

EL ZAMORANO RETAIL VILLAGE: DESIGNING A MIXED-USE CENTER FOR  
EL ZAMORANO UNIVERSITY, HONDURAS

by

MATTHEW MICHAEL NAHRSTEDT

(Under the Direction of John [Jack] Crowley)

ABSTRACT

This thesis provides research and design for a Retail Village at Zamorano University, Honduras. Zamorano Pan-American Agricultural School—commonly called Zamorano—is located near Tegucigalpa, Honduras, and is a registered non-profit organization in the United States. In the past decade Zamorano has seen new development, including preparations to move the Pan-American Highway. Now, the Zamorano Master Plan calls for a mixed-use development, a Retail Village, on Zamorano property near the campus core that blends into its existing architecture and planning and provides access and activities for students, professionals and residents of nearby El Jicarito.

INDEX WORDS: El Zamorano, Honduras; Latin America; environmental  
planning; mixed-use; retail village

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A Thesis Submitted to the Graduate Faculty of The University of Georgia in

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MASTER OF ENVIRONMENTAL PLANNING AND DESIGN

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## **DEDICATION**

This document and the work behind it are dedicated to all those, near and far, who strive to make EAP Zamorano a better place.

## ACKNOWLEDGEMENTS

First, I would like to thank Jack Crowley, my mentor, advisor, and teacher of “when the goin’ gets tough, the tough get goin’” for giving me the opportunity to work with him on Zamorano when I arrived at UGA; Jeff Lansdale on behalf of EAP Zamorano and Paul Duncan on behalf of UGA’s Latin American and Caribbean Studies Institute (LACSI), whose assistance funded my Summer 2015 trip to Honduras and inspired me to make Zamorano the subject of my thesis; and Rosanna Rivero for introducing me to LACSI and instilling within me a strong spirit for research. Second, I would like to thank my Master’s cohort, my fellow MEPDs. From drinks at Walker’s and potluck meals to brainstorming sessions and conversations at Tanner, you helped make my UGA experience a productive and happy one. Last but certainly not least, I want to thank my father, Michael Nahrstedt. Dad, your writing and journalistic expertise have always been an inspiration. Thank you for helping me with this piece of writing, my most important yet.

## TABLE OF CONTENTS

	Page
<b>DEDICATION .....</b>	<b>iv</b>
<b>ACKNOWLEDGEMENTS .....</b>	<b>v</b>
<b>LIST OF TABLES .....</b>	<b>viii</b>
<b>LIST OF FIGURES .....</b>	<b>ix</b>
 <b>CHAPTER</b>	
<b>1 INTRODUCTION.....</b>	<b>1</b>
<b>2 BACKGROUND.....</b>	<b>5</b>
Part I: History – Honduras .....	5
Part II: History – EAP Zamorano.....	11
Part III: Zamorano – Current Needs .....	16
<b>3 METHODOLOGY, LARGER CONTEXT .....</b>	<b>20</b>
<b>4 DESIGN STRATEGIES, CASE STUDIES .....</b>	<b>27</b>
Design Research .....	27
Mixed-Use Development .....	31
Plaza as Organizer .....	36
Case Studies .....	37

5	OPTIONS FOR ZAMORANO RETAIL VILLAGE.....	60
6	FINAL APPLICATION .....	65
7	CONCLUSION .....	68
	REFERENCES .....	70
<b>APPENDICES</b>		
A	2015 Zamorano Projects .....	73
B	Zamorano Campus Photos .....	74
C	Views of Retail Village Boundary.....	81
D	Matthew Nahrstedt Graduate Assistantship Work .....	82
E	Yuscarán Site Visit Photos .....	89
F	Graphics from Mauricio Alejandro Castañenda's book <i>Construyendo Pueblitos: Arquitectura Para Comunidades Pequeñas (Building Small Towns: Architecture for Small Communities)</i> .....	91
G	Inventory of Case Studies .....	94

**LIST OF TABLES**

	Page
Table 4-1: Case Study Inventory. (Matthew Nahrstedt 2016) .....	59

## LIST OF FIGURES

	Page
Figure 2-1: Honduras Fact Map. (Adobe Stock 2015) .....	7
Figure 2-2: Honduras Points of Interest Map, 2015 (www.mesoamerica- travel.com 2012) .....	8
Figure 2-3: The United Fruit Ports and Piers Map, 1951 (www.lasalle.edu 2015) .....	10
Figure 2-4: A bird's eye view of Zamorano, circa 1946. (www.zamorano.edu 2016) .....	12
Figure 2-5: The proposed development in 2010 Master Plan, including "Student Life Precinct" and "Faculty Village Greenway." (Sniff 2011).....	15
Figure 2-6: The 11-acre Retail Village site inside solid yellow outline. (Google Earth 2016).....	17
Figure 2-7: The context surrounding the 11-acre Retail Village site. (Google Earth 2016) .....	18
Figure 3-1: The methodology for choosing this thesis topic, from background work to field research. (Matthew Nahrstedt 2016) .....	20

Figure 3-2: Map showing Zamorano's proximity to Tegucigalpa and the extent of Zamorano's land. (Google Earth and Google Maps 2016) .....	24
Figure 3-3: Map showing the Retail Village in context to Zamorano's main campus and El Jicarito. (Google Earth and Google Maps 2016) .....	25
Figure 3-4: Map showing the proposed realignment of the Pan-American Highway (CA-6) in relation to El Jicarito village, the Retail Village, and Zamorano's main campus. (Google Earth and Google Maps 2016) .....	26
Figure 4-1: Schematic drawings of linear form in architecture. (Ching 2007).....	28
Figure 4-2: Schematic drawings of clustered form in architecture. (Ching 2007)..	29
Figure 4-3: Various mixed-use massing templates for design. (Association 2007) .....	34
Figure 4-4: Guinope, El Paraíso, Honduras, district boundary. (Google Earth and Google Maps 2016).....	39
Figure 4-5: Guinope, El Paraíso, Honduras, plaza inventory of 11-acre yellow study area. (Google Earth and Google Maps 2016).....	40
Figure 4-6: Maraita, Francisco Morazán, Honduras, district boundary. (Google Earth and Google Maps 2016) .....	42
Figure 4-7: Maraita, Francisco Morazán, Honduras, plaza inventory of 11-acre yellow study area. (Google Earth and Google Maps 2016).....	43

Figure 4-8: Tatumbla, Francisco Morazán, Honduras, district boundary. (Google Earth and Google Maps 2016) .....	45
Figure 4-9: Tatumbla, Francisco Morazán, Honduras, plaza inventory of 11-acre yellow study area. (Google Earth and Google Maps 2016).....	46
Figure 4-10: Yuscarán, El Paraíso, Honduras, district boundary. (Google Earth and Google Maps 2016).....	48
Figure 4-11: Yuscarán, El Paraíso, Honduras, plaza inventory of 11-acre yellow study area. (Google Earth and Google Maps 2016).....	49
Figure 4-12: San Elijo Hills, California, U.S.A., aerial design rendering of village center. (San Elijo Hills Development Company 2000).....	51
Figure 4-13: San Elijo Hills, California, U.S.A., village boundary. (Google Earth and Google Maps 2016).....	52
Figure 4-14: San Elijo Hills, California, town square inventory of 11-acre yellow study area. (Google Earth and Google Maps 2016).....	53
Figure 4-15: Storrs, Connecticut, U.S.A., aerial design rendering of village center. (Storrs Center Development Company 2012) .....	55
Figure 4-16: Storrs, Connecticut, U.S.A., village boundary. (Google Earth and Google Maps 2016).....	56
Figure 4-17: Storrs, Connecticut, town square inventory of 11-acre yellow study area. (Google Earth and Google Maps 2016).....	57

Figure 5-1: Option 1 for Zamorano Retail Village. Plaza on bus station side, a more “public” plaza immediately visible from the bus stop. (Matthew Nahrstedt 2016) .....	61
Figure 5-2: Option 2 for Zamorano Retail Village. Plaza tucked back, a more “private” approach. The plaza will be more of a destination between Zamorano and the bus station. (Matthew Nahrstedt 2016).....	62
Figure 5-3: Images of access to site looking west. Top image shows existing conditions. Bottom image displays the transition from public to private spaces with existing roads in black, road closures in gray, and the proposed Pan-American realignment in dotted line. (Google Earth and Matthew Nahrstedt 2016) .....	63
Figure 6-1: Aerial rendering of final application for Zamorano Retail Village. (Matthew Nahrstedt 2016) .....	65
Figure 6-2: Bird’s eye SketchUp rendering of final application for Zamorano Retail Village, looking east. The final design application is shown hovering above the existing site. (Matthew Nahrstedt 2016).....	66
Figure 7-1: Drawing of one of Zamorano’s oldest structures, Casa Popenoe. (Matthew Nahrstedt 2016) .....	68

## CHAPTER 1

### INTRODUCTION

The purpose of this thesis is to serve as a working document for El Zamorano University and the surrounding Yeguaré Valley in San Antonio de Oriente, Honduras, in efforts to construct an approximately 11-acre (4.45-hectare) Retail Village (mixed-use commercial and residential community) on the triangular parcel of land between El Zamorano University's campus and the new nearby bus terminal along the CA-6 Pan-American Highway. The thesis could also serve as a prototype for small-scale mixed-use center design throughout Honduras and other parts of Central America. No such document currently exists. The work that most closely relates is coincidentally by Honduran architect Mauricio Alejandro Castañenda. His book is *Construyendo Pueblitos: Arquitectura Para Comunidades Pequeñas (Building Small Towns: Architecture for Small Communities)*.

The need for this thesis is evident through the request made by El Zamorano administration and campus architects. Collaboration between UGA and Zamorano began nearly fifteen years ago when UGA Professor John "Jack"

Crowley began assisting Zamorano with campus design and master planning. Several new construction projects and designs later, Zamorano administration and staff now ask for a more appropriate concentration of commercial, off-campus apartments, and public space, which are currently tucked inside the entrance to Zamorano's campus. Zamorano wants and needs a more suitable location for the aforementioned services. The new location between bus terminal and campus will sustainably concentrate and fill in its campus landscape and provide its students, faculty, staff as well as the nearby El Jicarito residents a new secure location to access various commercial amenities.

Plans for the campus must respect the unique sense of place that Zamorano has developed over time. Successful architects and planners who work on Zamorano's campus must understand Popenoe's perspective and respect the context and materials of the place. They must draw from the character and uniqueness of the site as well as from their own expertise formed from working within other campus environments. They must understand and immerse themselves in the design principles that make up the truly exceptional and distinctive architecture referred to as campus architecture, respecting the "traditions" of the place as well. This thesis is the research base for the exploration of options for the eventual Zamorano Retail Village. It is designed to

inform current and future staff on architectural and planning considerations regarding the given site and projected campus change and growth. Throughout the thesis, the names “Zamorano University,” “El Zamorano,” and “Zamorano” are used in place of the university’s official name, the Escuela Agrícola Panamericana (EAP) Zamorano, the Zamorano Pan-American Agricultural School.

Chapter 2 is an overview of the historical context of the site. It describes, briefly, the histories of the Republic of Honduras and of the Zamorano University. Chapter 2 then provides background of the situation at hand—the need for a well-designed, mixed-use development on the edge of El Zamorano’s campus. Chapter 3 describes the methodology behind this report and the resources most helpful in initiating the design of the Retail Village. Chapter 4 describes the plaza concept and a plaza’s design and practical function—creation of an organizing space, which could prove to be the ideal solution for Zamorano. This chapter also analyzes a total of six case studies, four in Honduras, in the regional vicinity of Zamorano, and two in the United States. Chapter 5 is a presentation of the options for Zamorano’s Retail Village. The strategies used to find a solution to Zamorano’s need for a Retail Village are described. This chapter begins to form an image for the Retail Village; details and vignette

sketches of the area's amenities are presented. Chapter 6 is the result, the well-thought-out final application of Zamorano's mixed-use Retail Village. Text is accompanied by a site plan and detailed renderings of what the space could look like "on the ground." Last, Chapter 7 is the conclusion of the thesis and a closing message for Zamorano's Retail Village to provide ideas for implementation. The goal is that this work will serve as a pilot project for the university as well as similar regions throughout Latin America.

## **CHAPTER 2**

### **BACKGROUND**

This chapter focuses on the history and background of the country of Honduras. The Yeguaré Valley, in San Antonio de Oriente, and the campus of El Zamorano Pan-American University are described. Finally, the chapter provides an overview of the issues Zamorano faces in its new stages of development.

#### **Part I: History – Honduras**

Honduras, officially the Republic of Honduras, is a republic in Central America. It was at times referred to as Spanish Honduras to differentiate it from British Honduras (Fox 2012), which became the modern-day state of Belize. Honduras is bordered to the west by Guatemala, to the southwest by El Salvador, to the southeast by Nicaragua, to the south by the Pacific Ocean at the Gulf of Fonseca, and to the north by the Gulf of Honduras, a large inlet of the Caribbean Sea. Roatan, one of Honduras' three northern islands, and the Mesoamerican Reef—the second largest barrier reef in the world—are major tourist attractions on Honduras' Caribbean border (Carilli et al. 2009).

Honduras was home to several important Mesoamerican cultures, most notably the Maya, prior to being conquered by Spain in the sixteenth century. The Spanish introduced Roman Catholicism and the now predominant Spanish language, along with numerous customs that have blended with the indigenous culture. Along with Costa Rica, El Salvador, Guatemala and Nicaragua, Honduras formed part of several administrative territories for centuries, the longest-lasting being the Captaincy General of Guatemala (1609-1821) with its capital in Guatemala City (Carilli et al. 2009). Honduras became independent in 1821 and has since been a republic, although it has consistently endured much social strife and political instability. It remains one of the poorest countries in the Western Hemisphere and Honduras has one of the highest per-capita murder rate in the world (CIA 2014). There are, however, beautiful things to see in Honduras.



Figure 2-1 Honduras Fact Map. (Adobe Stock 2015)

Honduras is a vibrant country, brimming with clear turquoise waters, pristine beaches, lush jungles, breathtaking mountains, challenging rivers, and fascinating ancient ruins. In addition to Honduras travel destinations and popular attractions, the country offers opportunities for business and trade. San Pedro Sula's "tax free zone" allows international companies to manufacture goods at attractive rates (Salomón 2012). Located at the very center of the Americas, Honduras operates ports in San Lorenzo and Puerto Cortes, which provide a thoroughfare between the Atlantic and Pacific Oceans, and expedite the transit of merchandise.



Figure 2-2 Honduras Points of Interest Map, 2015 ([www.mesoamerica-travel.com](http://www.mesoamerica-travel.com) 2012)

Honduras spans an area of about 43,433 mi<sup>2</sup> (112,492 km<sup>2</sup>) and has a population of approximately 8.75 million (2015 est.). Its northern portions are part of the Western Caribbean Zone, as reflected in the area's demographics and culture. Honduras is known for its rich natural resources, including various minerals, coffee, tropical fruit, and sugar cane, as well as for its growing textiles industry, which serves the international market (Fox 2012).

The foundations of Zamorano's origin largely lie on the establishment of Honduras as "the banana republic" (T.W. 2013). The quintessential "banana republic," Honduras became a foreign enclave as a result of Anglo-American control over its railroads, mining industry and banana production in the 1800s. U.S. banana companies were to dominate the country for many years. After the turn of the century, The United Fruit Company and the Standard Fruit and Steamship Company expanded their control over the rich alluvial plains of Honduras' Atlantic coast. By 1929, the United Fruit Company owned or controlled 650,000 acres of the best arable land, along with railroads and ports. Bananas came to represent some 88 percent of Honduran exports, focusing on the economic activity of the country almost wholly in the Atlantic coast region. Honduras is the only Central American country whose economic center is not the capital, Tegucigalpa, but a town near the Caribbean coast, San Pedro Sula (T.W. 2013).

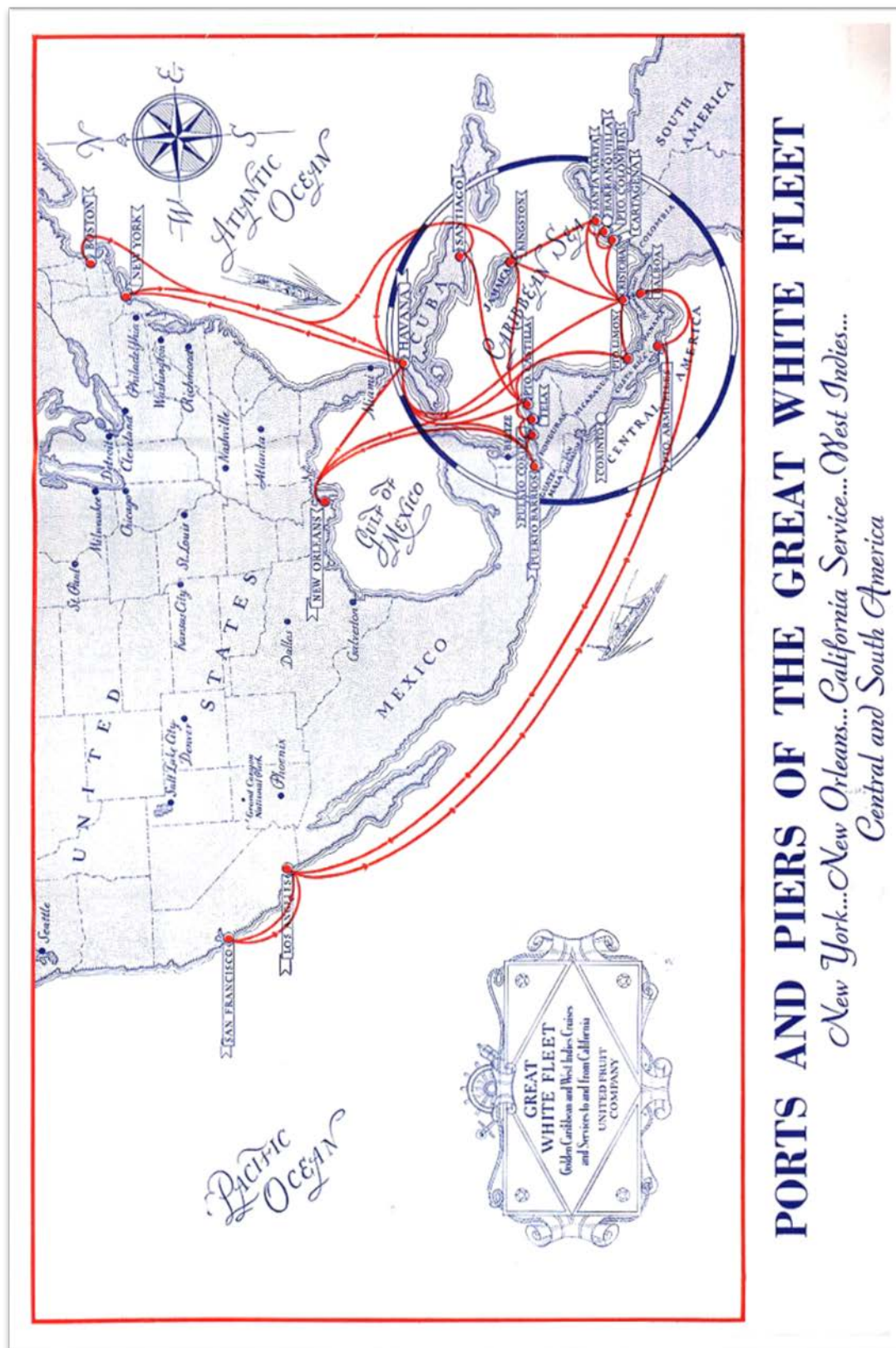


Figure 2-3 The United Fruit Ports and Piers Map, 1951 ([www.lasalle.edu](http://www.lasalle.edu) 2015)

## **Part II: History – EAP Zamorano**

Zamorano was born from the inspiration and support of Samuel Zemurray, president of the United Fruit Company from 1933 to 1951. The United Fruit Company during this time sought out investment in its future—local students who could become the future farmers, scientists, and businesspeople for the company. Zemurray set out to create a high-quality agricultural university center dedicated to educating young people throughout the region. To realize the dream, Zemurray commissioned Dr. Wilson Popenoe, a renowned botanist and horticulturist with extensive experience in the region. For several weeks in 1941, Popenoe explored the Central American highlands to secure lands for the project. He chose a farm of approximately 1,500 hectares in the Yeguaré Valley, some 30 kilometers from the capital of Honduras, Tegucigalpa. The name Zamorano comes from the Zamorano family that previously owned the estate, originally from the province of Zamora, Spain (Frederic Rosengarten 1995). Construction of "The School" began at the end of 1941. Popenoe became the Founding Director of the novel educational institution, serving in that capacity until 1957.

With an ample supply of potable water and a location remote enough from the temptations of the capital city of Tegucigalpa, Samuel Zemurray and Dr. Wilson Popenoe built a vision of learning-by-doing pedagogy. Students

worked in the fields in the morning, “getting their hands dirty”(Bianco 2009), and then attended afternoon classes. This balance of applied work with theory is the cornerstone of the Zamorano education model. “Work, honesty, punctuality and dedication to the gospel of farming efficiency” rounded out a young student’s education and produced, arguably, the finest university graduates in Latin and South America. Today, Zamorano stands as a testament to the desire of two extraordinary men to give back to a region of the world that they loved and that provided them with so much.



*Figure 1-4 A bird's eye view of Zamorano, circa 1946. (www.zamorano.edu 2016)*

The original Zamorano campus was a master-planned place; as first Zamorano President, Wilson Popenoe mirrored his campus layout (building massing and circulation) after university campuses around the world (Frederic Rosengarten 1995). However, the subsequent Presidents each had their own take on updating the campus; therefore the intersecting grids of roads and buildings stand as testament to the different periods of growth (Sniff 2011). In 2010, Zamorano began undertaking a comprehensive master planning effort for the purpose of understanding and organizing the growth of its campus. To this end, the school contacted the University of Georgia Office of University Architects to assist with creating a comprehensive master plan between 2010 and 2012. Parties from both universities met and discussed the challenges faced by Zamorano. Together, the two universities created a vision for Zamorano that would allow for sustainable growth, strengthen the historic core of the campus, and extend this iconic imagery to future growth on campus (UGA 2009).

The foundation of the Zamorano plan reinforces the original core concept plan that was established by the founder, Dr. Wilson Popenoe. Dr. Popenoe's architectural and planning vision was simple, elegant and understated. The distinctive Zamorano style of simple, utilitarian, form-follows-function architecture complements the teaching philosophy of learning-by-doing. This style also results in an iconic image that is valuable in its functionality, beauty,

ability to create an ideal learning environment, and—not to be undervalued—its marketing potential. The material for the buildings was iconic, produced a unique image, and was a local, sustainable product. Piedra canteada, or a rusticated, square-edged, hand-cut volcanic stone, was quarried on a hill overlooking the valley just north of the Zamorano campus. The geological name is intensely-silicified rhyolite ignimbrite of Miocene origin or tuff (Sniff 2011). Its volcanic quality is ironic because Honduras has no active volcanoes.

The architectural style at Zamorano provides a functional, aesthetically pleasing campus and creates an ideal learning environment that attracts committed and talented students while also encouraging financial support and investment critical to the legacy of success at Zamorano. The Zamorano Pan-American Agricultural University is incorporated in the state of Delaware, United States, operating officially as "Escuela Agrícola Pan-Americana" (EAP). It holds 501(c)(3) tax-exempt, non-profit status in the United States under EIN 04-2104172. Donations and support to Zamorano are tax deductible in many countries and jurisdictions.

The 2010 Plan has been largely carried out and 2016 ushers in the plan's update. Part of the original plan and emerging in the update is the idea of "village."

Then...

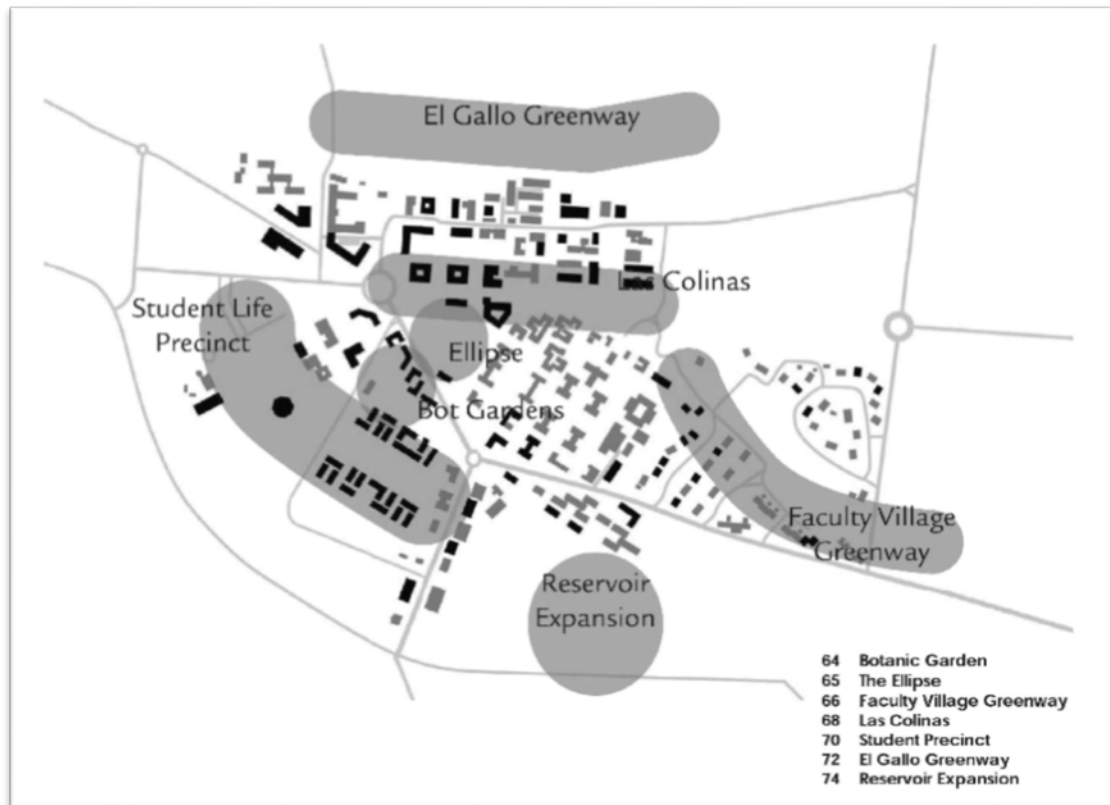


Figure 2-5 The proposed development in 2010 Master Plan, including “Student Life Precinct” and “Faculty Village Greenway.” (Sniff 2011)

Now...“Zamorano Retail Village”

1. Just outside the edge of the campus, serving those “in” and “out.”
2. Provision of more options for quality of life for faculty, staff, and students (i.e., rather than inciting travel and leisure only to Tegucigalpa).

### **Part III: Zamorano – Current Needs**

Zamorano now calls for the site analysis and design of an approximately 11-acre mixed-use Retail Village on its grounds near the central campus. Dr. Crowley and Zamorano design and construction management staff have begun preliminary research for the project. As Dr. Crowley's Graduate Assistant since August 2014, I have done extensive research on Zamorano and have been in coordination with Dr. Crowley studying Zamorano's campus plan and history.

When the original master plan was crafted, Zamorano personnel did not anticipate the creation of a mixed-use retail village on-site in the university's expanding role as an educational institution. The 2012 Zamorano Master Plan did plan for an eventual need of an on-site village (UGA 2009). Until now, Zamorano did not anticipate moving the retail to the "outside" edge. The makeshift retail and commercial buildings currently at Zamorano's gate will be moved to a permanent location within the new Retail Village (see figure below for reference).



Figure 3-6 The 11-acre Retail Village site inside solid yellow outline. (Google Earth 2016)



Figure 4-7 The context surrounding the 11-acre Retail Village site. (Google Earth 2016)

The campus master plan needs to be updated to include the location, function, and guiding principles for this Retail Village in broad brushstrokes. This thesis is the research base for the exploration of options for the eventual Zamorano Retail Village. It is designed to inform current and future staff on architectural and planning considerations regarding the given site and projected campus change and growth.

Future plans for the campus must respect the unique sense of place that Zamorano has developed over time. Successful architects and planners who work on Zamorano's campus must understand Popenoe's perspective and respect the context and materials of the place. They must draw from the character and uniqueness of the site as well as from their own expertise formed from working within other campus environments. They must understand and immerse themselves in the design principles that make up the truly exceptional and distinctive architecture referred to as campus architecture, respecting the "traditions" of the place as well. The best master plans are flexible enough to withstand any changes that may occur to the institution and are "living documents" that change and update to sustain the institution's future. My field research and work in and for Zamorano over the past year and a half will aid in the strength of their master plan and provide a design for a Retail Village and corresponding services.

## CHAPTER 3

### METHODOLOGY, LARGER CONTEXT

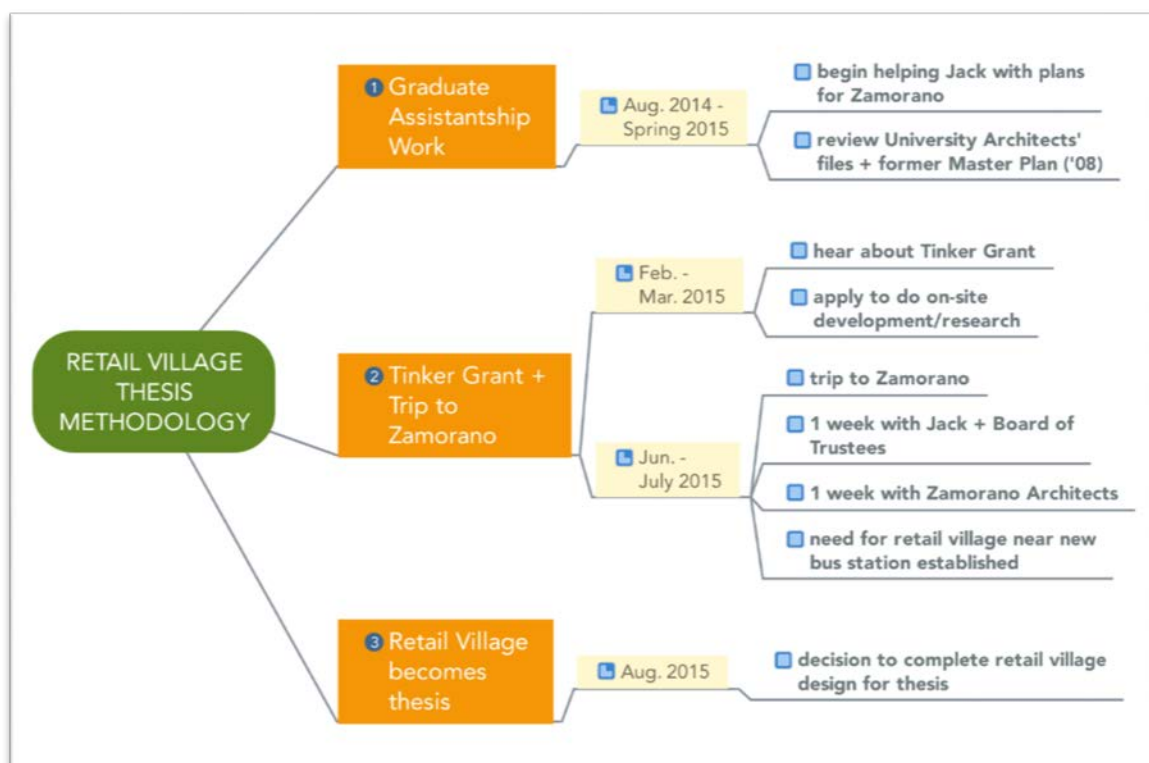


Figure 3-1 The methodology for choosing this thesis topic, from background work to field research  
(Matthew Nahrstedt 2016)

As a graduate research assistant since August 2014 for Dr. Crowley, I have extensively researched the history of Zamorano and the current campus master plan. With assistance from a Tinker Graduate Field Research Travel Award, I traveled to the Zamorano campus in the summer of 2015 to conduct on-site field

research, work directly with their campus architects, and develop site plans within the principles of the school and the existing master plan.

Building from the existing relationships between Dr. Crowley and the University of Georgia architects, I conducted field research in El Zamorano, Honduras, from June 17 to July 2, 2015. I worked directly with Zamorano's campus architects and administrative board. This field work brought about collaboration and designs (i.e., conceptual, hand renderings, construction drawings) of a major highway's bypass, new faculty residences, new bike paths and transportation plan, a new "eco-lab," and a new bus stop and market. I used guidelines previously used by the UGA Campus Architects in their elaboration of the Zamorano Master Plan in 2012. These guidelines are the following:

#### Site Design Guidelines

1. Designate and preserve sensitive resource areas.
2. Identify and limit culturally important areas where intensive maintenance should be prioritized.
3. Overall reduce intensely maintained landscaped areas and increase natural habitats.

4. Enhance stormwater quality and implement best management practices that include rain water collection for irrigation.
5. Prioritize low-maintenance native landscaping with focus on low water needs, xeriscaping, and priority to restoring native habitat.
6. Develop an organic maintenance regime (i.e. best-management practices that adapt with time).
7. Develop an invasive species control plan.
8. Develop the plan to be in a “transitional” campus security area.

Once the site plan is drawn, a more detailed fine-grain focus can be applied to the architecture of the buildings on the site. Some of the design guidelines used within this thesis are the following:

#### Architectural Design Guidelines

1. Commit to sustainable development and ecological restoration.
2. Reflect the scale, proportion, detail, materials, and craftsmanship of Zamorano’s historic buildings in new construction.
3. Orient new structures to maximize passive solar and natural ventilation and minimize energy use.
4. Emphasize the use of local and recycled materials for construction.

5. Plan for new building locations to create and restore engaging outdoor spaces.
6. Integrate water collection and reuse into new construction and restoration projects.
7. Contribute to energy independence by generating renewable energy on-site.
8. Consider embodied energy and life cycle costs in facilities decision making.
9. Secure, safe entry and exit through security measures. A transitional secure area will produce a pleasant and safe environment.

Though when I traveled to Honduras the country carried a State Department Travel Warning and the Department of State “continues to warn U.S. citizens that the level of crime and violence in Honduras remains critically high,” I felt completely safe and at ease while I conducted my research. All my research was done either on university property or very near to the campus and always accompanied by Zamorano staff. The campus has extensive security protection, a trained staff, and various security checkpoints providing limited access to Zamorano’s campus. The Retail Village should have the same measures of protection and security in order to safeguard its success.

Regional Context:

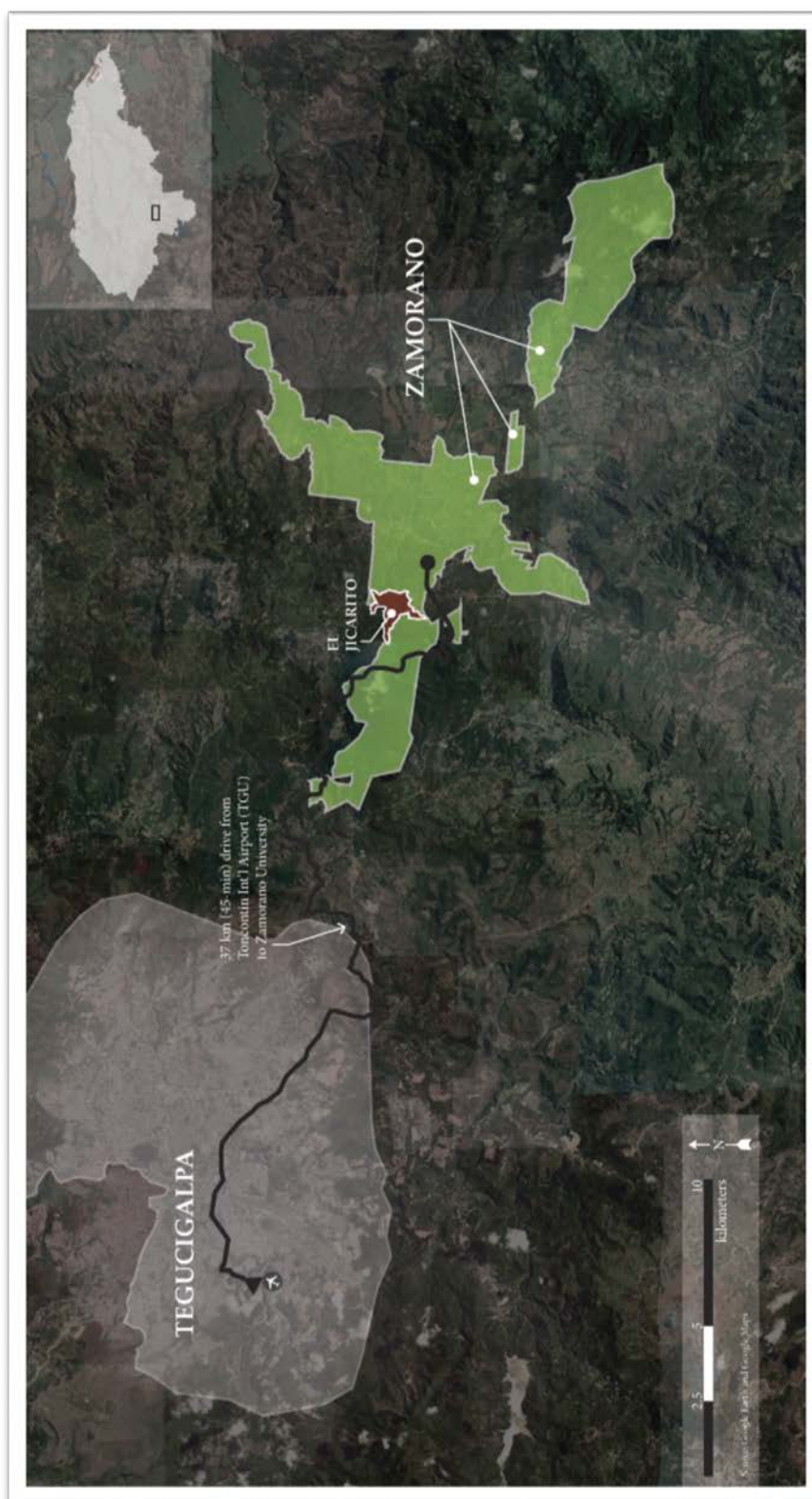


Figure 3-2 Map showing Zamorano's proximity to Tegucigalpa and the extent of Zamorano's land.  
(Google Earth and Google Maps 2016)

Local Context:

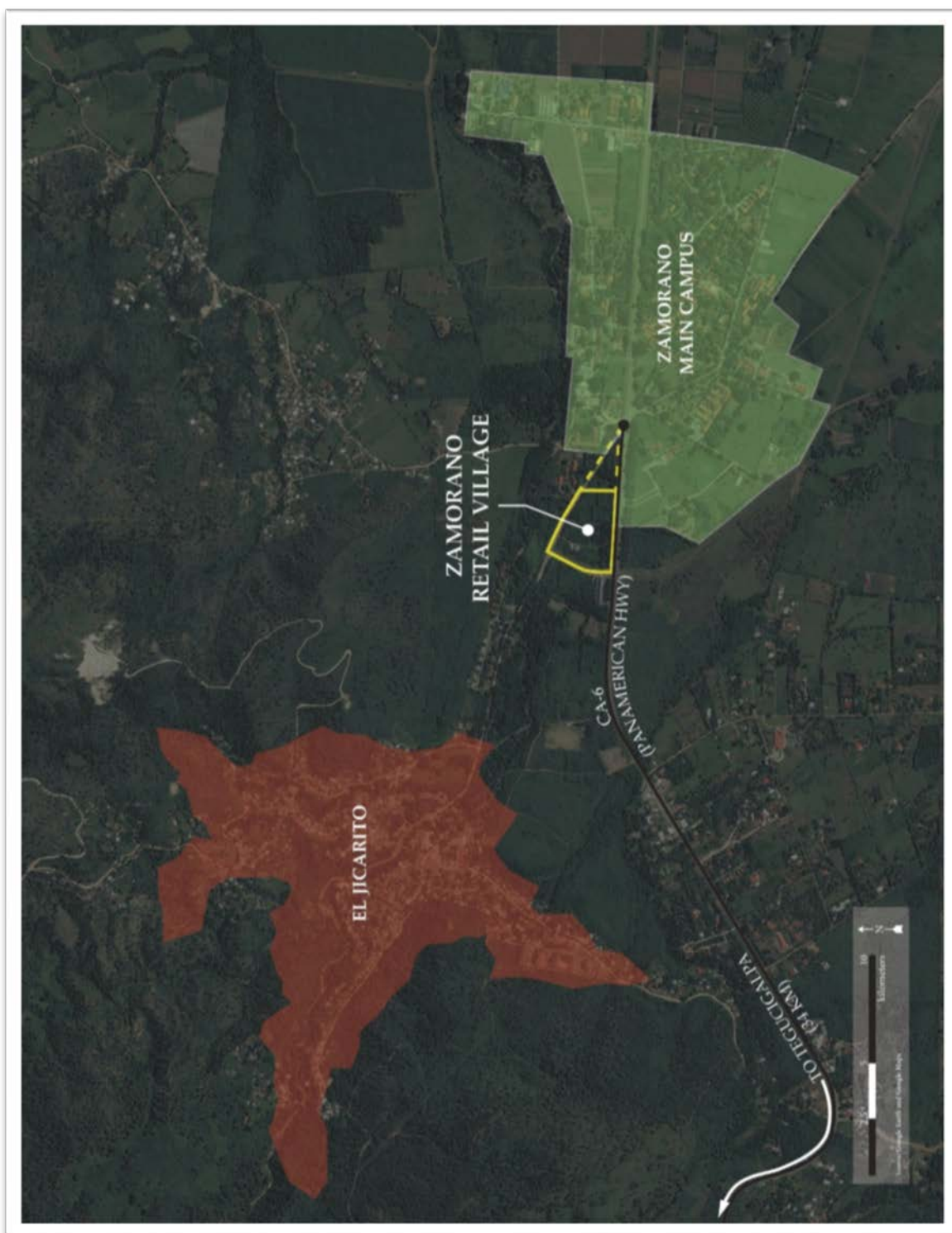


Figure 3-3 Map showing the Retail Village in context to Zamorano's main campus and El Jicarito. (Google Earth and Google Maps 2016)

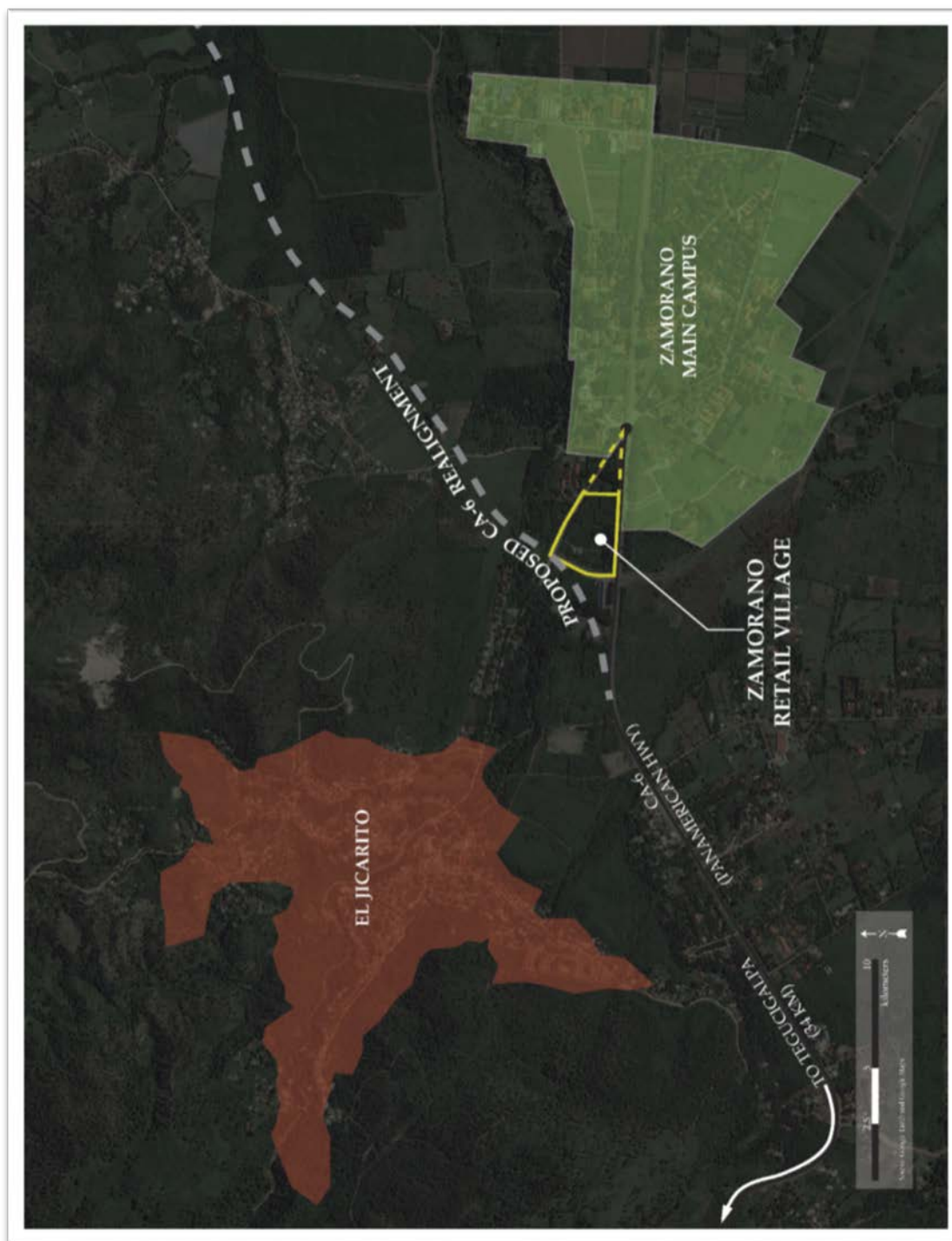


Figure 3-4 Map showing the proposed realignment of the Pan-American Highway (CA-6) in relation to El Jicarito village, the Retail Village, and Zamorano's main campus. (Google Earth and Google Maps 2016)

## **CHAPTER 4**

### **DESIGN STRATEGIES, CASE STUDIES**

First, this chapter details the design research, describing the concepts of architectural form and order. Then, the plaza as an organizer of town activities, both in Latin America and traditional American towns, is described. Next, the chapter details mixed-use development and its benefits and challenges for a community's well-being, access to resources, safety, etc. Finally, profiles of the case studies are highlighted.

#### **Design Research**

In considering the conceptual site plan and design of the Zamorano Retail Village, either a linear form or clustered form can provide the Retail Village with an organized site layout for building massing and circulation (Ching 2007).

One option for building massing and site layout is use of linear form. A linear form can result from the arrangement of a series of discrete forms along a line. The series of forms may be either repetitive or dissimilar in nature and organized by a separate and distinct element such as a wall or path. A linear

form can front on or define an edge of an exterior space, or define a plane of entry into the spaces behind it. A linear form can be manipulated to enclose a portion of space. It can also be oriented vertically as a tower element to establish or denote a point in space.

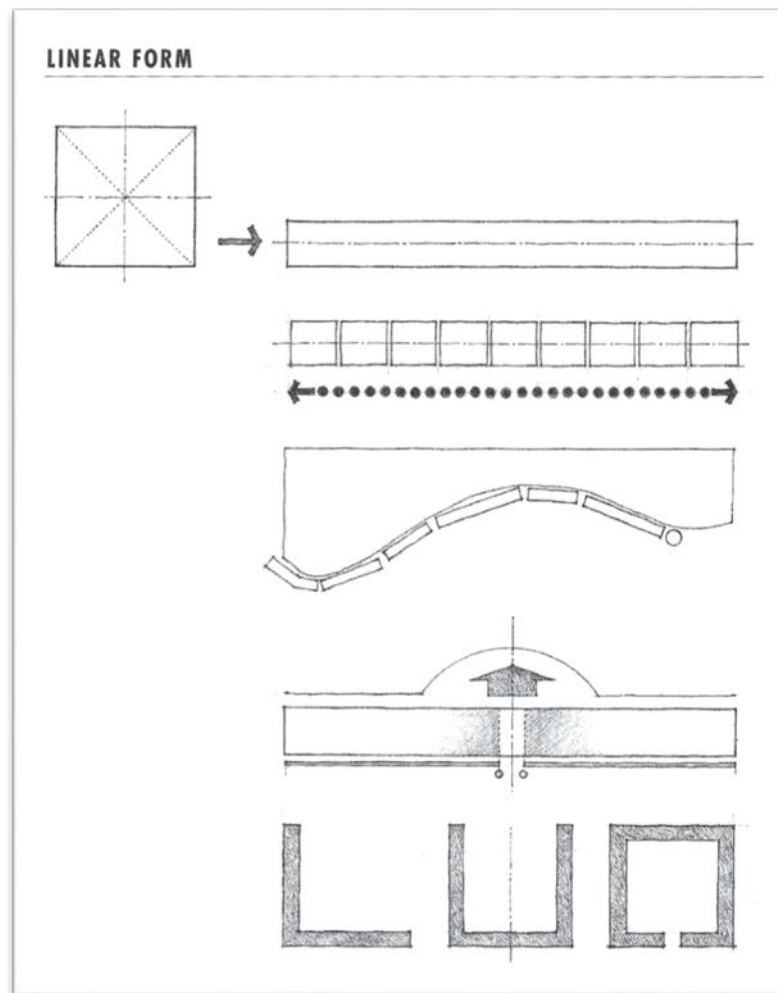


Figure 4-1 Schematic drawings of linear form in architecture. (Ching 2007)

Another design arrangement is a clustered form. A clustered organization groups its forms according to functional requirements of size, shape, or proximity. While it lacks the geometric regularity and introverted nature of

centralized forms, a clustered organization is flexible enough to incorporate forms of various shapes, sizes, and orientations into its structure. Considering their flexibility, clustered organizations of forms may be organized in the following ways: They can be attached as appendages to a larger parent form or space, they can be related by proximity alone to articulate and express their volumes as individual entities, and they can interlock their volumes and merge into a single form having a variety of faces.

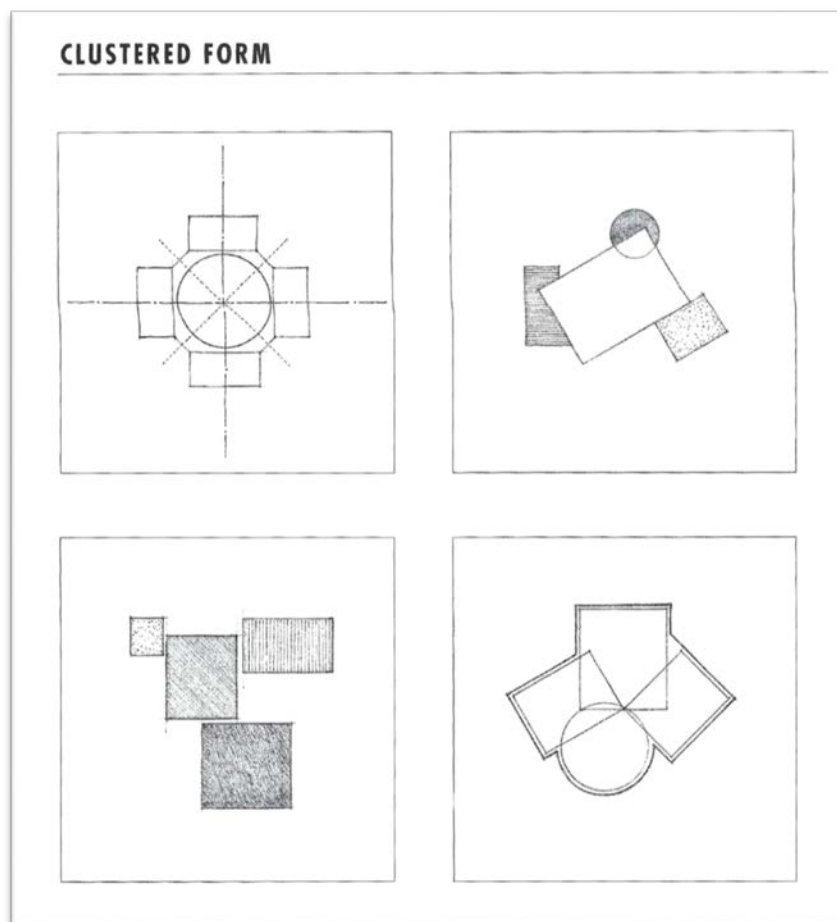


Figure 4-2 Schematic drawings of clustered form in architecture. (Ching 2007)

Human scale is also an important factor in designing a welcoming built environment. Human scale in architecture is based on the dimensions and proportions of the human body. We can gauge a space whose width is such that we can reach out and touch its walls. We can judge its height if we can reach up and touch the ceiling plane overhead (Ching 2007). Once we can no longer do these things, we must rely on visual rather than tactile clues to give us a sense of the scale of a space. For these clues, we can use elements that have human meaning and whose dimensions are related to the dimensions of our posture, pace, reach, or grasp. Such elements as a table or chair, the risers and treads of a stairway, the sill of a window, and the lintel over a doorway, not only help us judge the size of a space but also give it a human scale.

While something that is monumental in scale (say, the Great Wall of China, or Versailles) makes us feel small in comparison, a space that is intimate in scale describes an environment in which we feel comfortable, in control, or important. For instance, intimate settings of tables and lounge chairs in a large hotel lobby tell us something about the expansiveness of the space while also defining comfortable, human-scale areas within it. A window in a blank wall conveys something about the space behind it and also leaves the impression that it is inhabited. A stairway leading up to a second-story balcony or loft can give

us an idea of the vertical dimension of a room as well as suggest a human presence. In addition to human-scale proportions at Zamorano, the institution has made it a priority to design structures needing minimal mechanical air-conditioning and external energy supply. Zamorano has many indoor spaces that allow breezes to pass through, including open-air staircases. The Zamorano Retail Village should be an approachable space with similar proportions to the rest of campus (structures no more than two stories tall, with the exception of the bell tower, and plenty of spaces to gather and enjoy either the sun or shade). The temperate tropical microclimate produced in the Yeguaré Valley allows for outdoor activities most days of the year.

### **Mixed-Use Development**

Mixed-use developments create vibrant urban environments that bring compatible land uses, public amenities, and utilities together at various scales. These developments seek to create pedestrian-friendly environments, higher-density development, and a variety of uses that enable people to live, work, play, and shop in one place, which can become a destination, like the Zamorano Retail Village (Association 2007). In general, mixed-use developments are among the most walkable of spaces (Picó 2006). These developments combine both vertical and horizontal mixes of uses in an area ideally within a 10-minute walking

distance or a .25-mile radius of a core of activities. Mixed-use developments contribute to the creation of places that enliven urban districts while meeting the everyday needs of the community. They offer many advantages over single-use districts in fostering better urban environments, some of which are the following (Association 2007):

- Vitality
  - Place making has been one of the greatest achievements of mixed-use development. By revitalizing and diversifying urban areas such as downtowns, waterfronts, transit nodes, and infill sites, these developments become community destinations.
- Sustainability
  - Mixing uses and allowing for higher development intensities creates more efficient and less consumptive buildings and spaces, which can be less of a burden on the environment.
- Sense of Community
  - Mixed-use developments cater to a diversity of people and uses in one place, thus providing opportunities for community interaction.
- Convenient Access
  - The proximity of diverse uses makes it possible to reduce vehicle trips and encourage transit ridership. Mixed-use developments can support higher transit use and may be a catalyst for siting transit facilities in the area.
- Pedestrian-Friendly Environment
  - Mixed-use developments provide more opportunities for convenient and safe pedestrian access.
- Sharing of Utilities and Amenities
  - Mixed-use development can result in more efficient use of land and infrastructure. For example, retail uses can share parking facilities with residential uses, because their peak hours for parking do not substantially overlap; thus, the cumulative parking requirement could be appreciably reduced. Similarly, stormwater facilities, sewer, and common area maintenance can be shared among various uses.
- (1) Longer hours of active street life and (2) Safety/Security

- Mixing residential, commercial, and professional activities within a compact area ensures activity throughout the day and evening, creating a sense of safety. For example, the presence of people living in apartments above stores helps reduce the potential for vandalism during off-hours, because, for all intents and purposes, there are no off-hours.
- Employed security officers will be supplemented by the “eyes on the street,” the residents of the village themselves. Zamorano’s first planned mixed-use area will be secure 24/7.

Mixed-use development often involves both private and public sectors, and thus benefits from the efforts of the partnership. The two sectors generally have a few differing objectives, however. The private developer generally has financial gains to pursue, whereas the public sector is concerned with social gains for the community at large. Sharing the risk between the public and private sectors can also be beneficial; accomplishing the success of one can lead to the financial success of the other. For instance, in the case of Zamorano’s Retail Village, there could be a land-lease agreement between Zamorano and a private developer. The result of such an agreement will be the Retail Village, which will become a social and commercial space for the surrounding communities and also an opportunity for the private developer’s financial gain. The potential for a private-public partnership in developing Zamorano Retail Village can be analyzed when the process is nearer implementation.

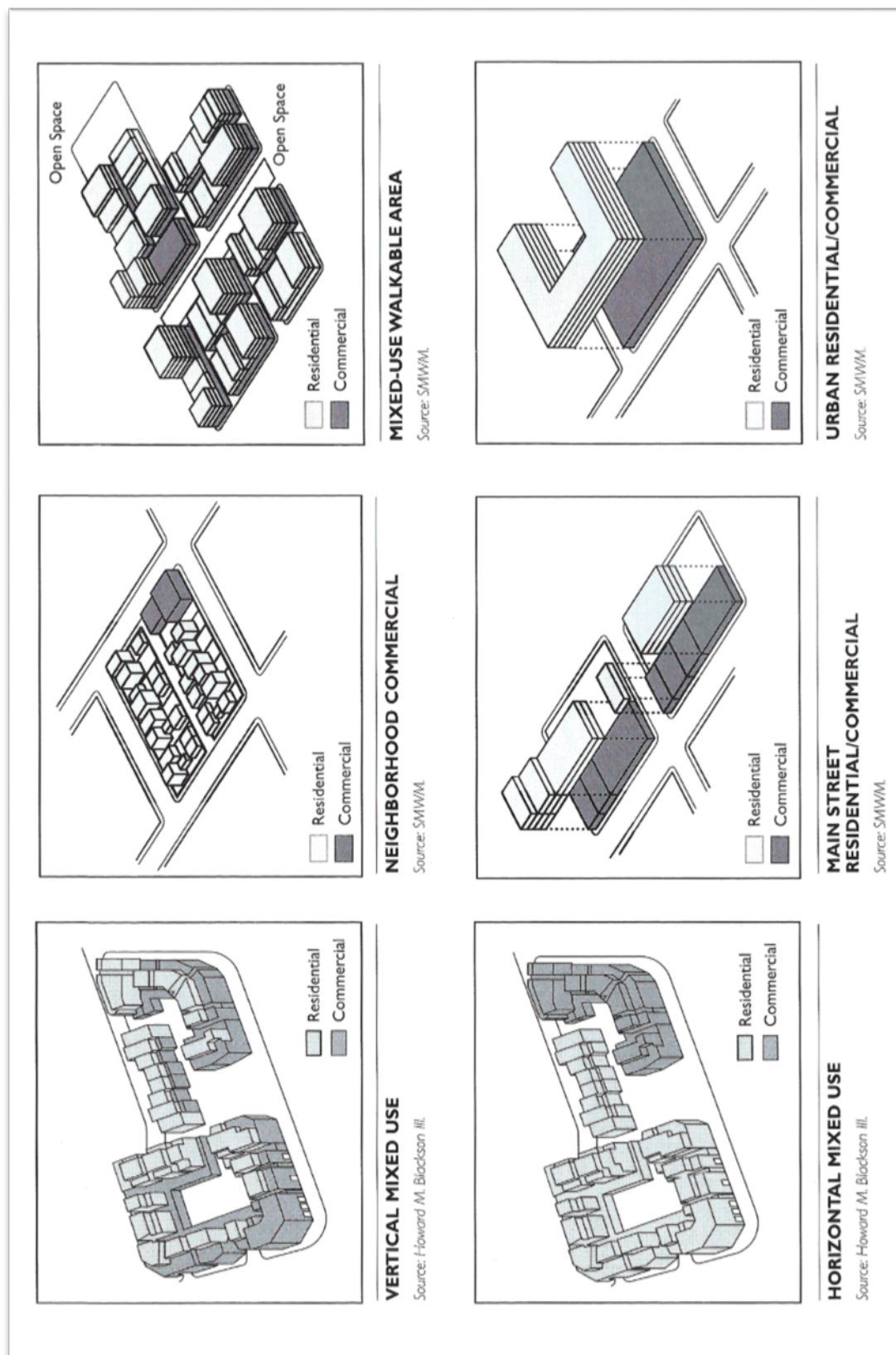


Figure 4-3 Various mixed-use massing templates for design. (Association 2007)

Zoning ordinances for mixed-use development may not be as much an issue in semi-rural Latin America as they are in United States' mixed-use development since much of the conventional development in Latin American areas is multi-use or mixed-use already (Cantú 2008). However, this is still an issue to consider for the success of the Retail Village. A kind of planned unit development (PUD) district or an overlay district could be proposed as a catalyst for the development of Zamorano's Retail Village.

In terms of financing mixed-use development, private sector investment and subsidies for mixed-use development can be more complicated and more difficult to obtain than conventional development because mixed-use projects are not as commonly pursued; therefore, there may be fewer established programs for them. Heavier up-front costs often further deter financing institutions from lending money for mixed-use developments. However, this has not been the case in the last decade for Latin America; there are many ambitious mixed-use projects that have become successful (Pico 2006). Developers of mixed-use projects often must be creative in assembling the necessary financing. A partnership with a public agency may make public funding sources available to increase project feasibility or offer support in the early stages.

The diversity of uses can make the project's approval process more complex, as it involves representatives from numerous agencies and departments. Community and stakeholder collaboration and approval are vital in the planning and execution of any large-scale project. These concerns should not be issues in the case of Zamorano's Retail Village, however; the land is theoretically ready for development as Zamorano sees fit because it is their land. And Zamorano has a favorable relationship with the region's leaders, particularly the leaders in San Antonio de Oriente and El Jicarito. Mixed-use developments require collaboration across numerous professions to obtain the optimal mix of uses for a successful project within a community's economic, social, and political requirements. All parties involved—landowner, public sector, and developer—should understand each other's objectives from the beginning of the process and program to achieve maximum benefits.

### **Plaza as Organizer**

Historically in Latin American towns, the plaza of each center of administration held three closely related institutions: the church, the administrative center, which might be incorporated in a wing of a governor's palace, and the audiencia, or law court (Morris 1994). This was brought over from Spain during colonialism. The plaza might be large enough to

serve as a military parade ground. At times of crisis or celebration, it was the space where the community would gather as a large crowd. The plaza as an organizing community space is still prevalent; in smaller areas, like the proposed Zamorano Retail Village, it is an organizing space of commercial and social activity. Like the Italian piazza, the plaza remains a center of community life that is equaled only by the marketplace (Mendez 2005). In carrying on an “organizing tradition” at Zamorano Retail Village plaza, the inclusion of a community grocery store with an optional attached café or restaurant will make the Retail Village plaza all the more inviting to people near and far.

### **Case Studies**

The following six case studies provide design concepts of mixed-use village centers with their focal points at a plaza or town square. Four case studies are Honduran villages located within the regional context of Zamorano University. Two case studies are villages in the United States of America that were planned communities adjacent to schools.

## Honduras

### Güinope

Güinope is a municipality in the Honduran department of El Paraíso, Honduras, founded in 1747. It encompasses ten villages, including the main village of Güinope. Since 1981 it has celebrated the annual "Festival of Oranges." According to a 2015 estimate, the municipality of Güinope had 8,794 inhabitants. The Güinope district covers an area of 0.66 square miles (1.7 km<sup>2</sup>) (Google Maps and Google Earth 2015).

#### Güinope Plaza:

Elevation: 4,296 feet (1,309 meters) above sea level

Area: 0.66 acres (0.27 hectares)



Figure 4-4 Güinope, El Paraíso, Honduras, district boundary.  
(Google Earth and Google Maps 2016)

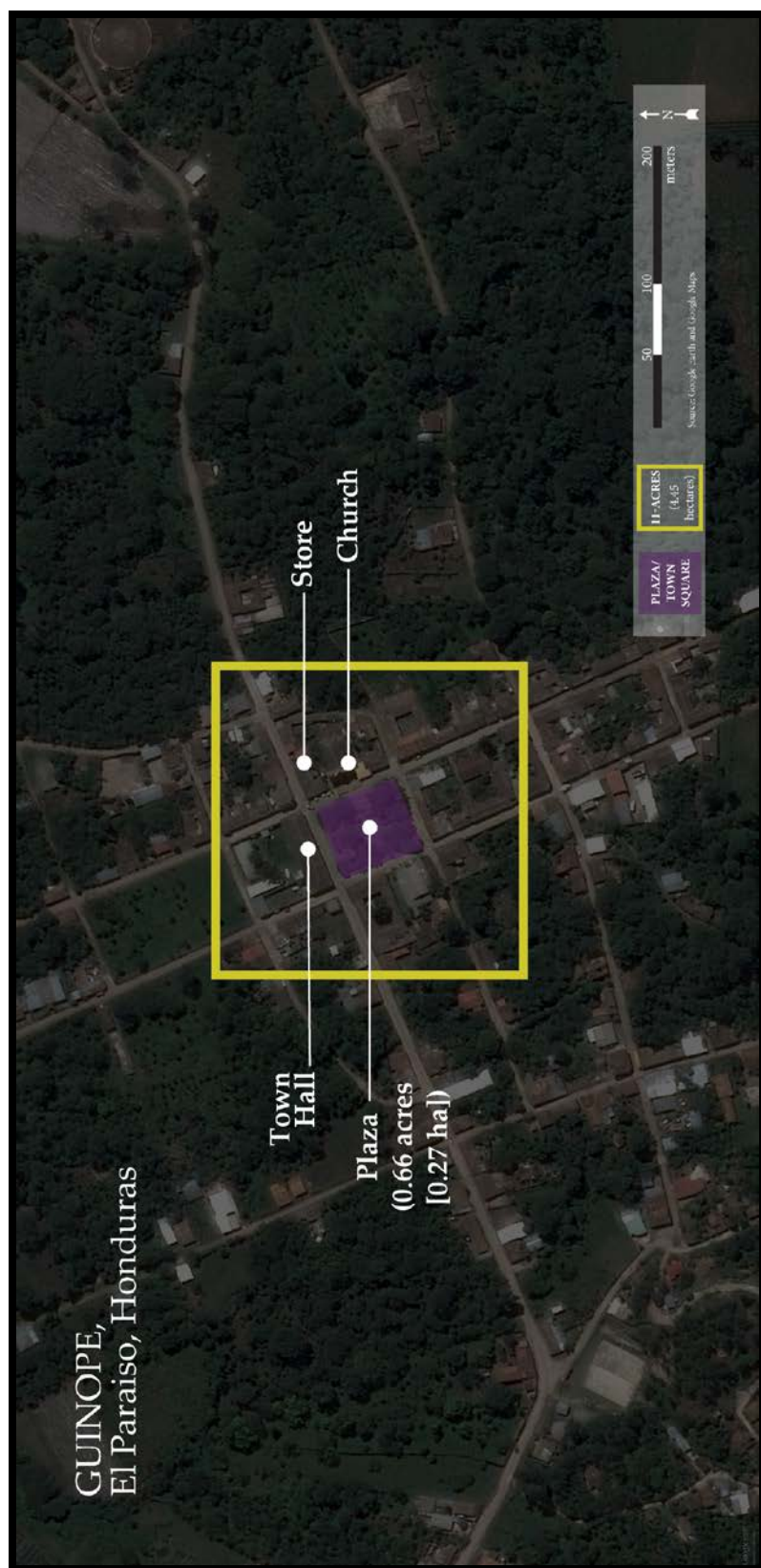


Figure 4-5 Güinope, El Paraíso, Honduras, plaza inventory of 11-acre yellow study area.  
(Google Earth and Google Maps 2016)

## Maraita

Maraita is a municipality in the Honduran department of Francisco Morazán. According to a 2015 estimate, the municipality of Maraita had 6,809 inhabitants. The small district of Maraita covers an area of approximately 0.15 square miles (0.39 km<sup>2</sup>) (Google Maps 2015).

### Maraita Plaza:

Elevation: 3,191 feet (973 meters) above sea level

Area: 0.9 acres (0.36 hectares)



Figure 4-6 Maraita, Francisco Morazán, Honduras, district boundary.  
(Google Earth and Google Maps 2016)



Figure 4-7 Maraita, Francisco Morazán, Honduras, plaza inventory of 11-acre yellow study area.  
(Google Earth and Google Maps 2016)

## Tatumbla

Tatumbla is a municipality near the Honduran capital, Tegucigalpa, in the department of Francisco Morazán. According to a 2015 estimate, the municipality of Tatumbla had 7,587 inhabitants. The large Tatumbla district covers an area of 31 square miles (81 km<sup>2</sup>) (Google Maps and Google Earth 2015).

### Tatumbla Plaza:

Elevation: 4,720 feet (1,439 meters) above sea level

Area: 0.25 acres (0.1 hectares)



Figure 4-8 Tatumbla, Francisco Morazán, Honduras, district boundary.  
(Google Earth and Google Maps 2016)

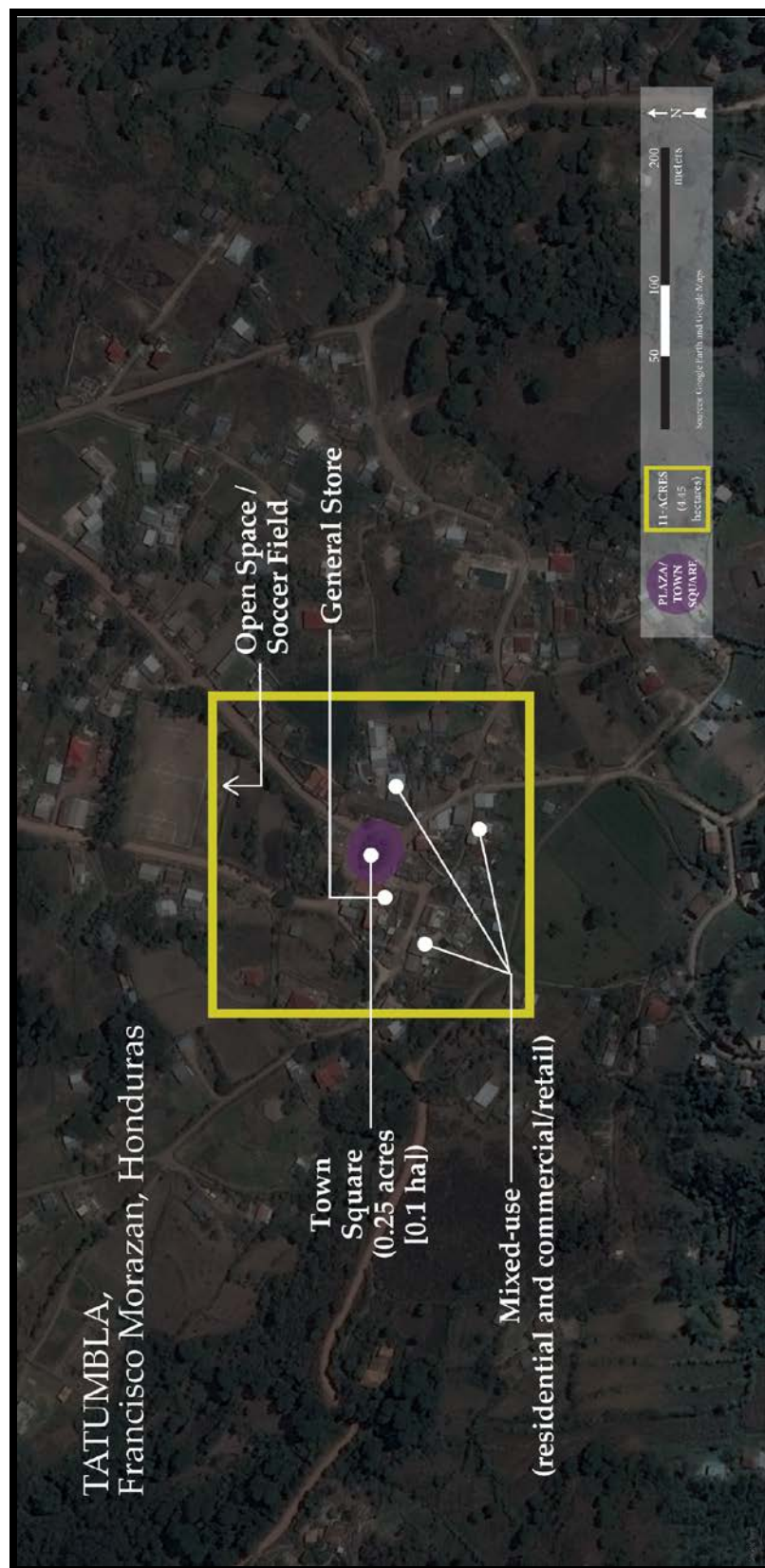


Figure 4-9 Tatumbla, Francisco Morazán, Honduras, plaza inventory of 11-acre yellow study area.  
(Google Earth and Google Maps 2016)

## Yuscarán

Yuscarán is a municipality in the department of El Paraíso, Honduras. Founded in 1730 and flooded by Spanish mining companies, Yuscarán was constructed in the traditional Spanish colonial style. To preserve this architecture, Yuscarán was declared a Honduran National Monument in 1979; there are more than 200 colonial homes. It was one of the first places in Honduras to get electricity in 1898—even before Tegucigalpa—and because of its importance, it was declared the capital of the department of El Paraíso in 1869. However, after mining ceased, most residents abandoned the town, taking their money and possessions with them. With the decline of the mining industry, Yuscarán started the fabrication business of aguardiente, or schnapps. The Yuscarán factory, also called the Destilería del Buen Gusto, the Distillery of Good Taste, was founded in 1939 (Google Maps 2015). According to a 2015 estimate, the municipality of Yuscarán had 14,682 inhabitants. It covers an area of 134.7 square miles (349 km<sup>2</sup>) (Google Maps and Google Earth 2015).

### Yuscarán Plaza:

Elevation: 3,148 feet (960 meters) above sea level

Area: 0.32 acres (0.13 hectares)

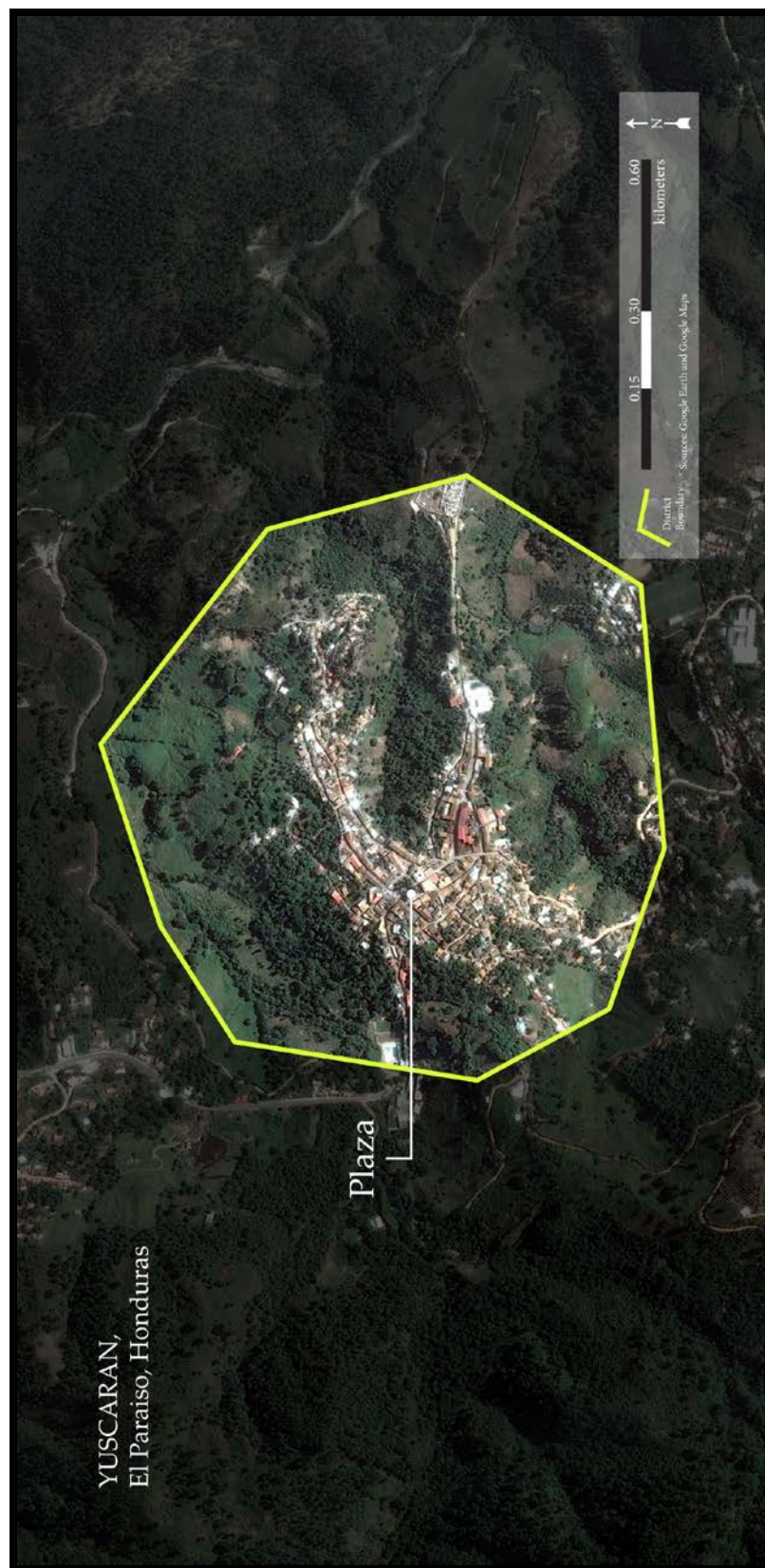


Figure 4-10 Yuscarán, El Paraíso, Honduras, district boundary.  
(Google Earth and Google Maps 2016)

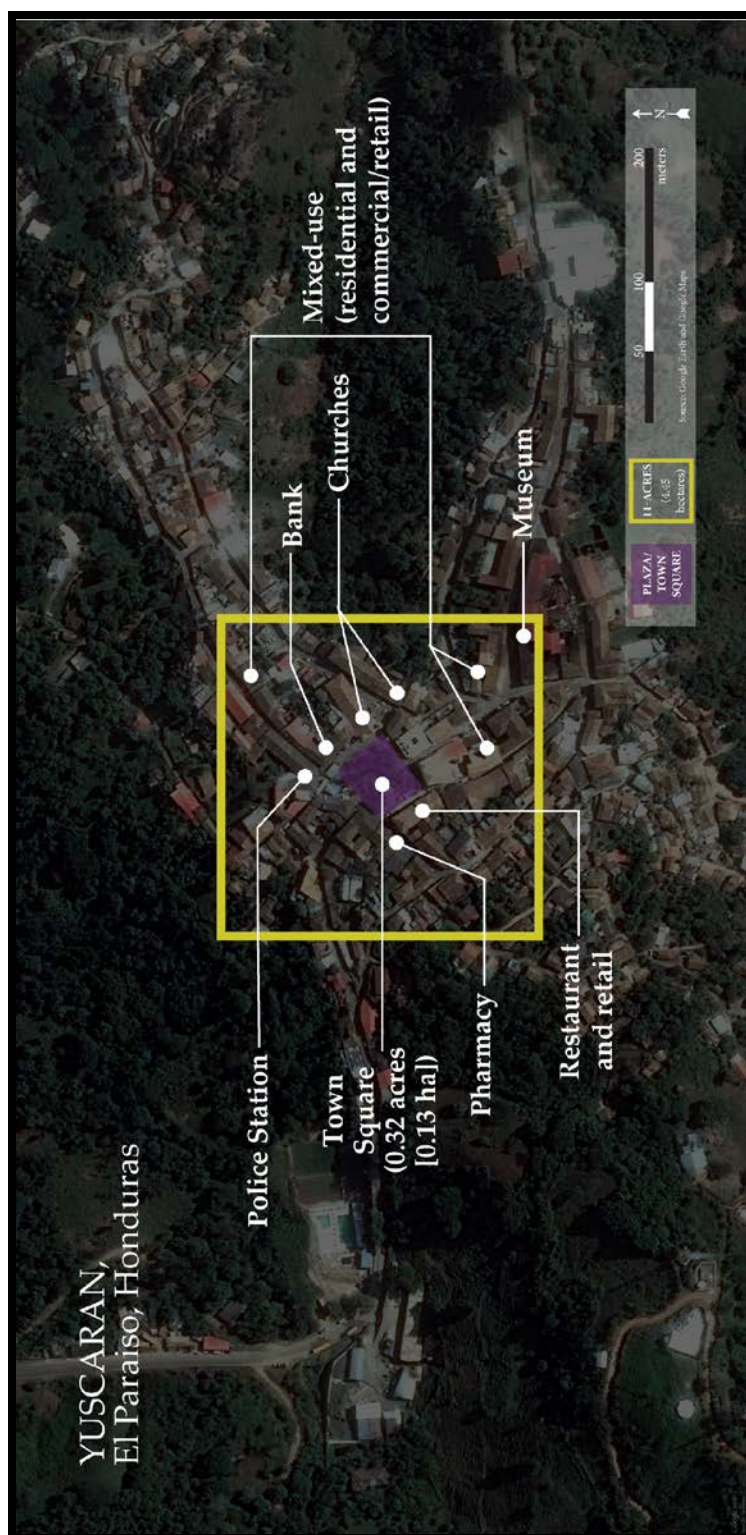


Figure 4-11 Yuscarán, El Paraíso, Honduras, plaza inventory of 11-acre yellow study area.  
(Google Earth and Google Maps 2016)

## United States of America

The American “town square” is an open public space commonly found in the heart of a traditional town used for community gatherings. A town square typically consists of a park or plaza in front of the original county courthouse or town hall. In some cities, especially in New England, the term “square” is applied to a large commercial space, usually formed around the intersection of three or more streets (Elabd and Hallowell 2014).

## San Elijo Hills, California

San Elijo Hills is a master-planned community in San Marcos, California. It was planned in the mid-1990s, built by San Elijo Hills Development Company, and is managed by HomeFed Corporation, a large savings and loan company. This town was designed to give its residents the four essential elements of a strong, nurturing community: a vibrant town center—including a major grocery store, shops, eateries and convenient services; ample parks and trails; award-winning schools; and an ideal community lifestyle incorporating activities and traditional events that foster a close-knit, small-town environment.

San Elijo covers an area of approximately 0.38 square miles (0.98 km<sup>2</sup>) and is home to two of the largest schools in San Marcos Unified School District (Google Maps 2015).

San Elijo Hills Town Center:

Elevation: 634 feet (193 meters) above sea level

Area: 1.58 acres (0.64 hectares)



Figure 4-12 San Elijo Hills, California, U.S.A., aerial design rendering of village center.  
(San Elijo Hills Development Company 2000)

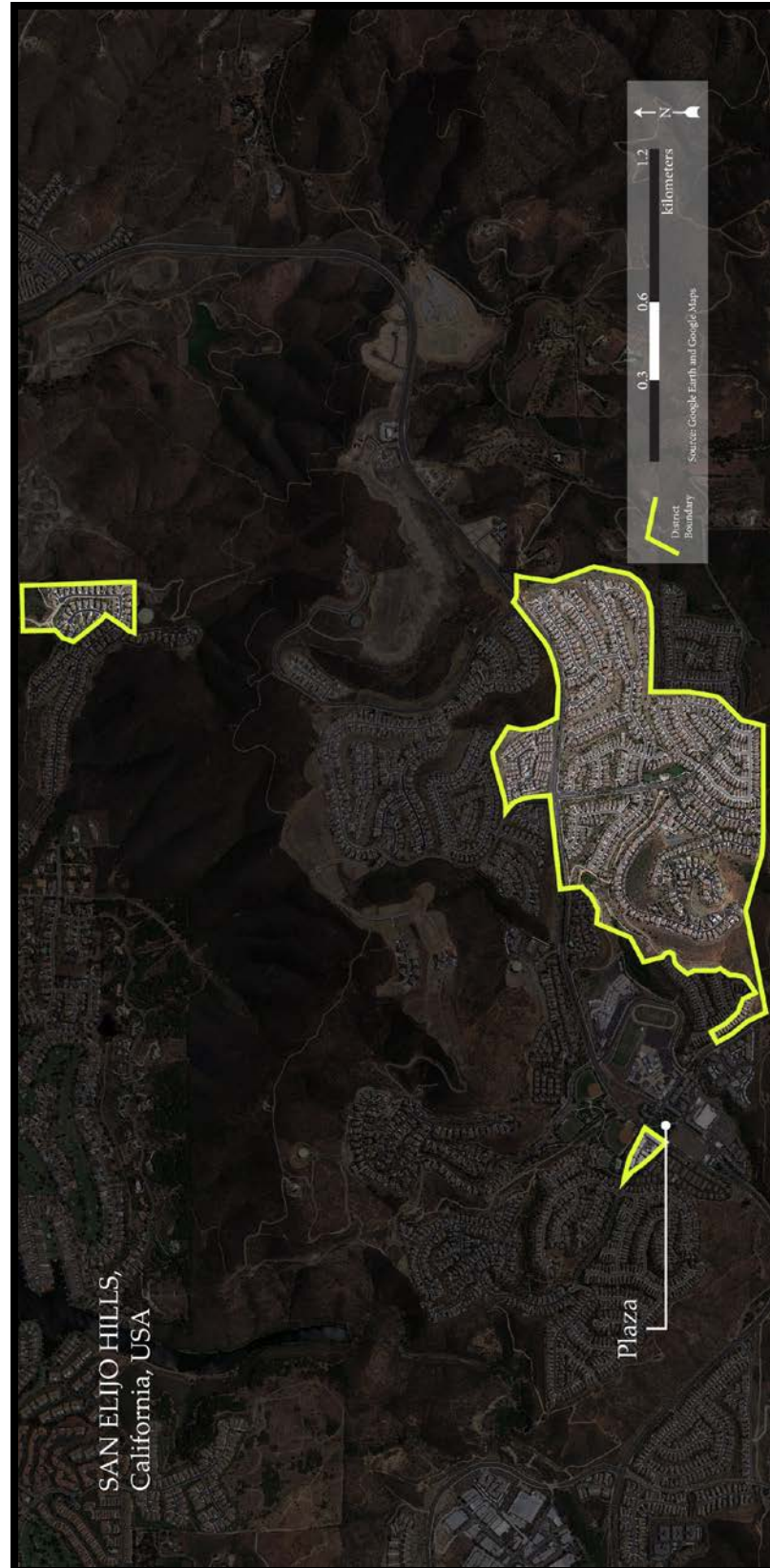


Figure 4-23 San Elijo Hills, California, U.S.A., village boundary.  
(Google Earth and Google Maps 2016)

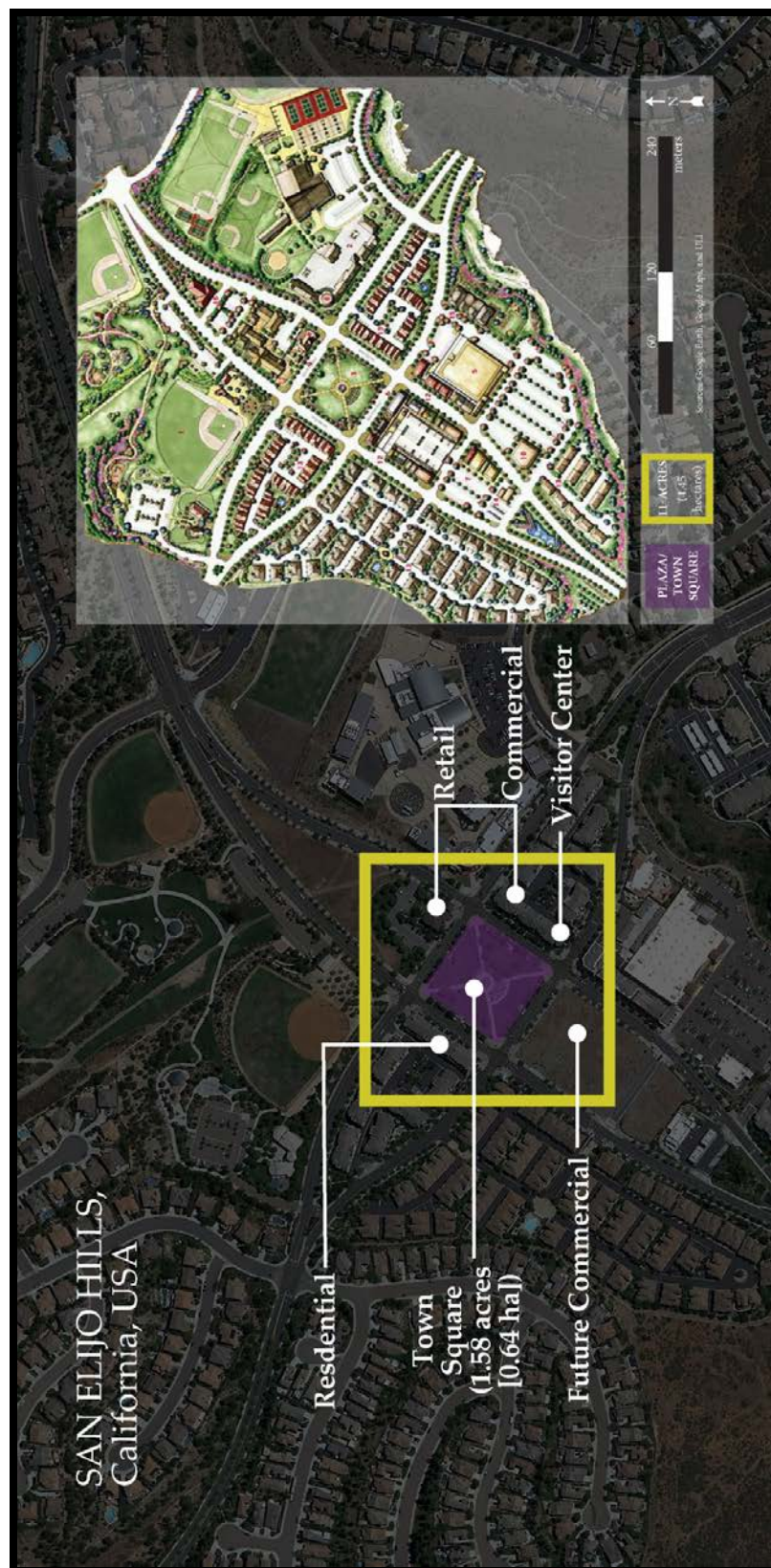


Figure 4-14 San Elijo Hills, California, town square inventory of 11-acre yellow study area.  
(Google Earth and Google Maps 2016)

## Storrs, Connecticut

Storrs is a village and census-designated place (CDP) in the town of Mansfield within eastern Tolland County, Connecticut, United States. The population was 10,996 at the 2000 census. It is dominated economically and demographically by the presence of the main campus of the University of Connecticut and the associated Connecticut Repertory Theatre.

It was named after Charles and Augustus Storrs, two brothers who founded the University of Connecticut (originally called the Storrs Agricultural College) by giving the land (170 acres [0.69 km<sup>2</sup>]) and \$5,000 in 1871 (Google Maps 2015).

Storrs Town Center:

Elevation: 623 feet (190 meters) above sea level

Area: 0.4 acres (0.16 hectares)

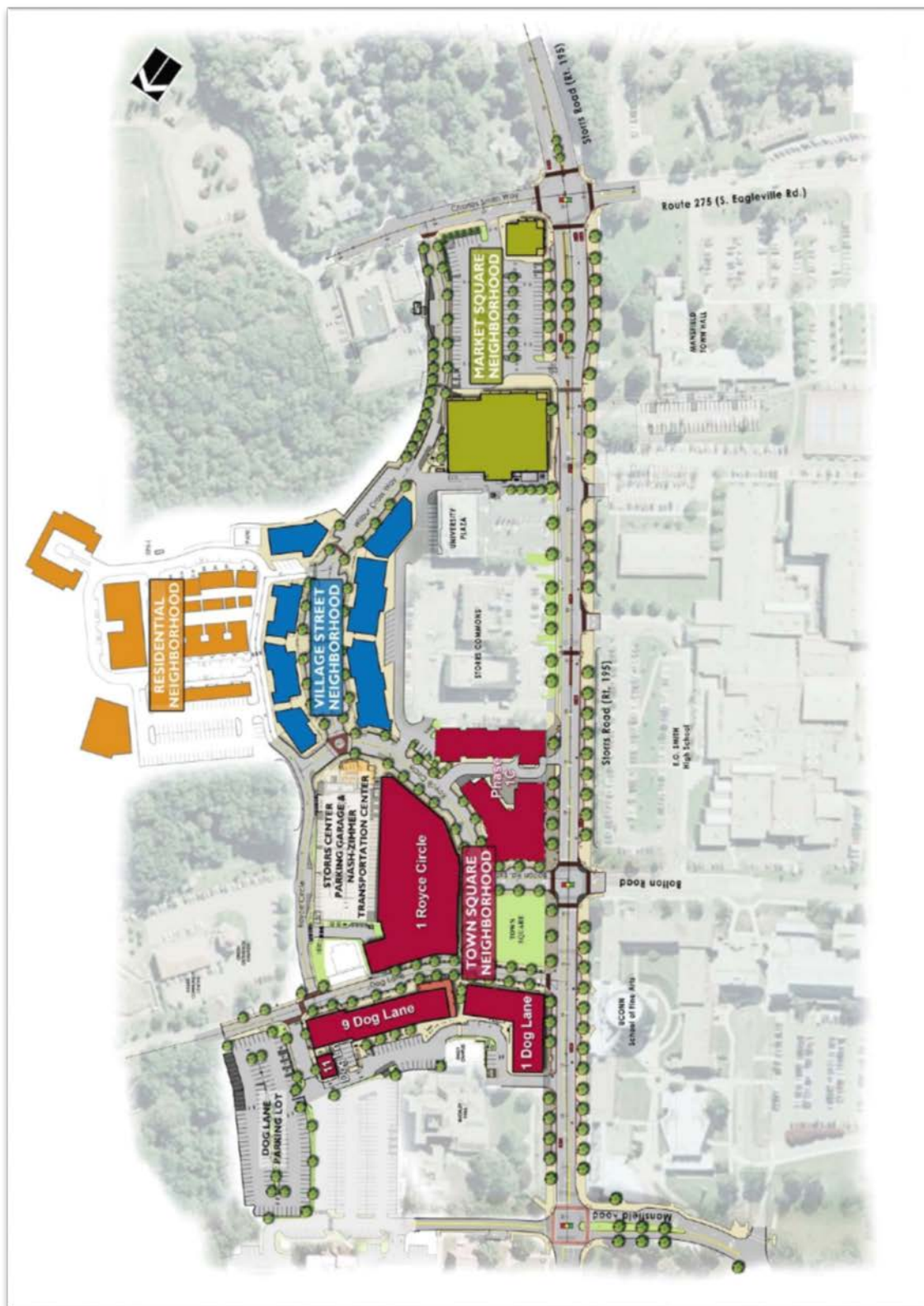


Figure 4-15 Storrs, Connecticut, U.S.A., aerial design rendering of village center.  
(Storrs Center Development Company 2012)

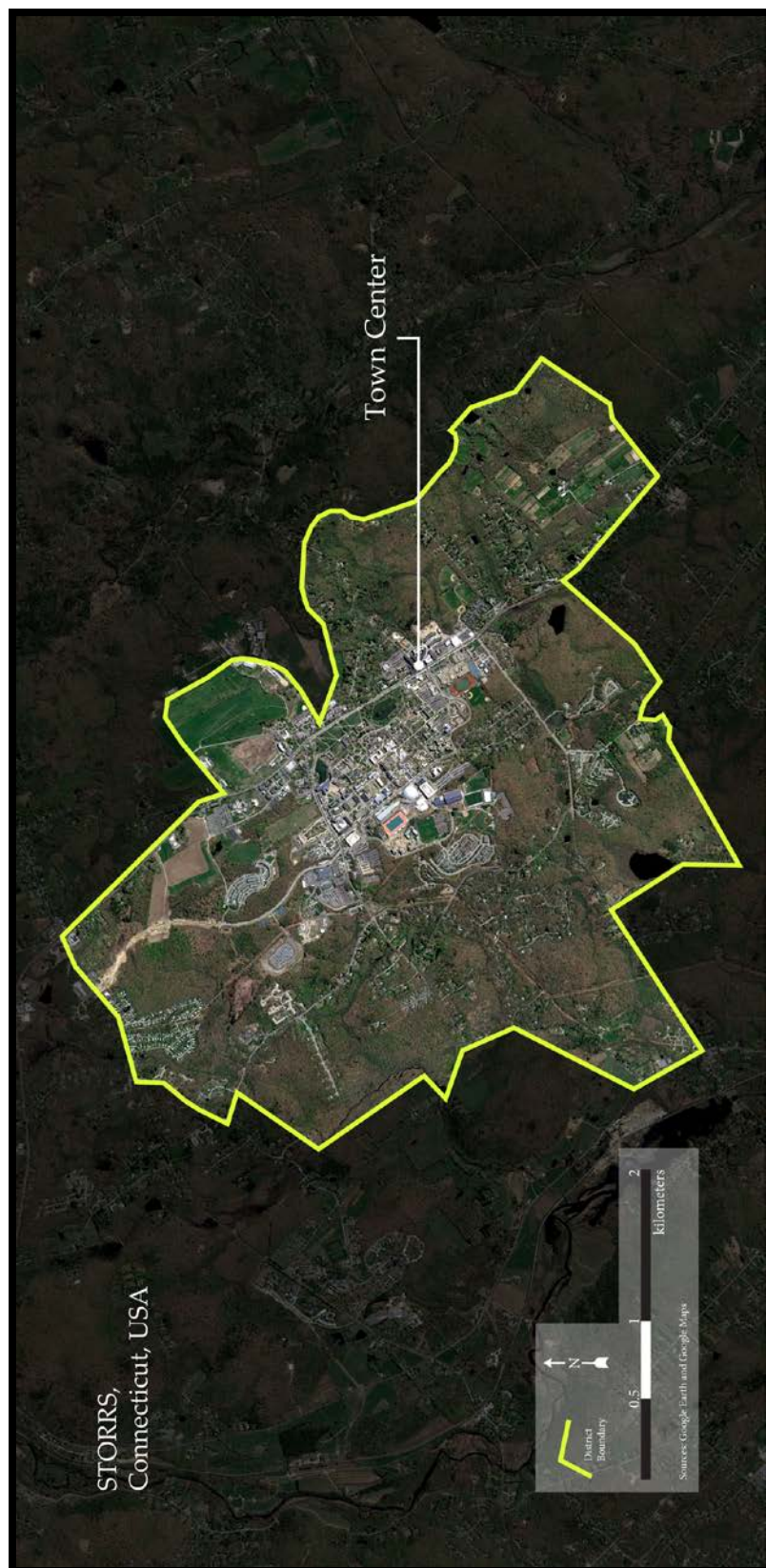


Figure 4-16 Storrs, Connecticut, U.S.A., village boundary.  
(Google Earth and Google Maps 2016)

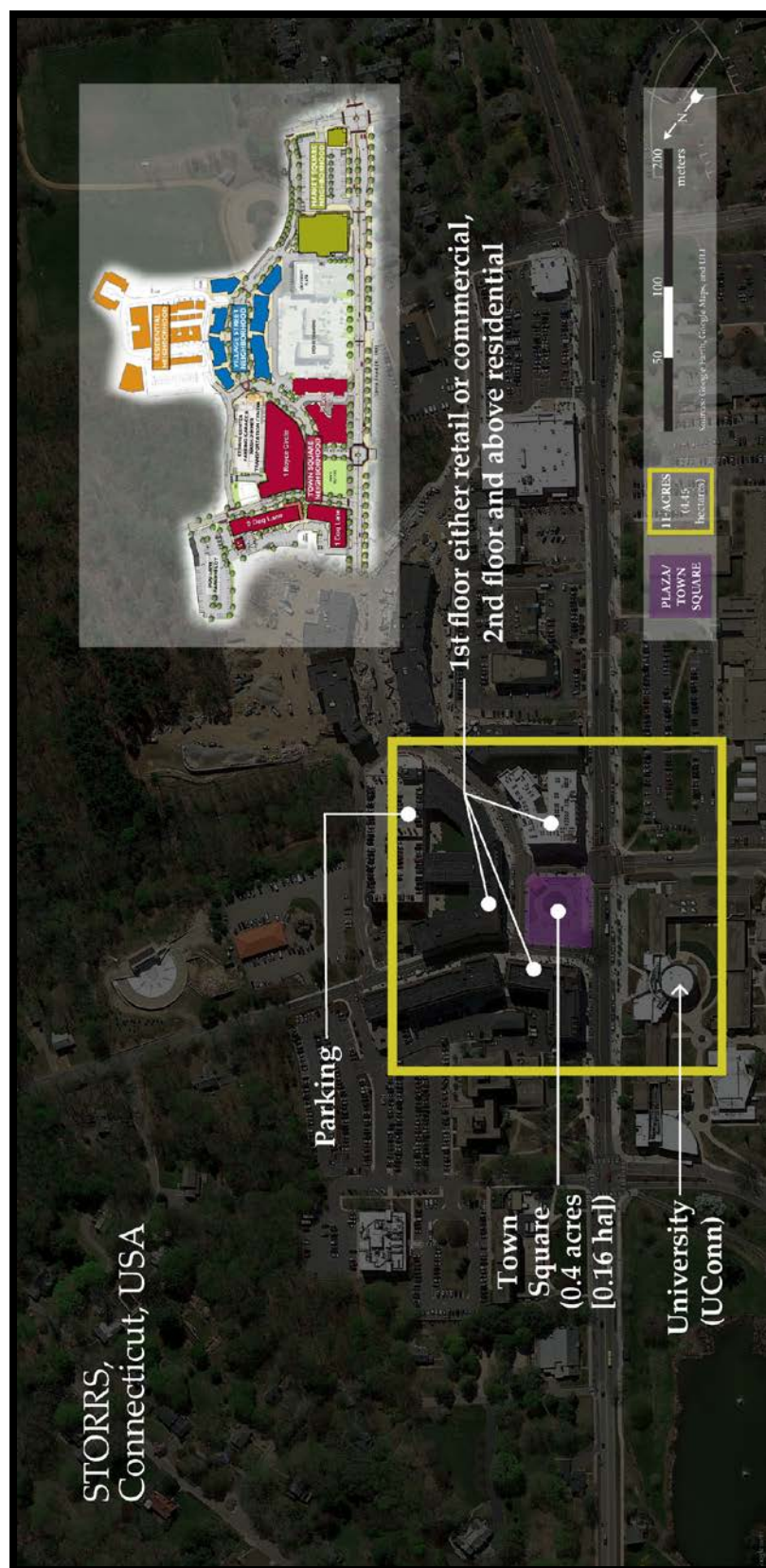


Figure 4-17 Storrs, Connecticut, town square inventory of 11-acre yellow study area.  
(Google Earth and Google Maps 2016)

CASE STUDY INVENTORY						
Case Study	Güinope	Maraita	Tatumbula	Yuscarán	San Elijo Hills	Storrs Center
District/ Town	Güinope	Maraita	Tatumbula	Yuscarán	San Marcos	Mansfield
Department / State	El Paraiso	Francisco Morazán	Francisco Morazán	El Paraiso	California	Connecticut
Country	Honduras	Honduras	Honduras	Honduras	USA	USA
Elevation	1,309	973	1,439	960	193	190
Inhabitants	8,794	6,809	7,587	14,682	--	10,996
Village Area (km2)	1.7 (town center)	0.39 (town center)	81	349	0.98 (town center)	0.69 (town center)
Plaza/Town Square Area (hectares)	0.27	0.36	0.1	0.13	0.64	0.16
Plaza Context						
Town	x	x	x	x		
Church(es)	x	x		x		
Store(s)	x	x	x	x	x	x
Pavilion	x	x		x	x	x
Open	x	x	x		x	
Restaurant(s)	x	x	x	x	x	x
Mixed-Use Living (mixed retail/ commercial and residential)	x	x	x	x	x	x
Museum				x		x
Visitor Center					x	
Parking Spaces	x	x			x	x
School						x

Table 4-1 Case Study Inventory. (Matthew Nahrstedt 2016)

## CHAPTER 5

### OPTIONS FOR ZAMORANO RETAIL VILLAGE

Two options for the Zamorano Retail Village can provide structures for the required amenities to be relocated—bank, bookstore, grocery store, restaurant, and informal gathering space—as well as a plaza. The plaza serves as either a public amenity or public-private amenity, depending on the location of the plaza itself and building massing surrounding the plaza.

The first option proposes the plaza in a completely public location immediately across the street from the bus station. The bus station houses the bus terminal, parking, small retail stands, and public restrooms. The plaza in this scenario centers around a linear form of buildingsd that house retail and commercial stores. To the east and north of the plaza is ample open space that provides recreational fields and walking paths and gardens lined by palm trees. This open space serves as a buffer between the retail and residential areas. On the eastern edges of Zamorano Retail Village stand a hostel and residential buildings. Graduate students and upperclassmen live in the apartments and a

nearby building facing the open space contains the hostel, with outdoor space for a café or bar.

The second option features the plaza as a more communal public-private space located in the center of Zamorano Retail Village. Looking east from the bus station the open space is visible across the street with slightly winding pathways to the nearby bank on the western edge of the plaza. Information services and security are held in a kiosk on one side of the plaza. This security may have two stations on Zamorano Retail Village to buffer the university campus security until the Pan-American Highway (CA-6) is realigned and the existing thoroughfare cutting through campus is closed to thru traffic. To promote safety during the transition of the Pan-American Highway, enhanced security within Zamorano Retail Village will promote smart and safe growth of the village with the central plaza serving as the hub of activity. Linear forms surrounding the plaza will form barriers to the outside and the associated building uses will be protected destinations for visitors. The residential building forms are clustered on the east side of the village. Bike paths, pedestrian walkways, and minimal thru-streets and parking lots wind from the edge of Zamorano's central campus to the bus station on the other side.



Figure 5-1 Option 1 for Zamorano Retail Village. Plaza on bus station side, a more “public” plaza immediately visible from the bus stop. (Matthew Nahrstedt 2016)

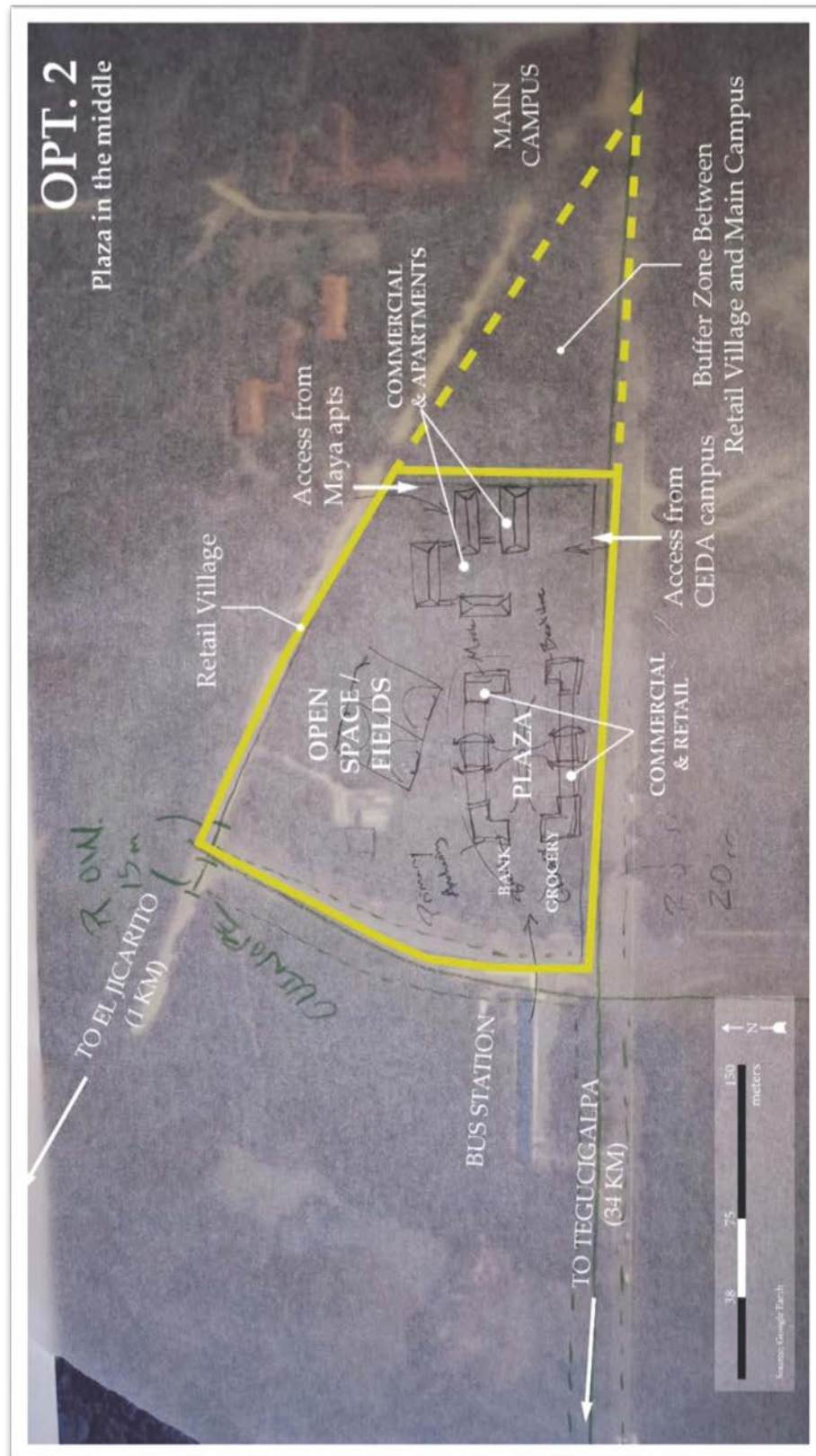


Figure 5-2 Option 2 for Zamorano Retail Village. Plaza tucked back, a more “private” approach. The plaza will be more of a destination between Zamorano and the bus station. (Matthew Nahrstedt 2016)



Figure 5-3 Images of access to site looking west. Top image shows existing conditions. Bottom image displays the transition from public to private spaces with existing roads in black, road closures in gray, and the proposed Pan-American realignment in dotted line. (Google Earth and Matthew Nahrstedt 2016)

## CHAPTER 6

### FINAL APPLICATION



The design of the Zamorano Retail Village will be a combination of linear and clustered forms of buildings that match the utilitarian form-follows-function aesthetic of the iconic Zamorano campus. The plaza is a staple in Latin American mixed-use sites as an organizer of buildings, open space, and commercial and social activities. Therefore, the plaza is at the center of Zamorano Retail Village, serving as the heart of this new community on the edge of the Zamorano campus. Strategic placement of parking and security provide safe access for those enjoying the retail village and secure protection from the outside, particularly the Pan-American Highway.

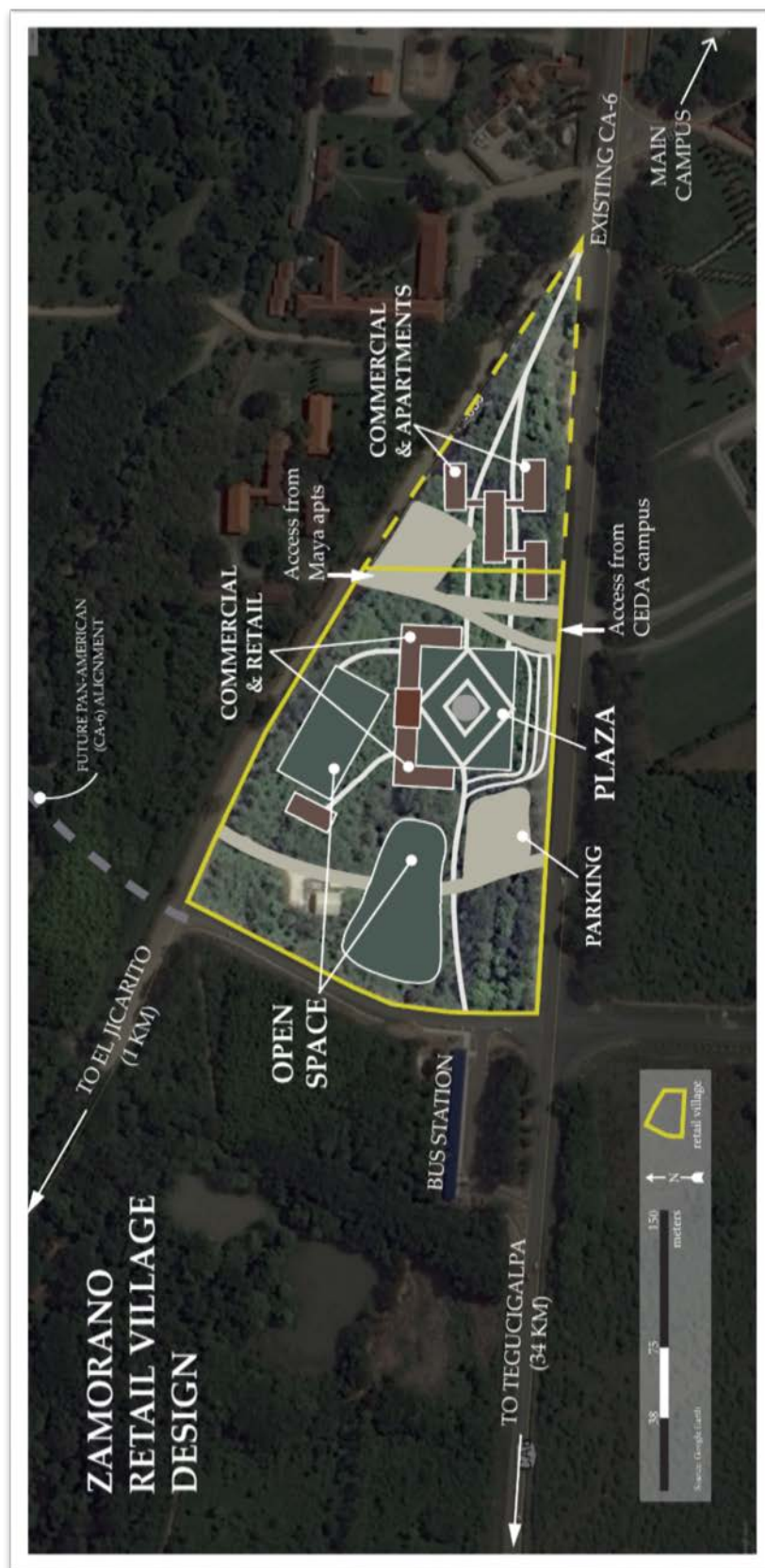


Figure 6-1 Aerial rendering of final application for Zamorano Retail Village. (Matthew Nahrstedt 2016)

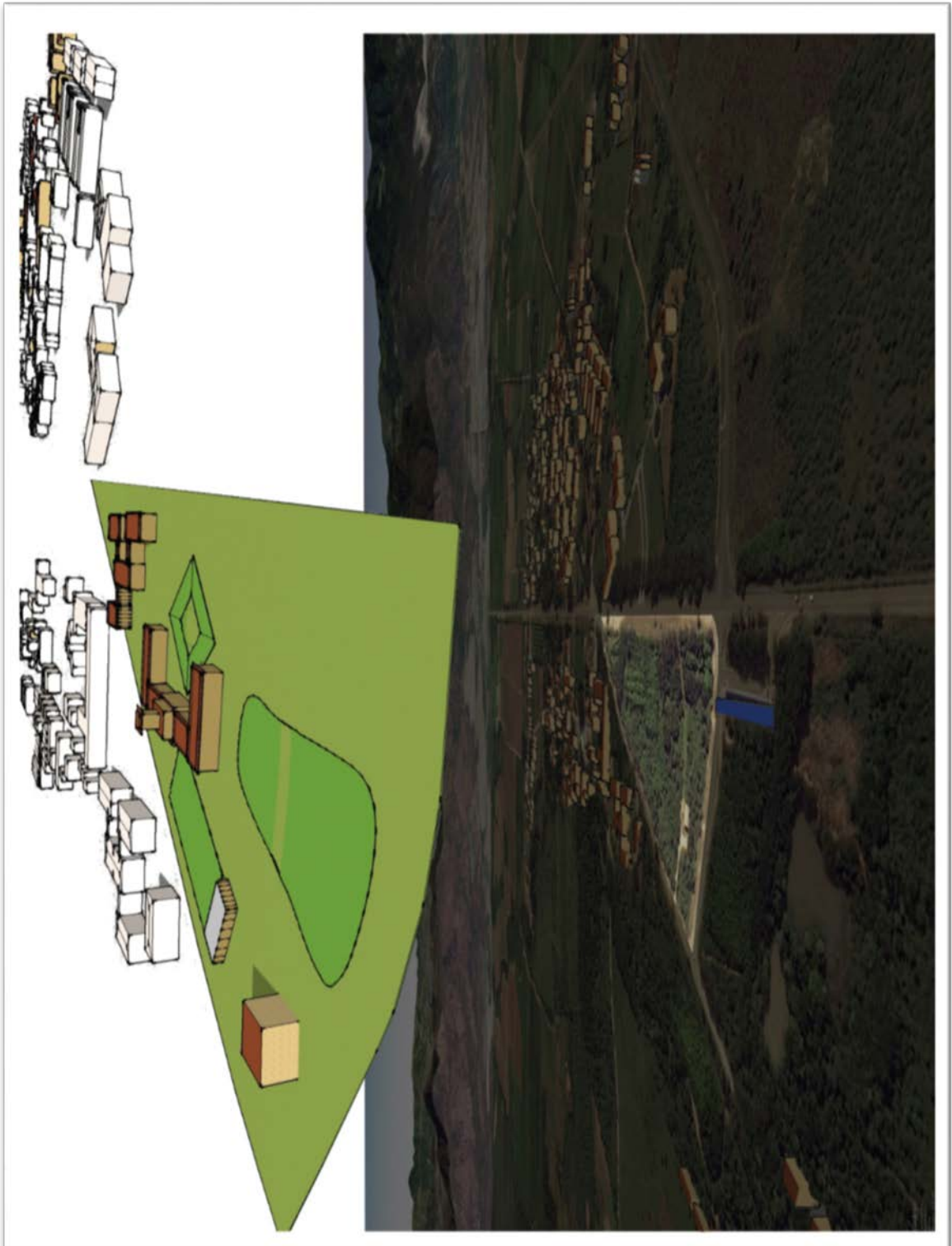


Figure 6-2 Bird's eye SketchUp rendering of final application for Zamorano Retail Village, looking east.  
The final design application is shown hovering above the existing site. (Matthew Nahrstedt 2016)

## CHAPTER 7

### CONCLUSION

A beautiful plaza lies among the clusters of trees and buildings. The buildings are two stories and made of a beautiful sandy-white volcanic rock that is cut in a nearby quarry. The ground floors of these buildings provide stores, shops, and a restaurant, and the upper floors house graduate students and a boutique hotel. Lined by alleys of palm trees and the volcanic rock structures behind, bike paths and pedestrian walkways wind from the bustle of campus on one end to the bus station and road to El Jicarito on the other. Denoting arrival to the village, a bell tower rises above the plaza from the main building. This is the image of Zamorano Retail Village.

Zamorano, an esteemed agricultural school in Honduras offering hands-on education to talented students from across Latin America, has an alluring character, almost a magic in its air. Zamorano Retail Village will be built on an 11-acre (4.45-hectare) plot of land that used to hold a tree plantation. Most likely through a land lease agreement, Zamorano will draw a contract with a developer to bring this land's future to life, hopefully using this thesis as a guide. In

designing the site plan for Zamorano Retail Village, I looked for solutions that will aid and add to Zamorano's integrity and future. How can Zamorano Retail Village increase capacity, while improving quality of life on campus and in Yeguaré Valley, doing so in a way that is part of a sustainable vision for Zamorano? The relocation of several amenities currently at Zamorano's entry gates—a bank, grocery store, and bookstore—to a permanent location in the Retail Village will provide a safe, secure buffer between the Zamorano campus and public lands, like the nearby bus station. The “sense of place” within Zamorano Retail Village will be ignited by the form of the architecture and the lives of its residents and passersby.



*Figure 7-1 Drawing of one of Zamorano's oldest structures, Casa Popenoe. (Matthew Nahrstedt 2016)*

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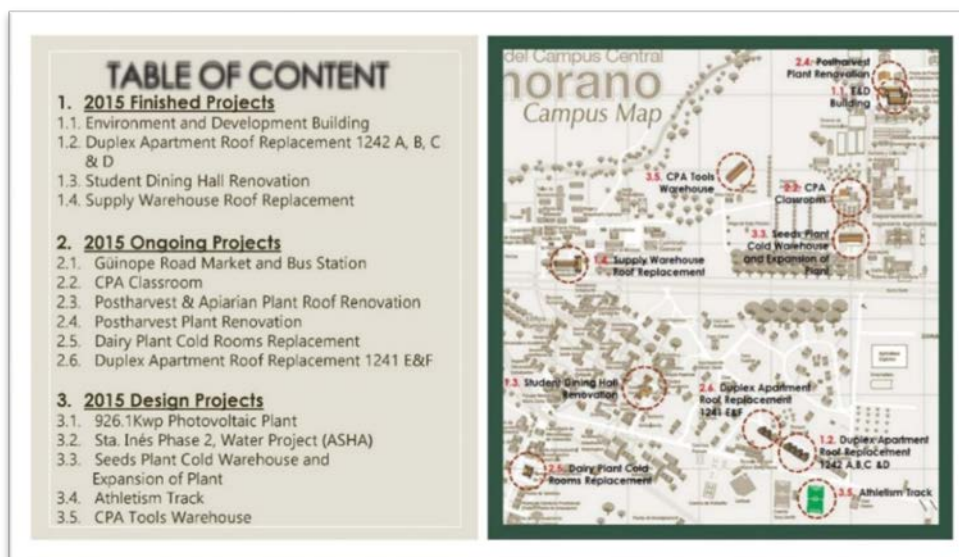
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## APPENDICES

### A: 2015 Zamorano Projects

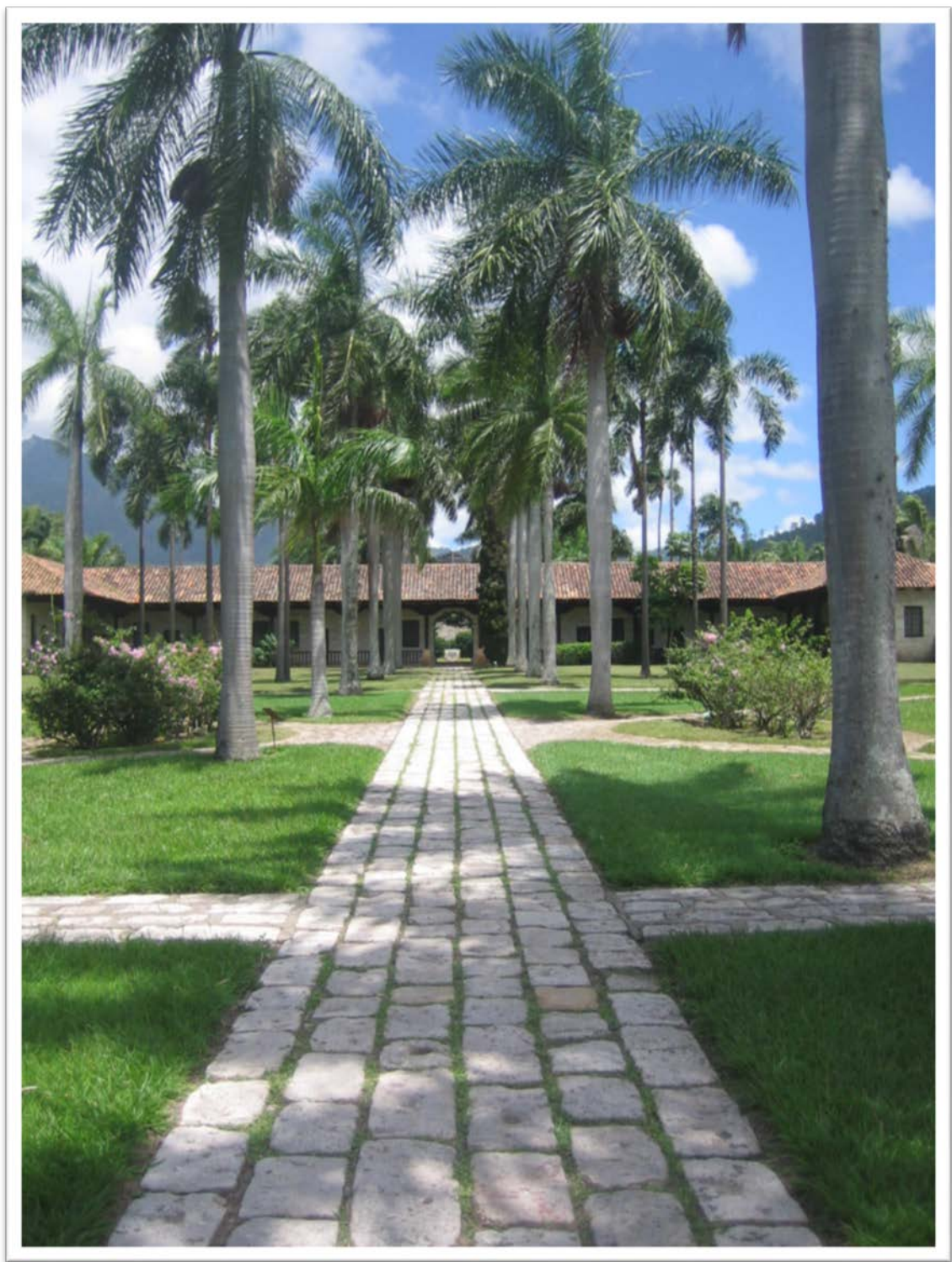


B. Zamorano Campus Photos

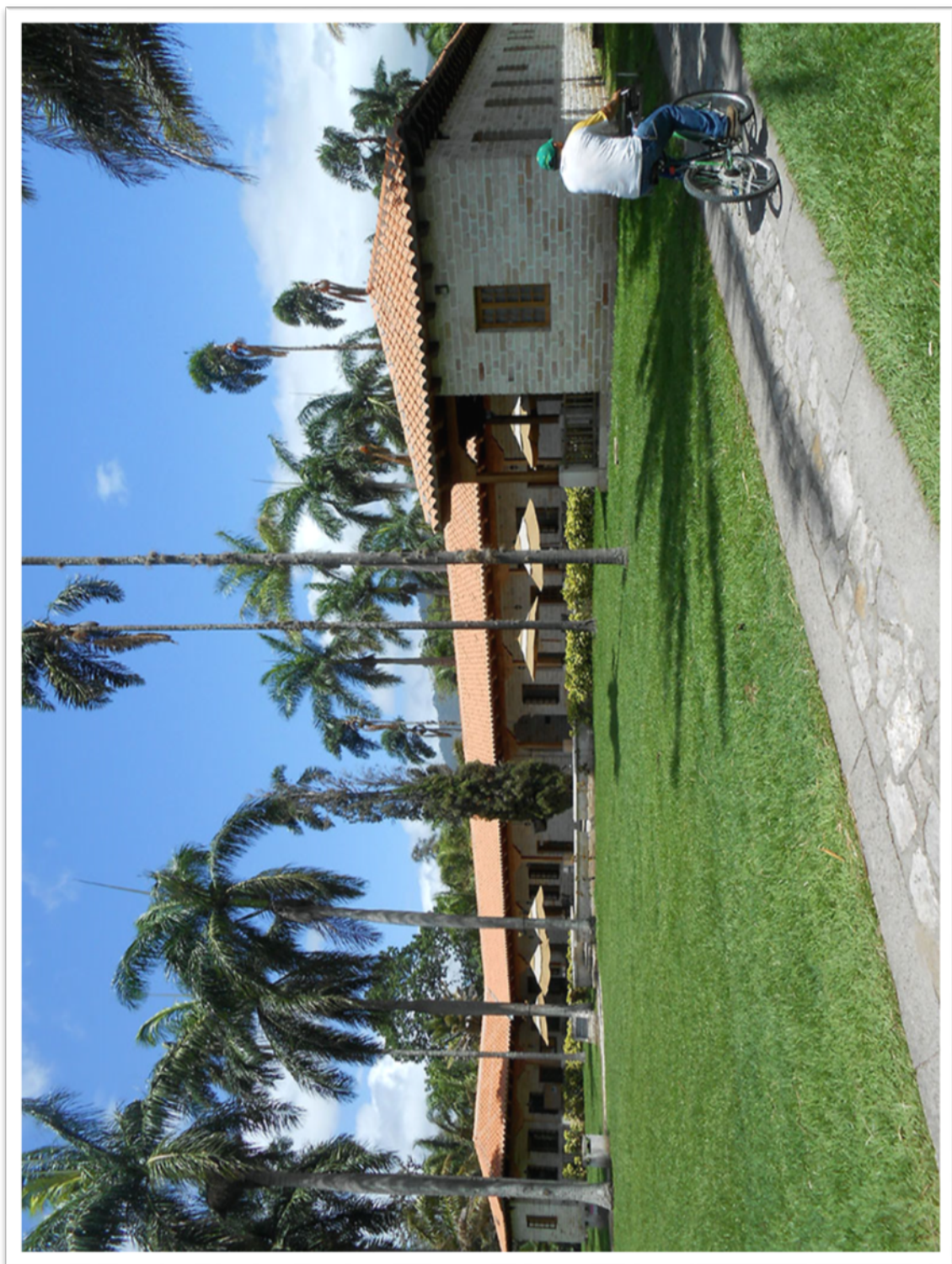


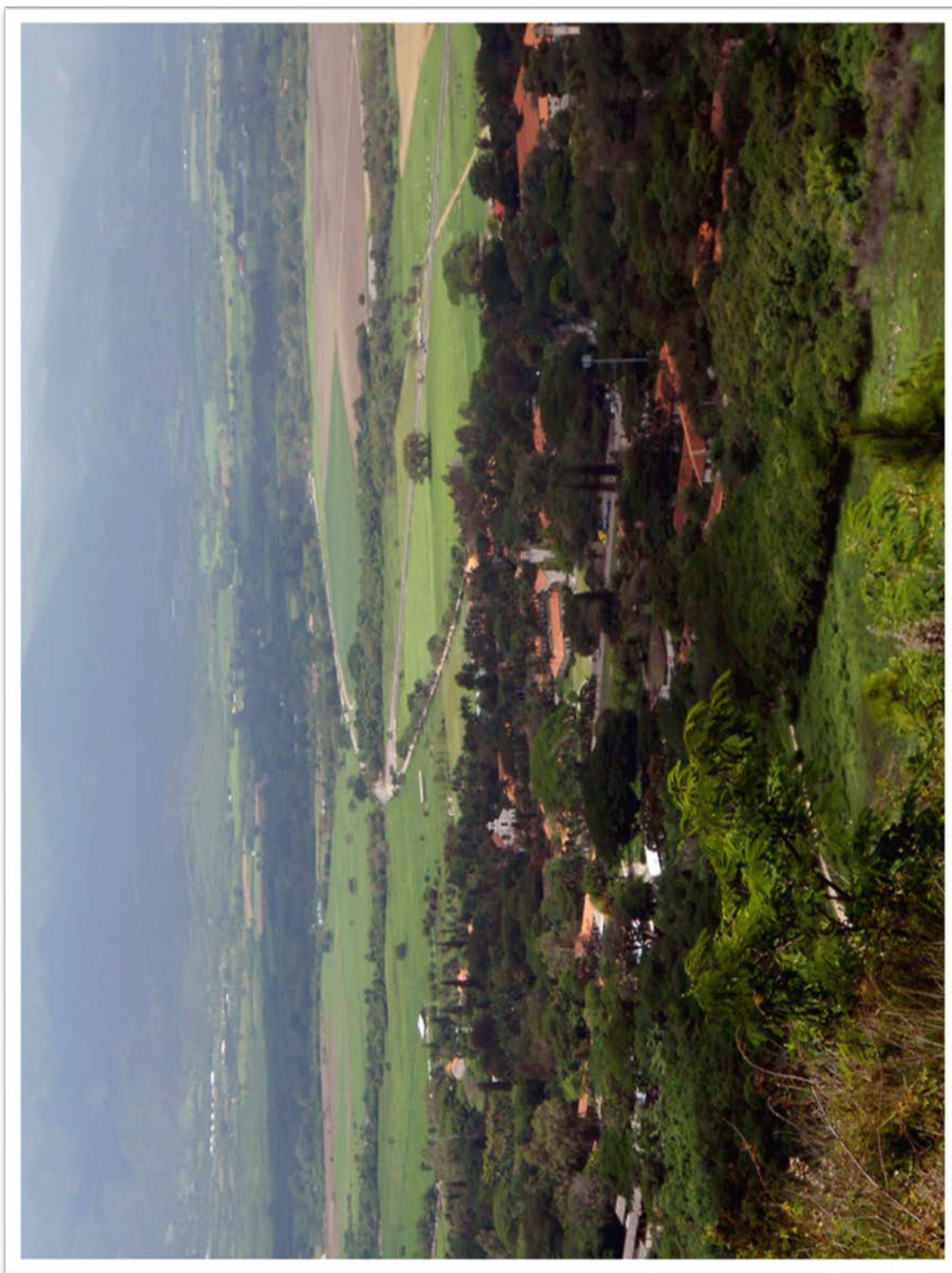








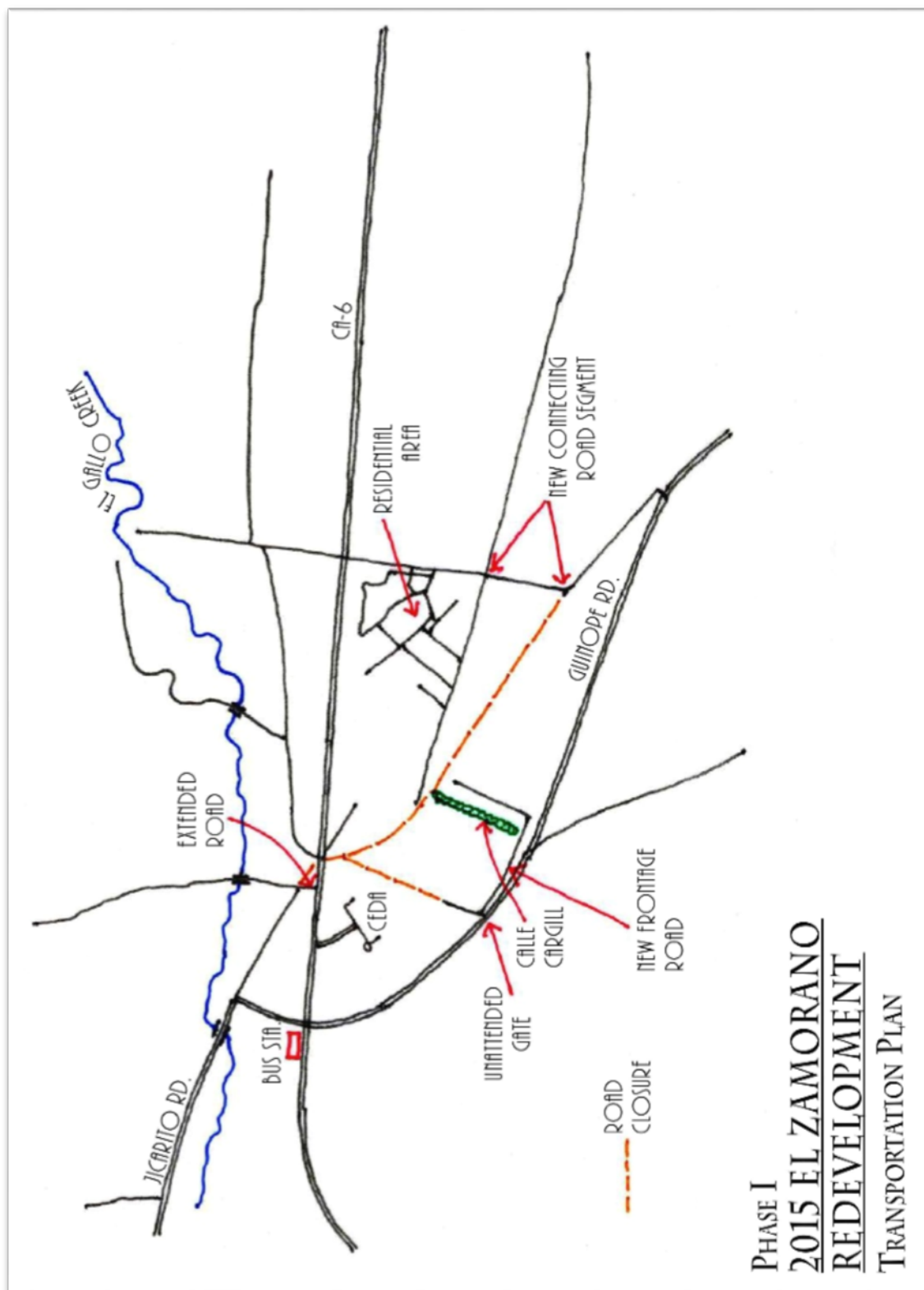




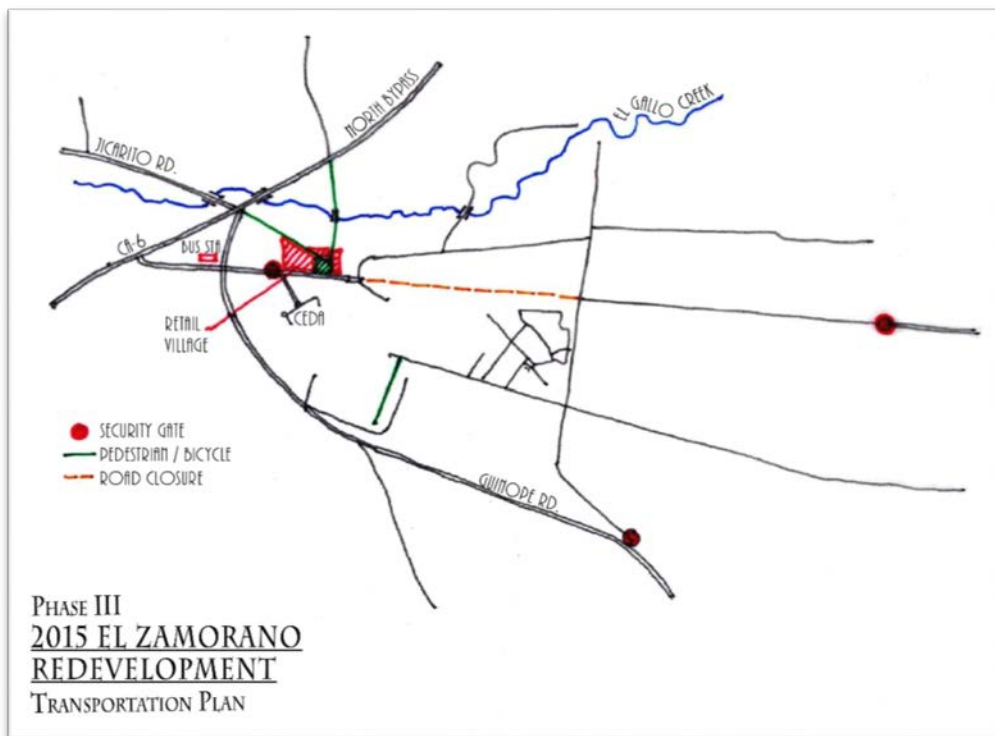
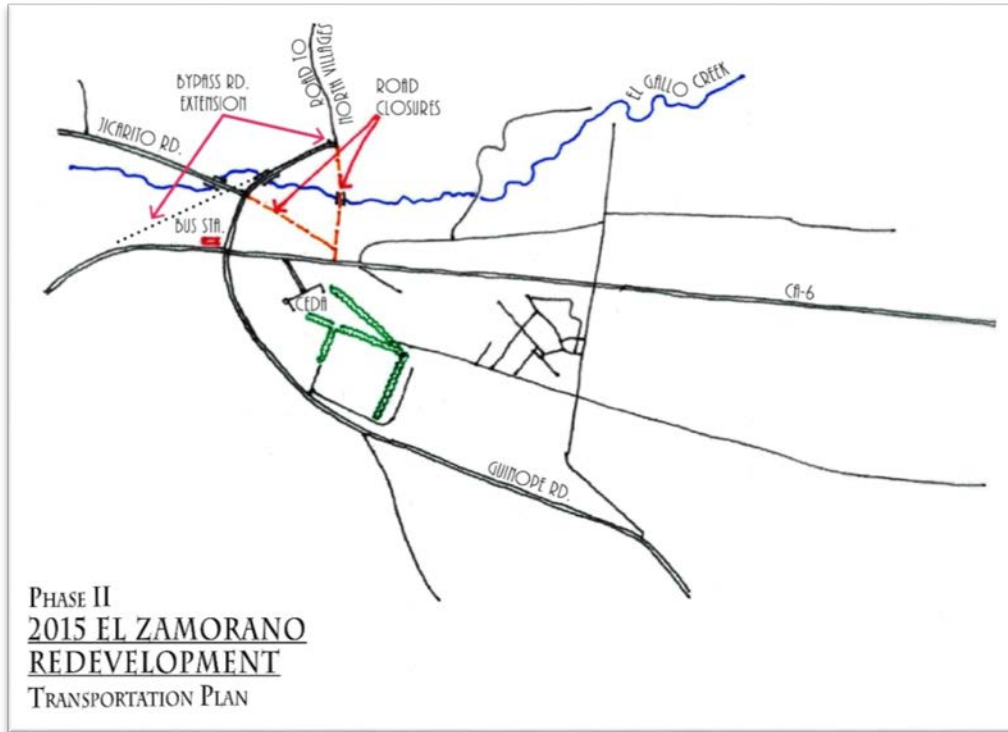
C: Views of Retail Village Boundary (at Güinope Bypass / El Jicarito Road intersection)



D.: Matthew Nahrstedt Graduate Assistantship Work

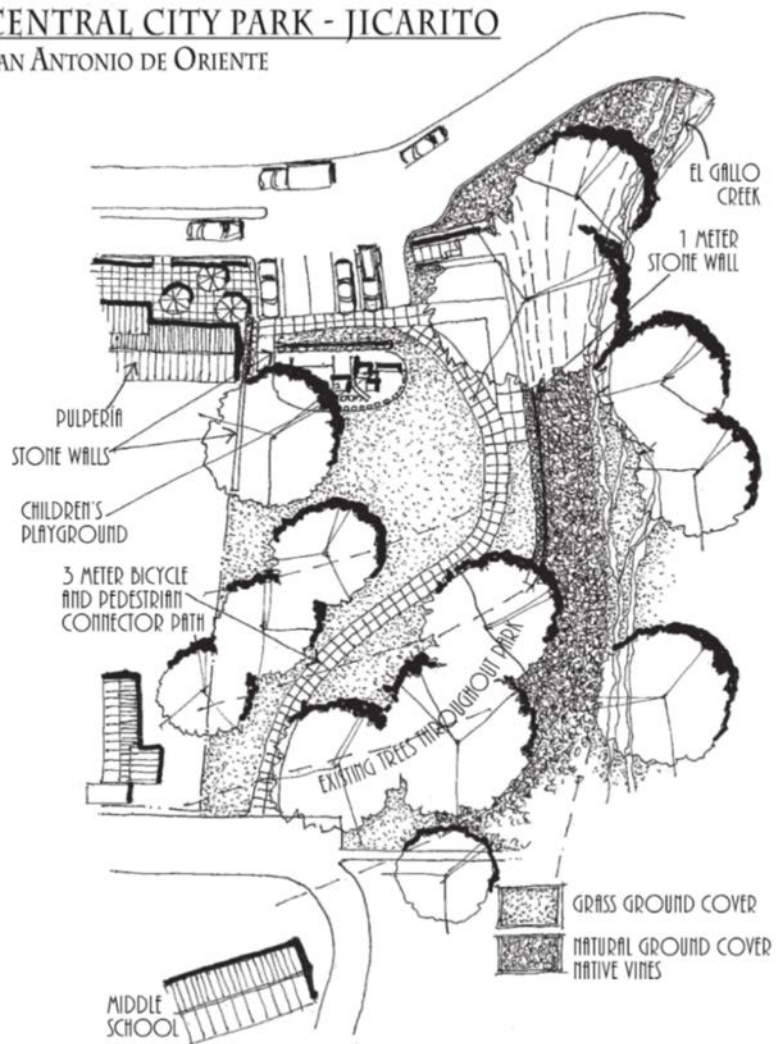


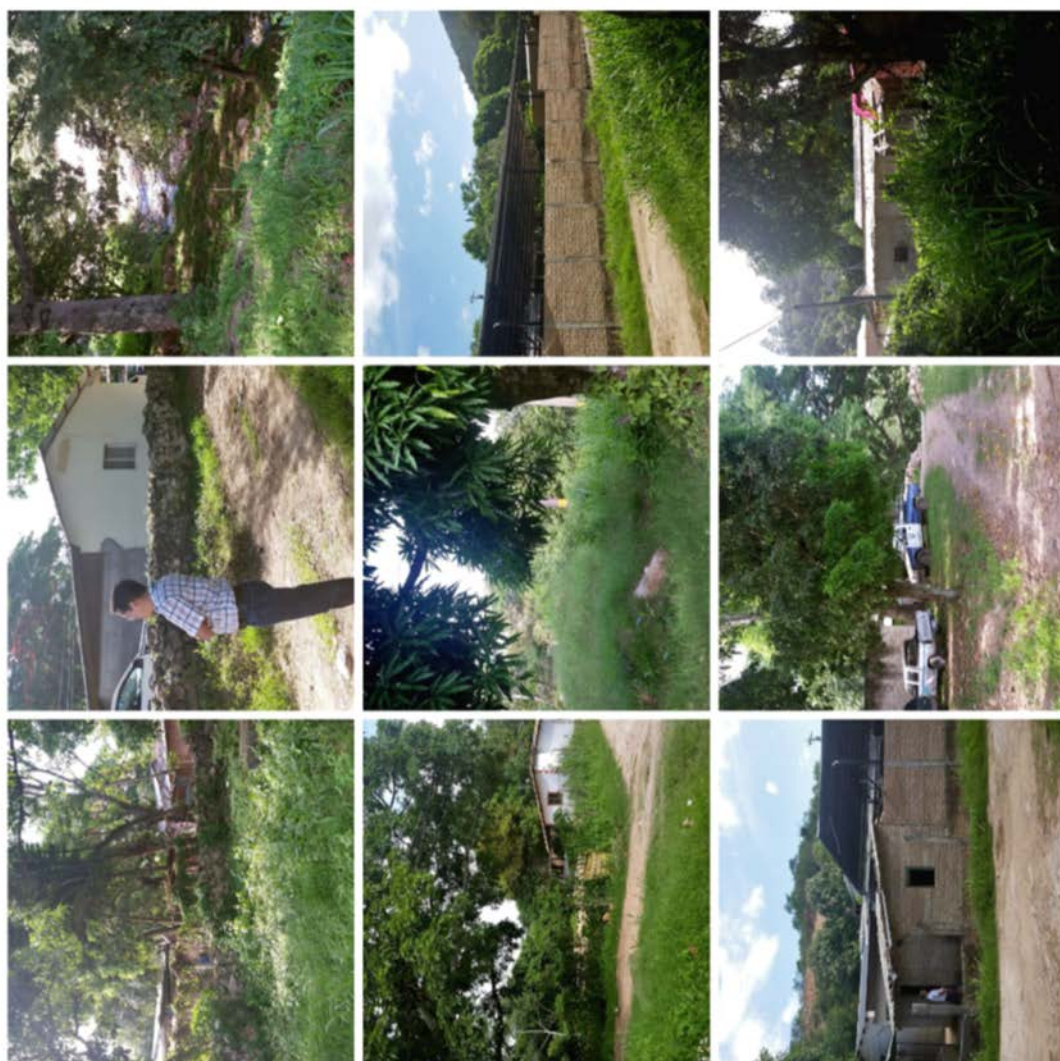
Zamorano Transportation Plan, created by Jack Crowley and Matthew Nahrstedt, 2015.



## CENTRAL CITY PARK - JICARITO

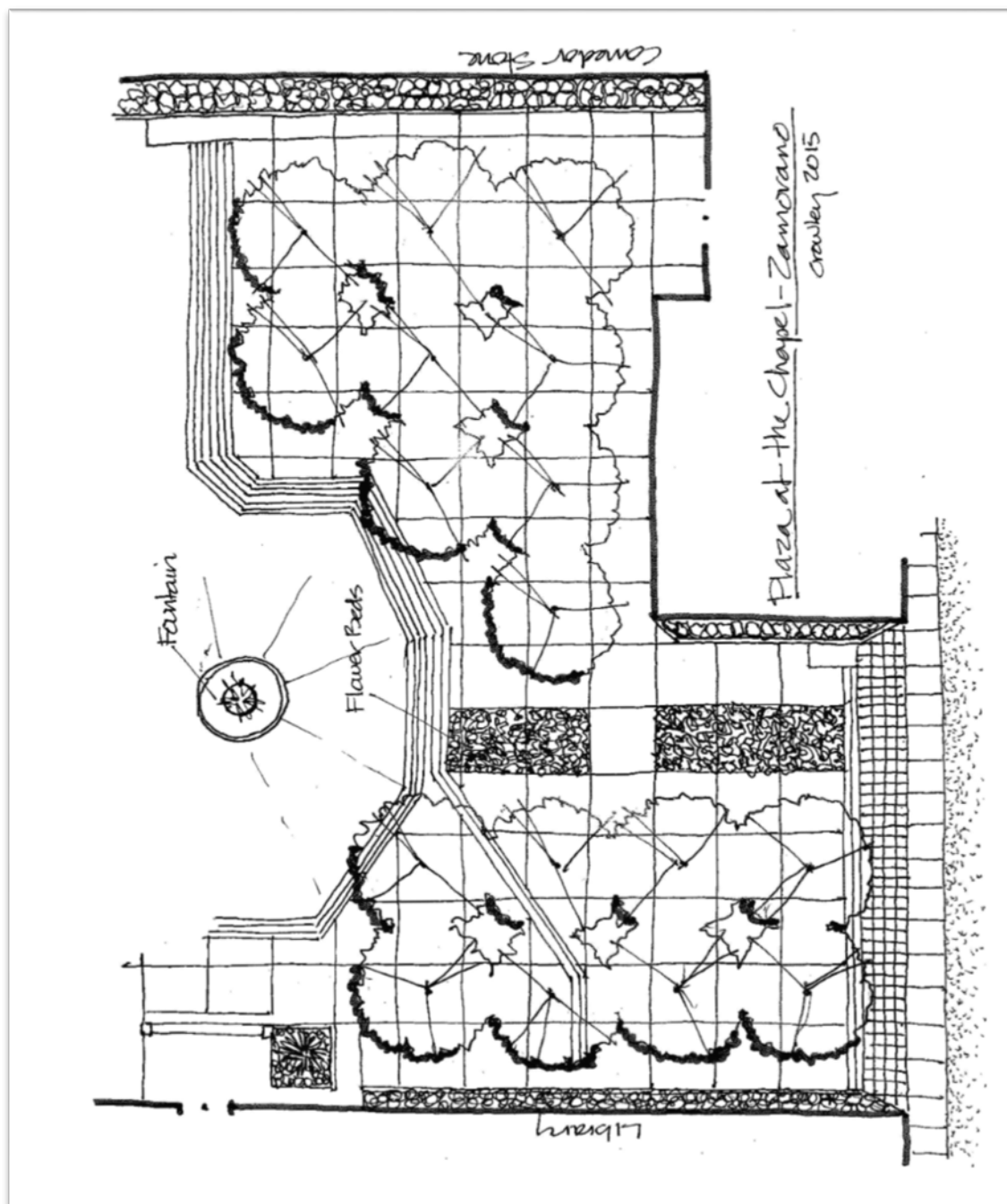
SAN ANTONIO DE ORIENTE





JICARITO POLICE  
(FUTURE PARK)  
II.

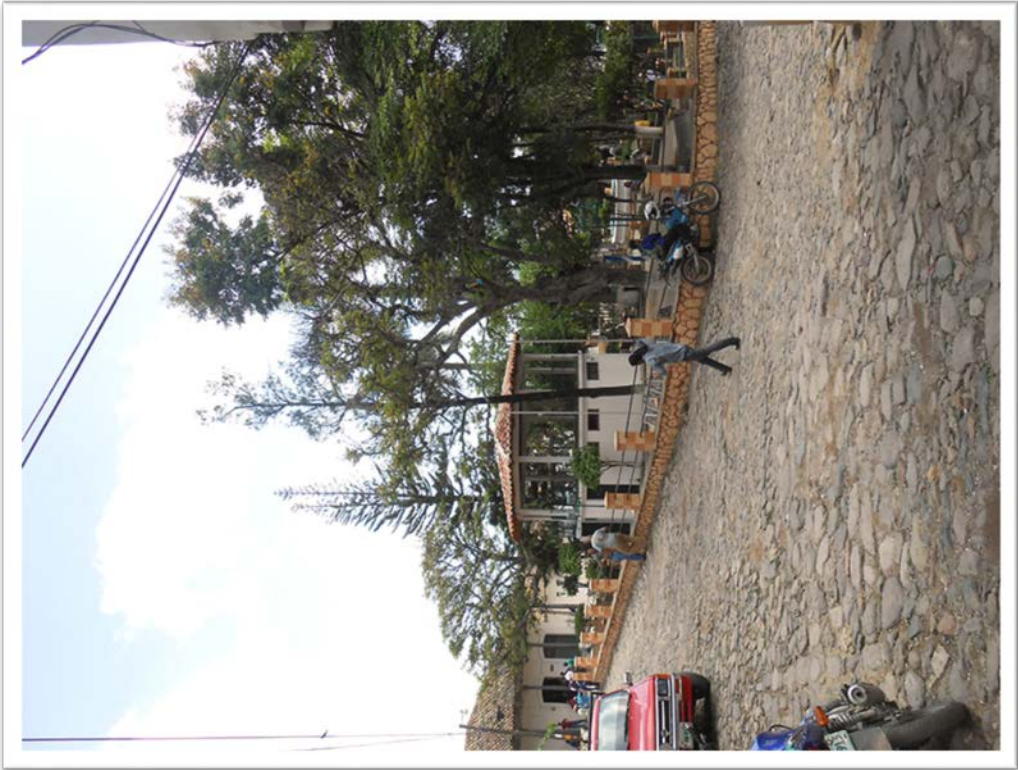
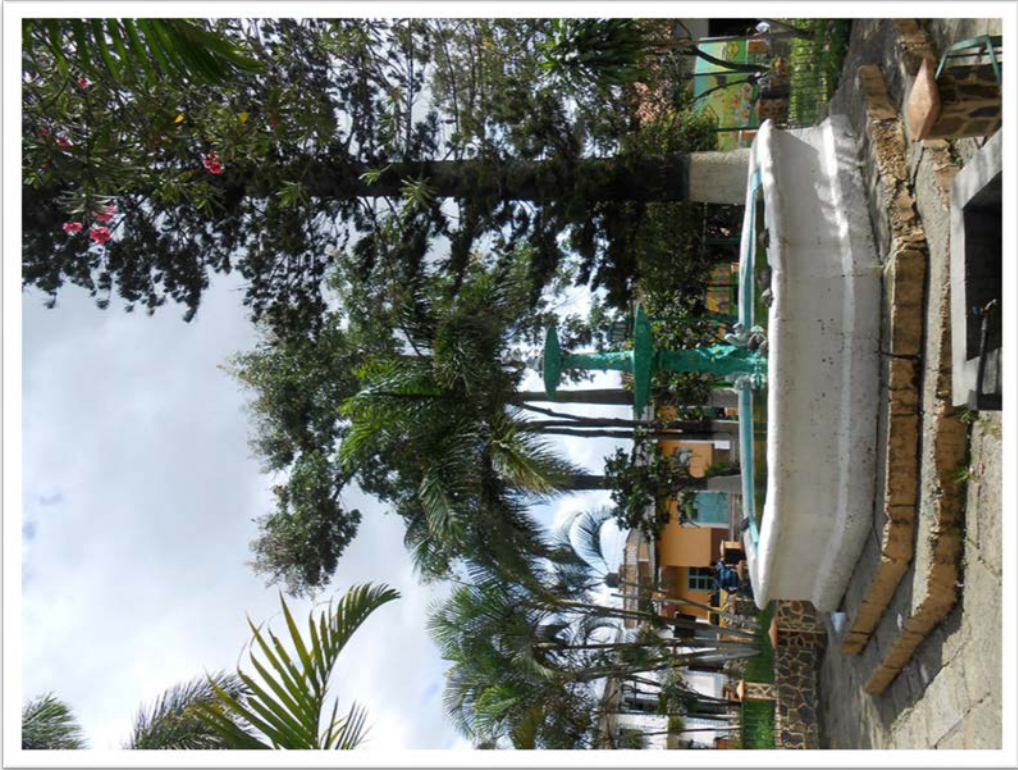




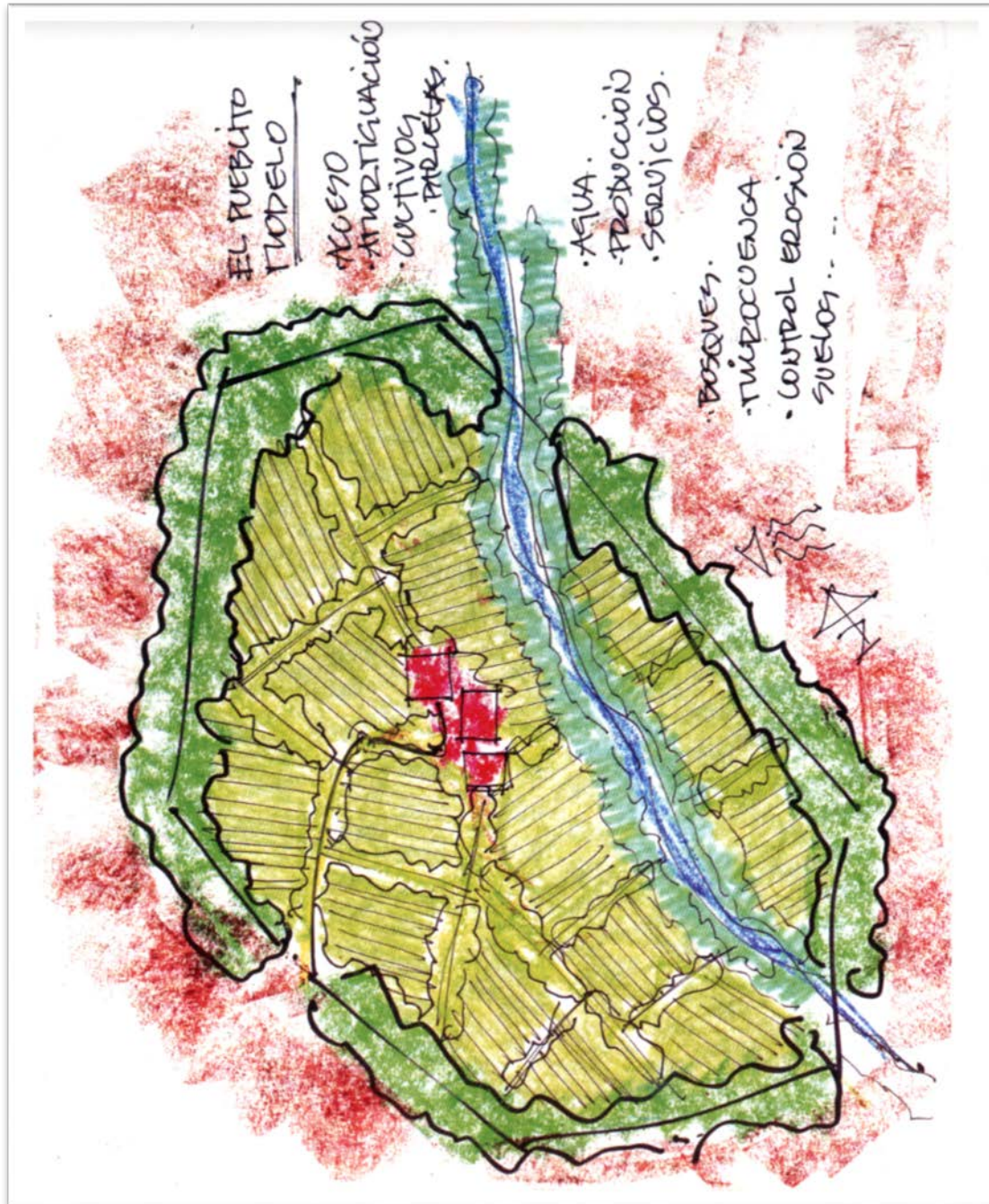


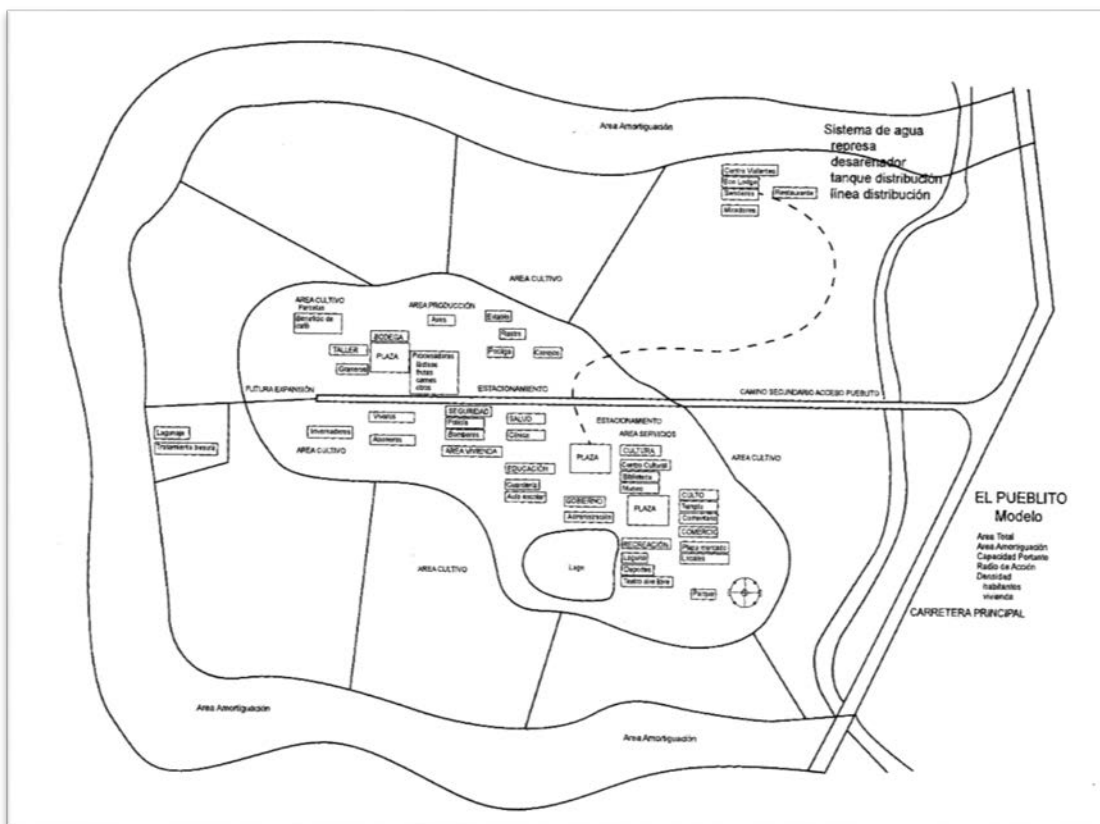
E.: Yuscarán Site Visit Photos





F.: Graphics from Mauricio Alejandro Castañenda's book *Construyendo Pueblitos: Arquitectura Para Comunidades Pequeñas* (Building Small Towns: Architecture for Small Communities)

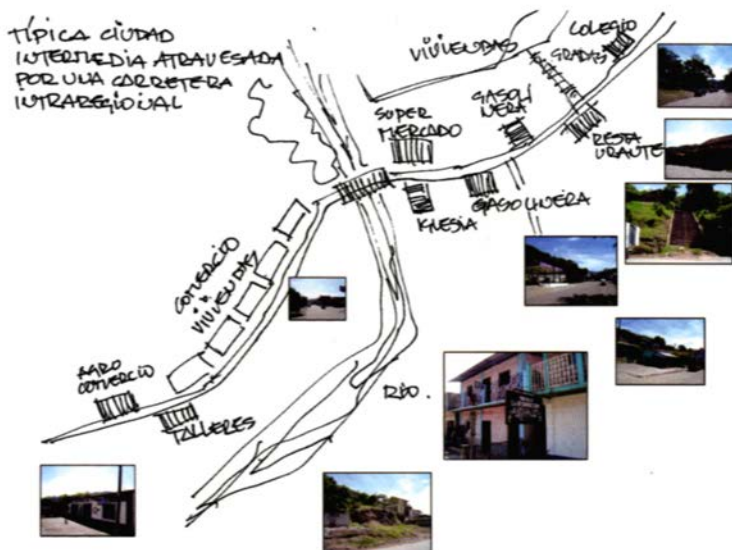


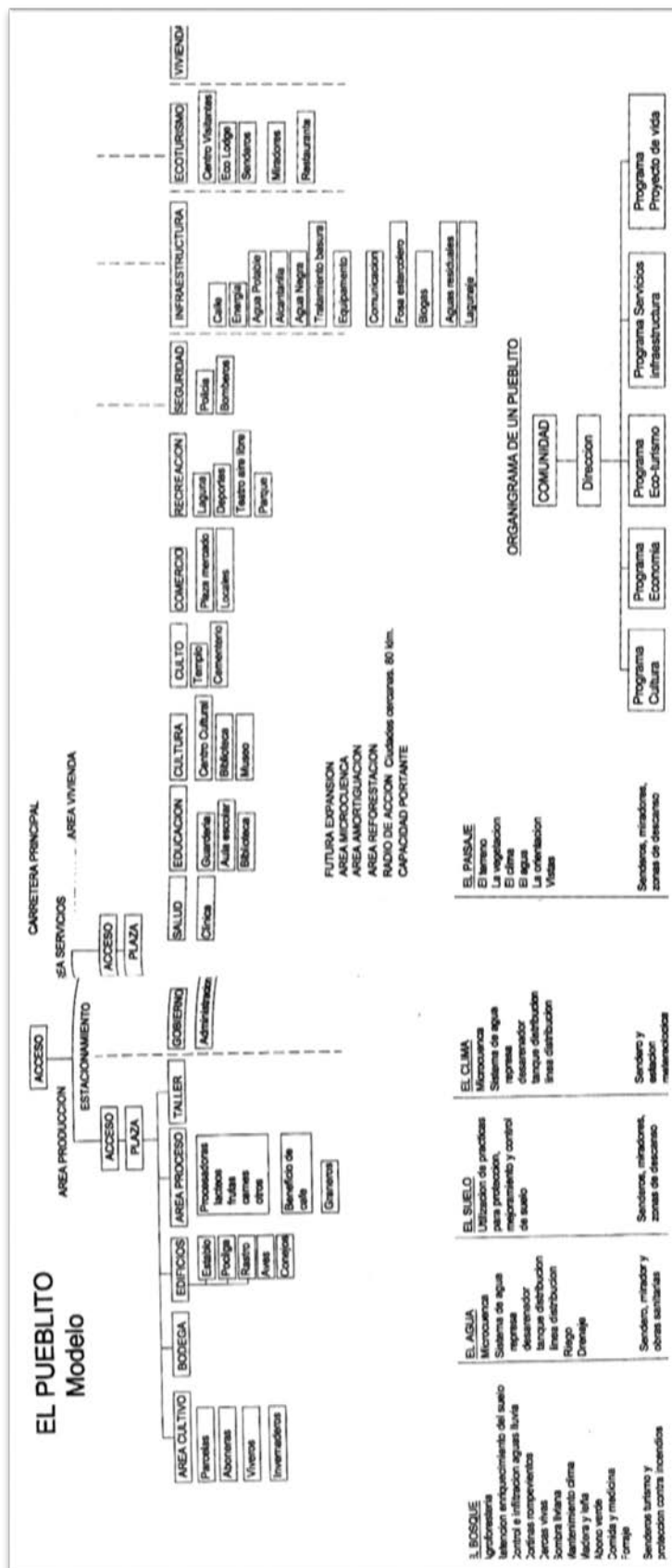


### PROBLEMAS COMUNES.

Es muy común ver el crecimiento de aldeas, pueblos y ciudades a lo largo de carreteras regionales. Estos crecimientos sin ordenamiento o criterios contradicen precisamente los fundamentos de este planteamiento creando los problemas siguientes:

- Las comunidades quedan divididas por la carretera.
- Uso incorrecto y desperdicio del suelo.
- Inseguridad. Peligro al peatón. Obligado a cruzar carreteras.
- Distancias de los servicios.
- Los servicios y viviendas quedan dispersos.
- Dificultad para la ubicación de servicios, viviendas, áreas de producción.
- Crecimiento desordenado. Consecuencia de la misma carretera.
- Contaminación ambiental: basura a lo largo de la carretera, ruido, tráfico, al paisaje.
- Problemas ambientales: pérdidas de biodiversidad, capacidad hídrica y arbórea, erosión del suelo, desequilibrio del clima, de la flora y fauna.





## G.: Inventory of Case Studies

CASE STUDY INVENTORY						
Case Study	Güinope	Maraita	Tatumbula	Yuscarán	San Elijo Hills	Storrs Center
District/Town	Güinope	Maraita	Tatumbula	Yuscarán	San Marcos	Mansfield
Department/State	El Paraiso	Francisco Morazán	Francisco Morazán	El Paraiso	California	Connecticut
Country	Honduras	Honduras	Honduras	Honduras	USA	USA
Elevation (meters)	1,309	973	1,439	960	193	190
Inhabitants	8,794	6,809	7,587	14,682	--	10,996
Village Area (km2)	1.7 (town center)	0.39 (town center)	81	349	0.98 (town center)	0.69 (town center)
Plaza/Town Square Area (hectares)	0.27	0.36	0.1	0.13	0.64	0.16
Plaza Context						
Town Hall/Gov't bldg	x	x	x	x		
Church(es)	x	x		x		
Store(s)	x	x	x	x	x	x
Pavilion	x	x		x	x	x
Open Space/Field	x	x	x		x	
Restaurant(s)	x	x	x	x	x	x
Mixed-Use Living (mixed retail/commercial and residential)	x	x	x	x	x	x
Museum				x		x
Visitor Center					x	
Parking Spaces	x	x			x	x
School						x