals or skip meals because there wasn't enough money for food?	○	○	○
Did you ever eat less than you felt you should because there wasn't enough money for food?	○	○	○
Were you ever hungry but didn't eat because there wasn't enough money for food?	○	○	○

31. On a scale of 1-10, with 1 being low and 10 being high how healthy are your eatinghabits?

- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 5
- ○ 6
- ○ 7
- ○ 8
- ○ 9
- ○ 10

32. On this same scale how healthy is your spouse/partner/ other household member's eating habits?

- 1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- 6 (6)
- 7 (7)
- 8 (8)
- 9 (9)
- 10 (10)

---

33. In order to buy just enough food to meet your needs/needs of your household, would you need to spend more than you do now?

- Yes (1)
- No (2)

---

34. Could you spend less on food?

- Yes (1)
- No (2)

35. In the last 12 months did you or anyone in your house get SNAP (Supplemental Nutrition Assistance Program) benefits?

- ○ Yes (1)
- ○ No (2)

36. Does anyone in your household receive Texas WIC?

- ○ Yes (1)
- ○ No (2)

37. Food Deserts are areas where resident's access to affordable, healthy food options (especially fruits and vegetables) is restricted or nonexistent due to absence of grocery stores within convenient travelling distance. Have you heard of food deserts before this survey?

- ○ Yes (1)
- ○ No (2)

38. Did you know that most of Orange County is a food desert including the Cove neighborhood?

- ○ Yes (1)
- ○ No (2)

39. Do you live in a food desert?

- ○ Yes (1)
- ○ No (2)

---

40. Do you currently garden at your home?

- ○ Yes (1)
- ○ No (2)

---

41. What type of gardening do you do? (Please mark all that apply)

- ○ Herb garden (1)
- ○ Flower/plant garden (2)
- ○ Vegetable garden (several rows or more) (3)
- ○ raised bed garden (4)
- ○ potted plants (5)
- ○ potted vegetable plants (6)
- ○ Other (7) _____

---

42. How do you feel about organic vegetables? Check all that apply

- ○ preferred choice (1)
- ○ like them (2)
- ○ do not like them (3)
- ○ never tried them (4)
- ○ cannot afford them (5)
- ○ other (6) _____

43. There are over two hundred "agrihood" projects nationwide which are farm-to-table living communities. These agrihoods come in different sizes. The smallest are 1-9 acres and sometimes called a micro agrihood or micro-farm. Usually a neighborhood is built around the farm but many of these nationwide projects are being placed within an existing community. Please answer the following question:
Would you support a micro-agrihood (community garden) being established in the Cove?

- ○ Strongly Support (1)
- ○ Somewhat Support (2)
- ○ Neutral (3)
- ○ Somewhat oppose (4)
- ○ Oppose (5)

44. The next several questions or statements are about gardening. Check the appropriate box to tell us your response.

	never (1)	Sometimes (2)	Often (3)
How often would you garden if you had the materials? (1)	○	○	○
Would you share fruits and vegetables from your garden? (2)	○	○	○
If there was a community garden how often would you volunteer to help garden? (3)	○	○	○
Would receiving a portion of produce from the community garden benefit your household? (4)	○	○	○

48. Are you serving or have you ever served in the U.S. Armed Forces?

○ Yes (1)

○ No (2)

49. Is anyone in your household serving or has served in the U.S. Armed Forces?

- ○ Yes (1)
- ○ No (2)

---

50. Would you support more veterans living in the Cove Neighborhood?

- ○ Strongly Support (1)
- ○ Somewhat Support (2)
- ○ Neutral (3)
- ○ Somewhat Oppose (4)
- ○ Oppose (5)

---

51. The tiny house movement (small homes between 300-700sq. ft.) has become a new housing solution to address several housing issues including: housing industry waste, temporary housing, reducing spatial footprints, homeless housing, mobile housing, and urban crowding. If the Cove utilized tiny living homes what would you think about the following statements:

	Strongly agree (1)	Somewhat agree (2)	Neither agree nor disagree (3)	Somewhat disagree (4)	Strongly disagree (5)
Tiny homes would make an affordable housing solution in the Cove. (1)	○	○	○	○	○
A tiny house community could provide housing to veterans (2)	○	○	○	○	○
Tiny living could be used to combat homelessness (3)	○	○	○	○	○
Tiny living could benefit people with low incomes. (4)	○	○	○	○	○
Tiny housing could provide homes for young adults aging out of foster care. (5)	○	○	○	○	○
Tiny houses could benefit single moms. (6)	○	○	○	○	○
Tiny living would benefit the Cove if the homes were 700-1200 sq. ft homes (7)	○	○	○	○	○

58. Based on information you have learned on tiny living and agrihoods. Would you support a micro-agrihood concept in the Cove neighborhood?

- ○ Strongly Support (1)
- ○ Somewhat Support (2)
- ○ Neutral (3)
- ○ Somewhat Oppose (4)
- ○ Strongly Oppose (5)

---

59. Based on the information you have learned on tiny living and agrihoods. Would you support a tiny living concept in the Cove neighborhood?

- ○ Strongly Support (1)
- ○ Somewhat Support (2)
- ○ Neutral (3)
- ○ Somewhat Oppose (4)
- ○ Strongly Oppose (5)

---

60. Hydroponics is a method of growing plants without soil by using a mineral nutrient solution in a water solvent. It is being used in areas to grow produce year round and uses 90% less soil than soil-based plants.

Would you be in favor of using hydroponics in the cove?

	Strongly agree (1)	Somewhat agree (2)	Neither agree nor disagree (3)	Somewhat disagree (4)	Strongly disagree (5)
Would you be in favor of using hydroponics in the cove? (1)	○	○	○	○	○
Would using hydroponics benefit low-income families? (2)	○	○	○	○	○
Could the use of hydroponics make the cove a more desirable location to live? (3)	○	○	○	○	○
Would using hydroponics increase employment in the cove? (4)	○	○	○	○	○

64. Aquaponics is the combination of hydroponics (cultivating plants in water) and aquaculture (raising aquatic animals such as fish for food). This allows for the growth of vegetables and raising fish at the same time.

	Strongly agree (1)	Somewhat agree (2)	Neither agree nor disagree (3)	Somewhat disagree (4)	Strongly disagree (5)
Would you be in favor of using aquaponics in the cove? (1)	○	○	○	○	○
Would using aquaponics benefit low-income families? (2)	○	○	○	○	○
Could the use of aquaponics make the cove a more desirable location to live? (3)	○	○	○	○	○
Would using aquaponics increase employment in the cove? (4)	○	○	○	○	○

68. Would you be willing to participate in a small group discussion over revitalization of the cove?

○ Yes (1)

○ No (2)

APPENDIX B:

INFORMED CONSENT

Informed Consent to Participate in Research

You are being asked to participate in the research project described below. Your participation in this study is entirely voluntary and you may refuse to participate, or you may decide to stop your participation at any time. Should you refuse to participate in the study or should you withdraw your consent and stop participation in the study, your decision will involve no penalty or loss of benefits to which you may be otherwise entitled. You are being asked to read the information below carefully, and ask questions about anything you don't understand before deciding whether or not to participate.

Title: Can Creating Tiny Living and Micro Agrihood Spaces Revitalize a Low Income Neighborhood?

Student Investigator: April Henderson

Faculty Sponsors: Maria Curtis, Ph.D., Mike McMullen, Ph.D.

PURPOSE OF THE STUDY

The purpose of this research is to analyze the attitudes of respondents on using tiny living and micro agrihood spaces to revitalize a diverse low-income neighborhood.

PROCEDURES

The research procedures are as follows:

Respondent will choose or write in an appropriate response to the questions presented in the survey. If, for any reason, a respondent does not feel comfortable answering a question, please leave options untouched. Respondent must only circle one response unless question allows for multiple responses.

EXPECTED DURATION

The total anticipated time commitment will be approximately 10-15 minutes.

RISKS OF PARTICIPATION

There are no anticipated risks associated with participation in this project.

BENEFITS TO THE SUBJECT

There is no direct benefit received from your participation in this study, but your participation will help the investigator better understand perceptions and attitudes about revitalization in the Cove neighborhood.

CONFIDENTIALITY OF RECORDS

Every effort will be made to maintain the confidentiality of your study records. The data collected from the study will be used for educational and publication purposes, however, you will not be identified by name. For federal audit purposes, the participant's documentation for this research project will be maintained and safeguarded by the Faculty Sponsor for a minimum of two years after completion of the study. After that time, the participant's documentation may be destroyed.

FINANCIAL COMPENSATION

There will be a completely voluntary opportunity for participants to enter into a drawing to win one of ten $10 gift cards offered for participation in the study.

INVESTIGATOR'S RIGHT TO WITHDRAW PARTICIPANT

The investigator has the right to withdraw you from this study at any time.

CONTACT INFORMATION FOR QUESTIONS OR PROBLEMS

The investigator has offered to answer all your questions. If you have additional questions during the course of this study about the research or any related problem, you may contact the Student Researcher, April Henderson, at phone number (409) 233-9961 or by email at HendersonA3906@uhcl.edu. The Faculty Sponsor Maria Curtis, Ph.D., may be contacted at phone number 281-283-3413 or by email at Curtis@uhcl.edu.

SIGNATURES:

Your signature below acknowledges your voluntary participation in this research project. Such participation does not release the investigator(s), institution(s), sponsor(s) or granting agency(ies) from their professional and ethical responsibility to you. By signing the form, you are not waiving any of your legal rights.

The purpose of this study, procedures to be followed, and explanation of risks or benefits have been explained to you. You have been allowed to ask questions and your questions have been answered to your satisfaction. You have been told who to contact if you have additional questions. You have read this consent form and voluntarily agree to participate as a subject in this study. You are free to withdraw your consent at any time by contacting the Principal Investigator or Student Researcher/Faculty Sponsor. You will be given a copy of the consent form you have signed.

Subject's printed name:

Signature of Subject:

Date:

Using language that is understandable and appropriate, I have discussed this project and the items listed above with the subject.

Printed name and title:

Signature of Person Obtaining Consent:

Date:

THE UNIVERSITY OF HOUSTON-CLEAR LAKE (UHCL) COMMITTEE FOR PROTECTION OF HUMAN SUBJECTS HAS REVIEWED AND APPROVED THIS PROJECT. ANY QUESTIONS REGARDING YOUR RIGHTS AS A RESEARCH SUBJECT MAY BE ADDRESSED TO THE UHCL COMMITTEE FOR THE PROTECTION OF HUMAN SUBJECTS (281-283-3015). ALL RESEARCH PROJECTS THAT ARE CARRIED OUT BY INVESTIGATORS AT UHCL ARE GOVERNED BY REQUIREMENTS OF THE UNIVERSITY AND THE FEDERAL GOVERNMENT. (FEDERALWIDE ASSURANCE # FWA00004068)

APPENDIX C:

TEXAS A&M AGRILIFE EXTENSION SOIL REPORT

Sample 1: Site 1

pH	**5.9**	(6.5)	-	**Mod. Acid**	
Conductivity	**99**	(-)	umho/cm	**None**	**Fertilizer Recommended**
Nitrate-N	**0**	(-)	ppm**		**1.4** lbs N/1000sqft
Phosphorus	**58**	(50)	ppm		**0** lbs P2O5/1000sqft
Potassium	**20**	(175)	ppm		**3.5** lbs K20/1000sqft
Calcium	**637**	(180)	ppm		**0** lbs Ca/1000sqft
Magnesium	**88**	(50)	ppm		**0** lbs Mg/1000sgft
Sulfur	**9**	(13)	ppm		**0.25** lbs S/1000sqft
Sodium	**27**	(-)	ppm		
Iron	**68.10**	(4.25)	ppm		
Zinc	**4.37**	(0.27)	ppm		
Manganese	**17.01**	(1.00)	ppm		
Copper	**0.81**	(0.16)	ppm		
Boron					
Limestone Requirement					**10.00** lbs/1000sqft

Nitrogen: Apply an additional 1 lb N/1000 sqft every 4-6 weeks, as needed, to maintain vegetative growth.

Sample 2: Site 1

pH	**5.9**	(6)	-	**Mod. Acid**	
Conductivity	**99**	(-)	umho/cm	**None**	**Fertilizer Recommended**
Nitrate-N	**0**	(-)	ppm**		**1.4** lbs N/1000sqft
Phosphorus	**58**	(50)	ppm		**0** lbs P2O5/1000sqft
Potassium	**20**	(175)	ppm		**3.5** lbs K20/1000sqft
Calcium	**637**	(180)	ppm		**0** lbs Ca/1000sqft
Magnesium	**88**	(50)	ppm		**0** lbs Mg/1000sgft
Sulfur	**9**	(13)	ppm		**0.25** lbs S/1000sqft
Sodium	**27**	(-)	ppm		
Iron	**68.10**	(4.25)	ppm		
Zinc	**4.37**	(0.27)	ppm		
Manganese	**17.01**	(1.00)	ppm		
Copper	**0.81**	(0.16)	ppm		
Boron					
Limestone Requirement					**10.00** lbs/1000sqft

Sample 3: Site 1

pH	**5.9**	(6.2)	-	**Mod. Acid**	
Conductivity	**99**	(-)	umho/cm	**None**	**Fertilizer Recommended**
Nitrate-N	**0**	(-)	ppm**		**2** lbs N/1000sqft
Phosphorus	**58**	(50)	ppm		**0** lbs P2O5/1000sqft
Potassium	**20**	(175)	ppm		**2** lbs K20/1000sqft
Calcium	**637**	(180)	ppm		**0** lbs Ca/1000sqft
Magnesium	**88**	(50)	ppm		**0** lbs Mg/1000sgft
Sulfur	**9**	(13)	ppm		**0.25** lbs S/1000sqft
Sodium	**27**	(-)	ppm		
Iron	**68.10**	(4.25)	ppm		
Zinc	**4.37**	(0.27)	ppm		
Manganese	**17.01**	(1.00)	ppm		
Copper	**0.81**	(0.16)	ppm		
Boron					
Limestone Requirement					**10.00** lbs/1000sqft

Sample 4: Site 2

pH	**6.3**	(6.5)	-	**Slightly Acid**	
Conductivity	**89**	(-)	umho/cm	**None**	**Fertilizer Recommended**
Nitrate-N	**0**	(-)	ppm**		**1.4** lbs N/1000sqft
Phosphorus	**36**	(50)	ppm		**1.1** lbs P2O5/1000sqft
Potassium	**18**	(175)	ppm		**3.5** lbs K20/1000sqft
Calcium	**765**	(180)	ppm		**0** lbs Ca/1000sqft
Magnesium	**83**	(50)	ppm		**0** lbs Mg/1000sgft
Sulfur	**7**	(13)	ppm		**0.5** lbs S/1000sqft
Sodium	**37**	(-)	ppm		
Iron	**56.97**	(4.25)	ppm		
Zinc	**9.50**	(0.27)	ppm		
Manganese	**9.57**	(1.00)	ppm		
Copper	**5.96**	(0.16)	ppm		
Boron					
Limestone Requirement					**10.00** lbs/1000sqft

Sample 5: Site 2

pH	**6.3**	(6)	-	**Slightly Acid**	
Conductivity	**89**	(-)	umho/cm	**None**	**Fertilizer Recommended**
Nitrate-N	**0**	(-)	ppm**		**1.4** lbs N/1000sqft
Phosphorus	**36**	(50)	ppm		**0.8** lbs P2O5/1000sqft
Potassium	**18**	(175)	ppm		**3.5** lbs K20/1000sqft
Calcium	**765**	(180)	ppm		**0** lbs Ca/1000sqft
Magnesium	**83**	(50)	ppm		**0** lbs Mg/1000sgft
Sulfur	**7**	(13)	ppm		**0.5** lbs S/1000sqft
Sodium	**37**	(-)	ppm		
Iron	**56.97**	(4.25)	ppm		
Zinc	**9.50**	(0.27)	ppm		
Manganese	**9.57**	(1.00)	ppm		
Copper	**5.96**	(0.16)	ppm		
Boron					
Limestone Requirement					**0.00** lbs/1000sqft

Sample 6: Site 2

pH	**6.3**	(6.2)	-	**Slightly Acid**	
Conductivity	**89**	(-)	umho/cm	**None**	**Fertilizer Recommended**
Nitrate-N	**0**	(-)	ppm**		**2** lbs N/1000sqft
Phosphorus	**36**	(50)	ppm		**1** lbs P2O5/1000sqft
Potassium	**18**	(175)	ppm		**2** lbs K20/1000sqft
Calcium	**765**	(180)	ppm		**0** lbs Ca/1000sqft
Magnesium	**83**	(50)	ppm		**0** lbs Mg/1000sgft
Sulfur	**7**	(13)	ppm		**0.5** lbs S/1000sqft
Sodium	**37**	(-)	ppm		
Iron	**56.97**	(4.25)	ppm		
Zinc	**9.50**	(0.27)	ppm		
Manganese	**9.57**	(1.00)	ppm		
Copper	**5.96**	(0.16)	ppm		
Boron					
Limestone Requirement					**0.00** lbs/1000sqft