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HENSLEY

**COTTAGE  
COMMUNITY**

*Macro to Micro*





The University of Oklahoma  
Graduate College

Cottage Community  
Macro to Micro

A Professional Project  
Submitted to the Graduate Faculty  
in partial fulfillment of the requirements for the  
Degree of  
Master of Urban Design

By  
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Norman, Oklahoma  
2019



Cottage Community  
Macro to Micro

A professional project approved for the  
Urban Design Studio  
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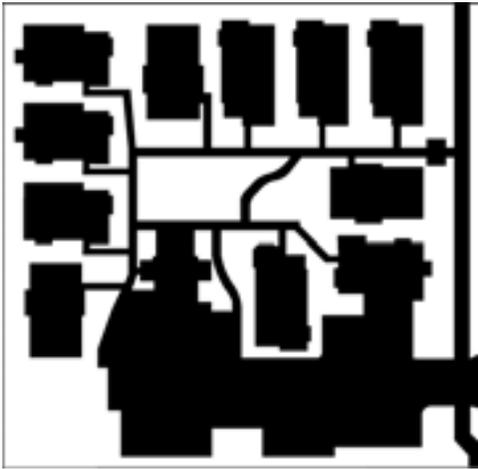


# INTRODUCTION

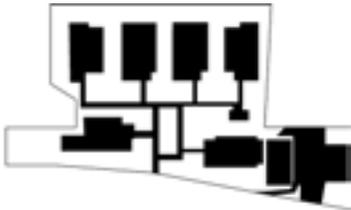
## THE URBANE

### Introduction

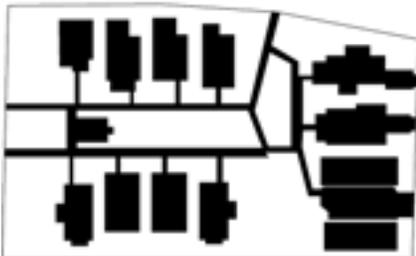
There is vast differences between rural, suburban, and urban life, and that becomes utterly apparent during any extended road trip throughout the United States. Many times, these labels have put people at odds and created disparity between social, ethnic, and economic groups. The concept of being urbane is a derivative of this contrast and has been used to describe the difference between living in dense cities and towns verses large open spaces of rural county life (Merriam-Webster). The urbane concept enforces the preconceived notion that a person becomes more refined if they live in a denser urban setting, but is that true? In today's ever connected world the urbane may need to be redefined. Is there a way to blend this dichotomy in cities, and merge rural and urban? As more and more people flock to cities, over 62% living in urban area in the United State (Hyer), it becomes more apparent that a diversity of housing should and needs to exist. This a great time and place to start thinking about new



Ericksen Cottages - Bainbridge Island, WA  
The Cottage Company, Inc.



Danielson Grove - Kirkland, WA  
The Cottage Company, Inc.



Conover Commons Homes - Redmond, WA  
The Cottage Company, Inc.

housing options across the United State. Cottage Communities are one example of an old idea being retooled for a modern age. This type of housing, which asks people to live in small dense homes, but keeps a certain level of open shared space, reduces the urban footprint. These communities are striving to provide the best of both worlds in a sense. A compact urban setting that encourages a shared experience and learning through proximity while maintaining enough open space to provide, even the slightest, connection to nature. While researching and pondering this idea of, albeit a not so new, approach to single family home development I wondered, is this even a feasible option, how do these developments work as a system, what do they look like, and can they fit in an urban area?

## Background

In 2016 the City of Tulsa adopted a new Zoning Code which provided two new housing types: cottage house development and patio house. The cottage house development concept immediately caught my attention and I wanted to learn more. My interest in Cottage House Developments is twofold; first I am a planner by trade and worked with the City of Tulsa to implement the new Tulsa Zoning Code which allows for this type of development by right in some residential zoning categories, and my second interest is for personal reasons. I am currently in a transitional stage of life, where I would like to move from my apartment into a home, however, I am uncomfortable with the price and scale of a large home. These are the two primary reasons I wanted to look at this type of housing from the lens of urban design and analyze some of the key components.

Originally, I thought this would be a good answer for the residential infill issues in and around downtown Tulsa. I was also attracted to the idea that smaller homes might provide some market relief to first time home buyers and working-class individuals. I also know demographic trends have



shown a shift toward increasing numbers of single people and single parent families. It also became apparent during the research that Cottage House Developments might also be a great option for home owners that want to down size. Finally, because of the “newness” of this housing type in the Tulsa market, I had hoped there would be a design and development niche I might be able to fill. To date none of the new housing types in the Tulsa Zoning Code have been built and only a few developers have even inquired about them. This presented a variety of questions, first and foremost, “Why are these type of developments not being built?” Building on the foundation of that question, others started to form:

Are these developments feasible?

Do the zoning regulations impede development?

How is this type of development designed?

I ultimately decided to predominately focus on the spatial design of these developments in an effort to expand my understanding of urban design principles. Since zoning is a key component of this new housing type, I also conducted a restrained zoning analysis of related regulations with the hope possible amendments might spur further development. To address the market feasibility of the Cottage House, I conducted in person interviews with potential buyers and developers to obtain possible information about the markets that could support these developments.

## Goals and Objectives

Over the course of a year, this project has seen definitive changes and transitioned into what it is today. As I have developed the subject matter over time and learned more about the components of this project, the goals and objectives have become more defined and distinct. At the beginning, I thought I knew exactly what the project would be and how the final product would look like, but as with most everything in life nothing stays the same forever. Here I will show the original goals and objectives and provide an overview of how I moved into the current final product.

### Defining Goals and Objectives:

A goal is the end toward which effort is directed.

An objective is efforts or actions intended to attain or accomplish the goal.

During the intermittent reviews of this project, I found that it was helpful to know the definitions of these terms. By defining each term, I found it easier to align the key components of the project that assisted in the development of the final product.

The first working title for this project was “Little Homes of the Plains.” I felt this title not only embodied the initial goals and objectives but created a sense of place related to the area of the country these cottage house developments where to be built.



Little Homes on the Plains  
Original Project Logo

## In the beginning – "Little Homes on the Plains"

### Goal:

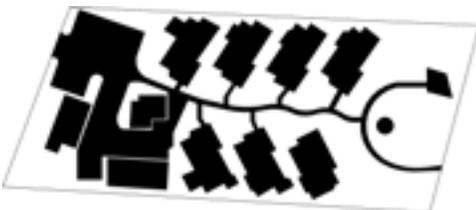
Determine if Cottage House Developments are feasible

### Objectives:

Conduct zoning analysis

Find vacant lots near downtown Tulsa

Design a Cottage House Development



Chico Beach Cottages - Silverdale, WA  
The Cottage Company, Inc.

The original goal of this project was to determine if a cottage house development is feasible. To make this determination the objective would be to find existing vacant lots in Tulsa that had the appropriate zoning to support this housing type and then design a cottage development as of right. The idea was if I could build infill as of right in the appropriate zoned area, I could keep the cost down and have a viable asset in the housing market. While this plan had merit, it soon became apparent, I didn't have the time and experience needed to create a viable project. I soon realized to achieve the goals and objectives for Little Homes on the Plains I would need a team of people with experience in this area/field, unfortunately, all I had available was me. So, I went back to the "drawing board" knowing I wanted to focus on cottage house developments and understanding that I needed to use skills I had already developed over the course of my studies. During Little Homes on the Plains I had dug a wide shallow hole and now I needed to dig a deep narrow one.



Conover Commons Cottages - Redmond, WA  
The Cottage Company, Inc.

Building on the foundation of research from the beginning of the project, I created a new goal and objectives for creating a Cottage Community. I found the appropriate goal that provided me the means I needed to express the spatial component that revealed itself during the first iteration of



this project. While the objectives created the depth of source material, I needed to express the elements of urban design. The confluence of these ideas created the final product which is presented here.

**Final product – Cottage Community:  
Macro to Micro**

**Goal:**

Use Figure Ground Theory to create Cottage Communities

**Objectives:**

Use Urban Design principles

Consult Urban Design Authorities

Find open source GIS data

**The Housing Market  
Feasibility/Market Demand**

I wanted to use a section of the introduction to briefly cover the housing market, feasibility, and demand for cottage house developments. This overview will draw on professional and personal opinions as well as case studies. The first professional I consulted with was Kirk Bishop, a primary author of the Tulsa zoning model who stated the code has “origins based in the Pacific Northwest United States.” While the name of the development might be different, cottage house, court, pocket neighborhood, etc., states like Oregon and Washington have both implemented their versions with varying amounts of success. At this time the most comparable development to the Tulsa zoning model is what The Cottage Company of Seattle Washington has done in the State

of Washington. Their goal has been to create simple, smart, and sustainable pocket neighborhood communities with compact homes. While the Cottage Company model has seen success in the Washington market, I don’t think it is representative of what might be implemented in Tulsa and didn’t align with the goals and objectives of this project. The influencing factor that leads me to this conclusion came from the personal interviews I conducted related to market demand. The majority of people told me price was an overall determining factor in considering a cottage home and the compact homes in Washington did not coincide with that finding. The general consensus throughout my interviews was that people were willing to consider a cottage home if the price was right, the location was good, and there was the right mix of people. These three factors came up time and time again and it was very apparent people would not pay a premium and that these homes are transitional. These insights aligned with the analysis made by professionals\* associated with the Urban Land Institute. Many of them said the market was there in the right setting and for the right people. According to their data young professional women and older “empty nesters.” While my interviews and consultation provided support of my own theories, Tulsa still has a production problem. No one has determined the formula for implementing these developments here.

\*Todd Zimmerman of Zimmerman/Vok, Ward Davis of High Street Real Estate & Development, and David Dixon of Stantec.



Cover of the Tulsa Comprehensive Plan  
City of Tulsa

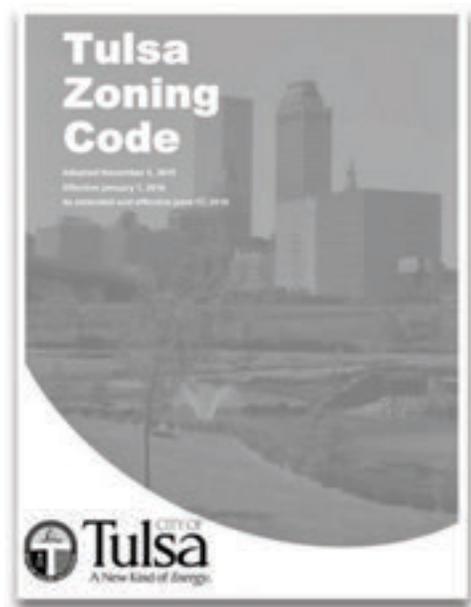
## Comprehensive Plan

In 2010 thousands of Tulsa community members participated in the creation of the Comprehensive Plan commonly referred to as Planitulsa. This citizen driven plan outlined numerous goals and objectives that the City of Tulsa strives to accomplish over a 20-30 year time frame. A major component of this plan is the development, enhancement, protection, and growth in community and housing. The housing section provides numerous strategies and recommendations on achieving those community and housing ambitions.

*“A newcomer to Tulsa in the future will have a wide range of housing choices, from beautiful early 20th century homes, to classic suburban neighborhoods. Most of Tulsa’s housing stock will consist of single-family homes in neighborhoods, but will include a broader range of apartments and condominiums in downtown, along corridors, and in new neighborhoods and centers. Young families will be able to find townhomes and traditional detached homes in new neighborhoods, all within walking distance of schools and parks. Empty nesters, looking to downsize to smaller, more manageable homes, will also have many options.”*

This quote is a great example of why Cottage House Developments were added to the new Tulsa Zoning Code. The Comprehensive Plan even goes further in its support of housing diversity by saying, “The city should encourage... a variety of housing types and costs for renters and owners.” The plan even considers housing trends saying this, “The growing number of small households... means there will be more demand for one-bedroom homes...”

These words exemplify a key reason I wanted to pursue a project on Cottage House Developments. I truly feel these developments represent an unfilled space in the Tulsa housing market. There is a need for analysis and review of the designs and specifications of this housing type. While these are specific to the City of Tulsa, there could be far reaching benefits for Midwest regions of



Cover of the Tulsa Zoning Code  
City of Tulsa



the United States. Cottage homes may be a key component for aging neighborhood to solve in fill issues. The citizens of Tulsa understood the future needs of Tulsa would change and the Comprehensive Plan created the springboard which propelled the creation of the new Tulsa Zoning Code where new housing types proposed a possible solution.

## Zoning Code

The final and longest section of the introduction is dedicated to the Tulsa Zoning Code. In many ways the zoning code became the most contentious part of this project. In the beginning when I thought the project would be about feasibility, it immediately became apparent that requirements in the zoning code would need to be reviewed and perhaps revised. Many of the regulations are confusing, and I found myself reviewing the requirements repeatedly. During the review I kept asking myself questions such as why do the lot size requirements seem so extraordinary in comparison to other similar developments? Then after a GIS analysis, of Tulsa parcels with the appropriate zoning, I found further discrepancies which supported my theory. Cottage House Developments are meant for green field development and not infill. This last discovery was very disheartening and didn't align with the Tulsa Comprehensive Plan. In the next few paragraphs, I will address these issues, provide clarifications and propose possible solutions.

*Cottage House Development - "A grouping of small detached houses around a common open space." (Tulsa Zoning Code 2016)*

There are still many questions about Cottage House Developments and a zoning examination is one way to determine

where cottage homes could be built and can provide insight into Tulsa's approach to housing. The current standard housing approach in Tulsa and other Midwest cities is the dominate single-family subdivision greenfield development. Based on discussions I have had with individuals in the development community this model is the time tested, tried and true safest bet. This is an important component in understanding why cottage homes have not been built and exposes a major challenge. In the development community time is money and a new development style complicates the existing formula especially when regulations only create more questions. Let me take a moment to provide an overview of the existing regulations.

A Cottage House Development is allowed in five zoning categories by right and two by special exception. Zoning categories by right include Residential Single-family 5 and Residential Multi-family 0-3. Cottage homes are also allowed by special exception in Residential Duplex and Residential Townhouse. The general requirements of the development are there must be a courtyard or common space and homes must be oriented toward those elements. The building footprint must not exceed 1000 square feet and the development should contain at least four and no more than ten homes. Each building is required to have 250 square feet of open space and a minimum lot area of 2,750 square feet per unit. The total minimum lot area is 15,000 square feet with a minimum lot width of 75 feet. These are a few general requirements and more will be outlined in during the recommendations but for the GIS analysis these basic requirements will provide a good foundation.

During the GIS analysis many interesting things were revealed about the development and location of cottage homes in Tulsa. What I found immediately interesting was that most of the existing available vacant land with the correct zoning was located around the central business district. Using shapefiles containing zoning data and the Tulsa County parcel data, I isolated the parcels zoned appropriately for a Cottage House Development. I found that Residential Multi-family 0, 1, and 2 zoning would be the only applicable categories for analysis because the other zoning categories were negligible and didn't provide substantial benefit. I then took a random sampling from the available vacant parcels to determine if they could support current regulations. What I found from the sample is the majority of lots measure 50 feet wide by 130 feet long and cannot support a Cottage House Development by right since the code requires a minimum lot area of 15,000 square feet. There was a very limited number, about 5 out of the 100 in my sample, of existing lots can accommodate cottage home infill. These results supported my assumptions, but I also wanted to know how many existing parcels could accommodate cottage homes.

To do this I used a simple average based on existing parcels with the appropriate zoning. I isolated only Residential Multi-family 0-2 parcels and found in total there are 12,675 parcels that can support cottage homes by right. This accounts for approximately eight percent of the total parcels in Tulsa. I wanted the averages to represent primarily residential parcels or as close as I could achieve in this simple analysis. To accomplish this, I took this a step further by removing parcels where current commercial uses were indicated in the GIS attribute table. This was also done

to align with recommendations in Tulsa Comprehensive Plan that suggest these should be in primarily residential areas. After removing the outliers, I calculated the average acres and converted that to square feet. Here are the results by category:

RM – 0

Average lot size = 11,325 square feet

RM – 1

Average lot size = 10,018 square feet

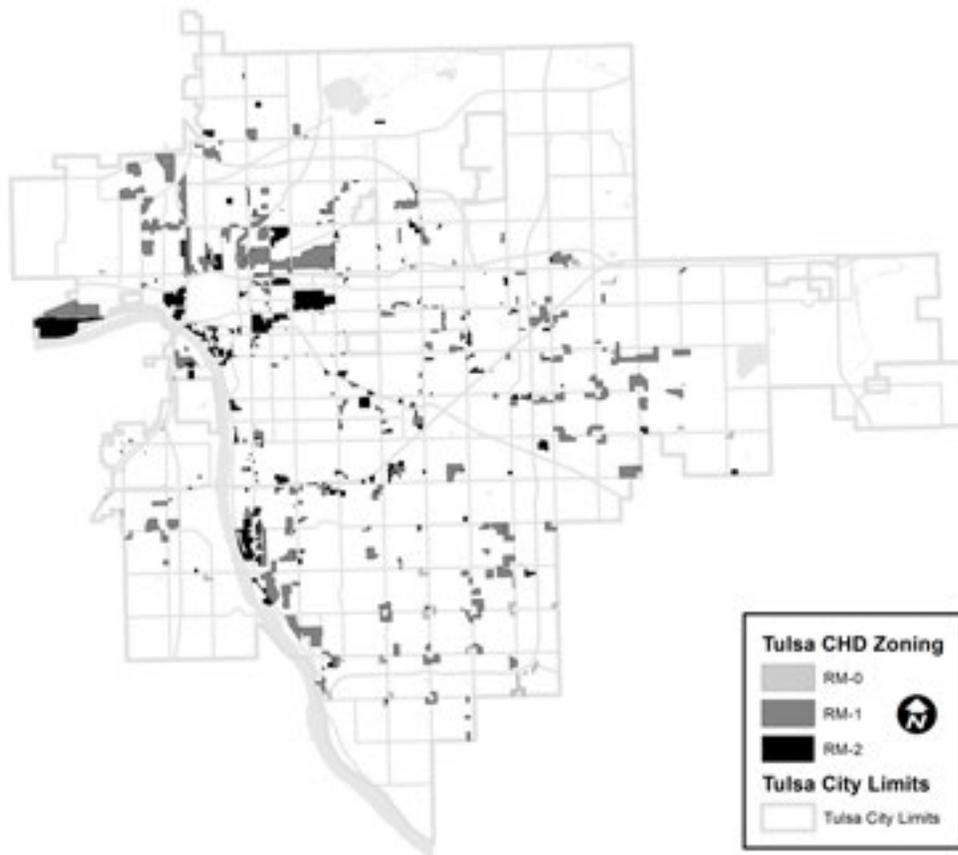
RM – 2

Average lot size = 21,780 square feet

From this data we can draw certain conclusions, but I want to preface that by saying this is only a simple analysis! While I stand by the data, it isn't meant to do anything more than provide an overview. The data shows that Cottage House Developments under the current regulations will be difficult to build for infill. Currently Cottage House Developments must have a minimum lot size of 15,000 square feet! These results help to show possible discrepancies in the regulations as they are currently written.

After the initial Tulsa Zoning Code and GIS analysis, I realized it might behoove the City of Tulsa to make some regulation changes so this housing type isn't dead in the water. Now I don't intend to propose any direct immediate changes, but there are areas that I think could use another look. The reason I didn't create concrete recommendations is that I had already dedicated half the project time looking at zoning and I really wanted to focus on the design aspect for this project. Nonetheless, there are a few areas in the zoning code that could use some updates or revision.





The following are multiple key areas of the zoning regulations that should be considered for review: minimum lot area, restrictive covenants, open space, setbacks, and vehicular access and parking.

**Zoning Considerations:**

**Minimum Lot Area**

Currently requirement = 15,000 square feet

Suggestion = 12,000 square feet as a starting point

Reason 1 – In RM 0-2 Apartment/Condo only requires a minimum 10,000 square feet

Reason 2 – Simple math. Cottage House

Developments require a minimum of four structures with 2,750 minimum lot area per unit. The common space per unit requirement is 250 square feet.

$$2,750 \times 4 = 11,000$$
$$250 \times 4 = 1,000$$
$$11,000 + 1,000 = 12,000$$

**Setbacks, Minimum Street Frontage/Lot Width, and Open Space**

The main focus is to reconsider how common open space is allocated in a Cottage House Development.

Current setback requirement = 10-35 feet front setback

Current Open Space requirement = 250 square feet common open space per unit

Current Minimum Street Frontage/Lot Width requirement = 75 feet

Suggestion = Section 40.110-D amendment

1. Common open space requirements may be reduced by 25 percent per unit when one or more open space elements form section 90.080-B are implemented in a Cottage House Development.

2. In addition a 25 percent reduction of minimum street frontage/lot width may be implemented with the addition of open space elements form section 90.080-B.

Some version of this Table Note could improve infill development. The current average lot size doesn't align with open space requirements.

Section 90.080-B describes and clarifies open space requirements. Here it is revealed open space requirements may be satisfied in a variety of ways including green roofs and shared outdoor areas.

## **Parking**

Current requirement = 4 or more spaces must be screened

Suggestion = 5 or more spaces must be screened

Current single family homes have driveways that can accommodate 4 or more vehicles without a screening requirement. It could be helpful to add wording to reflect single family home driveway requirements or call it shared parking.

## **Restrictive Covenants**

Current requirement = subdivision plat or other recorded legal instrument

Suggestion = provide more clarity

The current draft of section 40.110-H doesn't provide enough information when describing the platting process.

Zoning is a complex and ever changing land-use planning tool that is intended to regulate development for the benefit of public health, safety, and welfare. While this municipal power can protect and preserve, it can also confuse and hinder progress. In Tulsa there is a chance to adapt, change, and improve current zoning regulations to encourage new development. This analysis and the considerations that follow are a just few ways to promote new housing types like cottage homes.



## URBAN DESIGN PRINCIPLES

For the purposes of this project, I will provide a brief overview of the two core urban design principles and then explain how they were used in this context. While these two design principles are not the only ones that I used, they became the crux of this project. These principles provided the foundation to build the structure of this project and allowed me to explore urban space in a way I hadn't known before. Hopefully through this project, you, the reader will gain a new perspective into these two urban design principles.

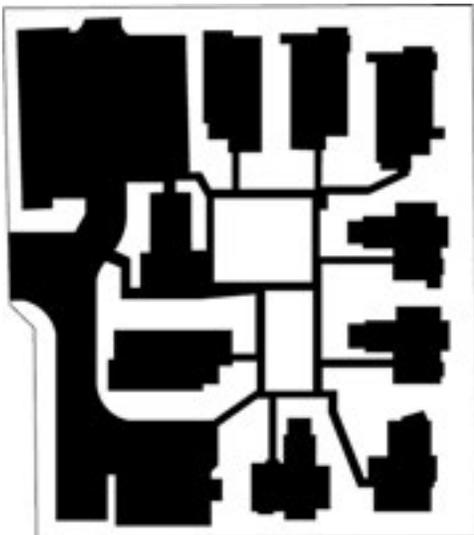
### **Figure Ground**

Figure Ground is a core concept of urban design and can be employed in a variety of ways including modern abstract representations to the well know thematic applications from the 20th century and other uses dating back to 13th century and beyond. While this principle is commonly used in urban planning, it can often be overlooked because of the simple and wide-ranging applications within our modern



Backyard Neighborhood - Whidbey Island,  
WA

The Cottage Company, Inc.



Greenwood Avenue Cottages - Shoreline,  
WA

The Cottage Company, Inc.



Third Street Cottages - Whidbey Island,  
WA

The Cottage Company, Inc.

society. While the application may be considered simplistic by some, it is effective enough to convey complex ideas quickly in a way most people can understand. This effective conveyance is likely linked to the psychological origins of Figure Ground which creates “distinction eliminates and enables the viewer to focus on an object without struggling to decide what they are supposed to see (Hebbert).” The use of black and white showing a figure set in space cuts through mental processing humans need to understand an image and lets our brains fill in the gaps. That is one reason many times you’ll hear this principle also referred to as mass void.

While the historic roots and applications of Figure Ground are vast and varied its influence on urban form is undeniable. “Despite its clean and simple graphics, the Figure Ground is not merely an exercise in pattern making (Worthan-Galvin).” This graphic technique can reveal urban forms that are sometimes hidden and also have been used to expose historic city building practices, pin point social inequality, and express technical thematic art. For the purposes of this project, I wanted to use Figure Ground to explore the macro scale of a city and then covert the patterns and shapes expresses there into a micro scale cottage community. Figure Ground not only provided a scalable design element, but also allowed me to understand these designs from a spatial perspective. In the beginning stages of this project the cottage community had numerous spatial constraints that forced a single design pattern but using Figure Ground, I was able to break away from those limitations and constraints.

I elected to use Figure Ground for a variety of reasons including but not limit to artistic style, hidden and overt characteristics, simplicity, interdisciplinary uses, and historic roots. I was first introduced to the concept of Figure Ground in a very simple exercise where we cut shapes out of black and white paper and then glued those shapes on either a white or black background. We were then asked to identify



the figure and the ground and then provide the reason behind for this decision. At the time, I thought the exercise was useless and I didn't understand the meaning or value in the lesson. Now, years later I have come full circle and realize the implications of the exercise. I have used Figure Ground as the basis for this project and learned more about the principle than ever before. I am, now, inspired and plan to use this design principle to explore the urban form.

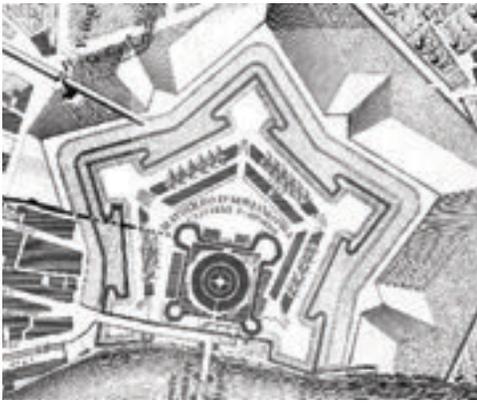
Lots, blocks, and streets have always leant well to the figure ground design and are the basis for many city guide maps. Initially, I thought, I would only use building footprints as the basis of my analysis, but I soon realized that the fabric of a city is more than one layer. All the layers work together to create the picture, but each piece creates unique patterns. I knew there had to be an urban design principle that could help me express the patterns in the city layers. To fully acknowledge and express the urban fabric, I knew, I had to find a medium that would help express these elements undiluted. After reading multiple papers on Figure Ground, I realized that morphology was the perfect fit.

## Morphology

Morphology seemed to be the natural extension in my exploration of complex urban patterns and spatial transformation of cities. The morphological approach to urban planning and design is a truly interdisciplinary approach that borrows from closely related fields like architecture but has roots in biology and linguistics. Much like many other disciplines in planning, urban morphology uses terminology developed in other scientific fields of studies to help explain and understand the urban form.

Specifically this practice seeks to understand the formation and transformation of cities by making connections through patterns in history, society, cultures, nature, and more. "Such connections can be observed in different schools through urban design history in which many designers analyzed and drew normative conclusions out of existing forms and patterns (Caliskan)." "The study of form, making use of the concepts of pattern, process, type and hierarchy, was initiated...by philosophers and artist working in the late 18th and 19th centuries (Kropf)." While the morphologic urban design history can be traced back to the 1920s, it wasn't notably practiced until the 1960s-70s when authors like Rob Krier and others used it as a systemic approach to understand urban forms. By the 1990s morphology had become a staple in planning as a tool for understanding urban form and provided a framework for systematic spatial analysis.

The study of morphology takes many different disciplines and combines them with the realization that all cities create patterns. I have created my approach by analyzing many different approaches to urban design including typology, spatial analysis, and city cartographic analysis, but in the end none of these fully encompassed the desired result of the project goals. Each of the aforementioned approaches to urban design can find a place in morphological studies or could have been a whole project of their own. It is important to note during this project, I analyzed many urban design principles and one in particular, I think is important to recognize is urban typology. This type of analysis is well known to me and provided some of the basic principles I wanted to learn and understand in an effort to guide my work. Unfortunately, while urban typology



Nolli Map  
Univeristy of Oregon



Nolli Map  
Univeristy of Oregon

is definitely rooted in architecture and planning the approach focuses to heavily on structure transformation and that didn't quite fit. I really wanted to look at the city as a whole and look at the shape and patterns that create the image of the city. Morphology is the conglomeration of these different disciplines of study and therefore became the most sensible choice to guide my understanding and final design of the Cottage Communities. All this to say the use of Morphology as an urban design principle guided my final work to a place I would have never reached without it. I'm grateful to the scholars that came before me, their studies have guided me, to this interesting approach to urban design.

As this project developed, I choose to focus my analysis on what I came to commonly referred to as the spatial patterns approach. This method is the culmination of my intentions to analyze the development of city patterns and use those patterns to understand how space is used and allocated. The term spatial patterns, also gives homage to Figure Ground imagery I used throughout the project and depended on to develop my design aesthetic. This term also corresponds with my decision to look at cities at the macro scale. When viewing a city as a whole, it can reveal patterns and elements often overlooked. Cities are similar tapestries where the streets, lots, blocks, and buildings are only a part of the whole and when combined create different designs and patterns that complete the entire image. This city tapestry is an ever changing living mosaic tribute to humanity. This project will dissect different elements in an effort to create something new as a micro addition to the corporeal city.



## URBAN DESIGN CONTEXT

While the introduction was dedicated to the creation of the Cottage Communities project as a whole, this section is here to provide context for the inspiration and direction of the project as it is today. It will also help to show why I used key urban design principles and where I drew inspiration from to develop the ideas expressed throughout this project. The urban design context is very important in order to grasp the framework form which figure ground and morphology comes from. While there are many influential scholars in the fields of architecture, planning, and design that have made significant contribution to the field, I choose to focus on just a few. I called upon influential designers that have made key contributions to the craft and have created notable mile stones related to the central principles of this project. It was my hope that these people would help me better understand the blend between mapping and figure ground designs. I knew it was important to look at the both past and present to gain understanding into what I would do in the future.



Nolli Map  
Univeristy of Oregon

## Giambattisti Nolli – Map of Rome

The Nolli Map of Rome is one of the oldest and best examples of figure ground composition. Not only is this one of the first representations of a map done in the figure ground style, it represents a transition from illustrative maps toward isometric non distorted surveying techniques. The map uses white to represent streets and public space while the buildings are done in black. One of most interesting and unique features of this map is how the public/open space is represented. Nolli chose to draw buildings like hospitals and churches that were open to the public, with large open court yards in white. “The black and white gradient also included the delineation of interior plans of nearly 2,000 buildings, which would, in term, prompt a twentieth-century discussion on the role of public space in urban design” (Worthan-Galvin).

## Le Corbusier – Plan Voisin for Paris

Le Corbusier’s Plan Voisin for Paris is both influential and controversial and the man himself remains a polarizing figure even today. The Plan Voisin was proposed as an answer to the congestion, disease and pollution that plagued the city of Paris in the 1900s. This plan sought to improve health outcomes in the most dramatic way. Le Corbusier’s proposed that a large swath of central Paris be demolish and in its place construct massive high rises surrounded by large areas of open space. To accomplish his plan for Paris Le Corbusier would destroy the fabric of the city in the process “up to 571 hectares... 250 business centers... 158 residential zones... seven administration districts” (Velasquez). While the radical nature of the plan can’t be denied neither can its influence in architecture and planning. Plan Voisin is a landmark urban planning proposal that labeled Le Corbusier as one of the most notorious architects in history.



Plan Voisin for Paris  
Image retrived from Pinterest

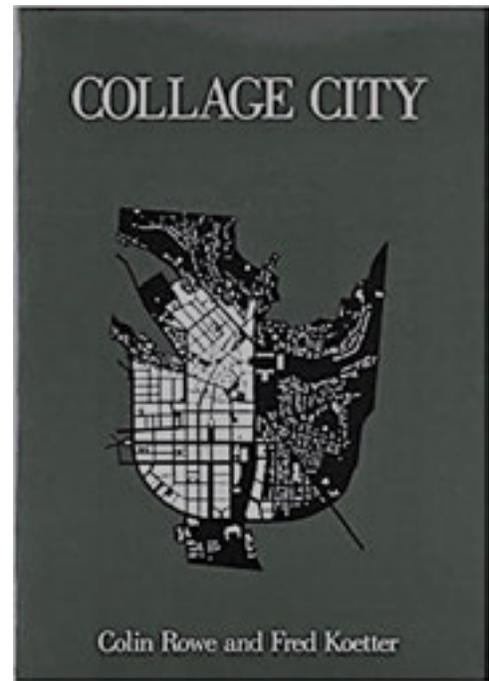


## Colin Rowe – Collage City

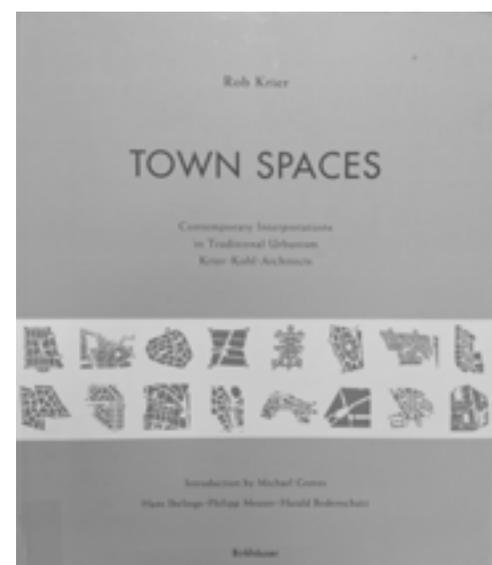
The title of this project is an homage to the book *Collage City* by Colin Rowe which many scholars attribute the resurgence figure ground theory in planning and architecture. Urban designers like Colin Rowe turned to figure ground maps in an effort to “illustrate the qualities that were being lost, and to make the case for traditional patterns (Grant).” The ideas expressed in *Collage City* were developed during his time at Cornell in the 1960s. Rowe saw the city form as extension of art and describes it as a “collage painted in a cubism composition.” He challenged planners and architects to look at the city as a whole and use figure ground to understand the complexities of scale, texture, pattern, space, and more. This book was written to confront the attitudes of “modern” architecture of the time which had created a rift between the “common man” and “genius artist.” While his aim was to test the ideas of the time in this book he also showcased “the importance of symbolic forms that depict and transmit culture” (Cornell) understanding the complexities of the urban landscape.

## Rob Krier – Town Spaces

The book *Town Spaces* is a quintessential figure ground analysis of urban spaces and was the true inspiration for my project. The images of the twenty four cities diagramed in this book provided the foundation I needed to seed the idea for Cottage Communities. Rob Krier is well known for his figure ground diagrams and is cited in the majority of scholarly papers and books I read related to this project. In this book in particular his artistic analysis of European cities provides an approach that reveals city patterns as an interwoven representation of space and form. “Urban design embraces the entire physical fabric of a city – the buildings... and the open spaces between them (Krier).” Through the book Krier seeks to find a historic understanding of urban space in modern cities by exploring modern town planning. Each section of the book explores



Cover of *Collage City*  
by Colin Rowe and Fred Koetter



Cover of *Town Spaces*  
by Rob Krier



Nolli Map  
Univeristy of Oregon

the urban form predominately through figure ground diagrams, and every diagram exposes the geometric arrangement of cities. In many examples Krier exposes the influence of pedestrian space and vehicular travel as a major influence in the formation of cities. Overall the book lends itself to the artistic composition of urban spaces revealing many different overlapping features resulting in a variety spatial forms. The spatial exploration of figure ground design and other key urban design principles found in this book including typology and morphology have made a lasting impact that has influenced many aspects of this project and my personal understanding of urban design.



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# *MACRO TO MICRO* **EIGHT CITIES**

**BOLUDER**

**CAMBRIDGE**

**CHICAGO**

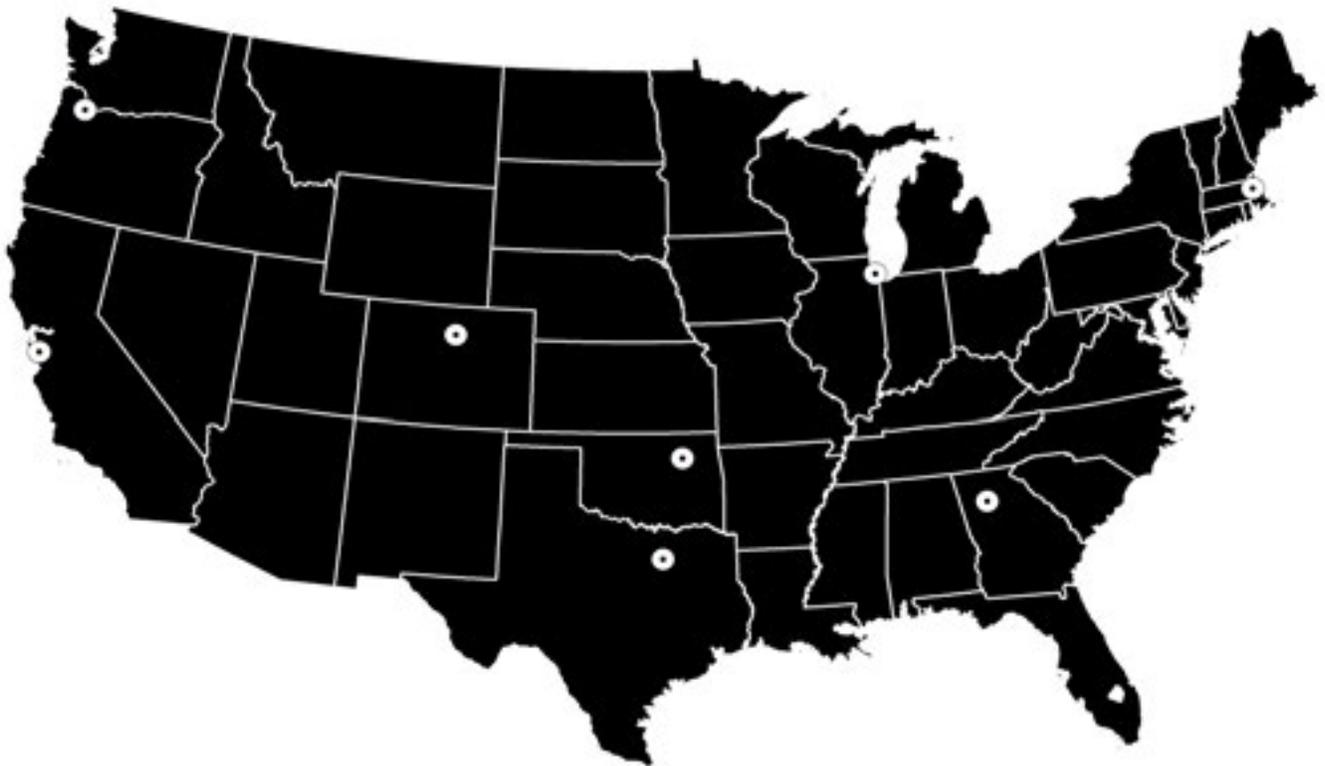
**DALLAS**

**DUNWOODY**

**PORTLAND**

**SAN JOSE**

**TULSA**



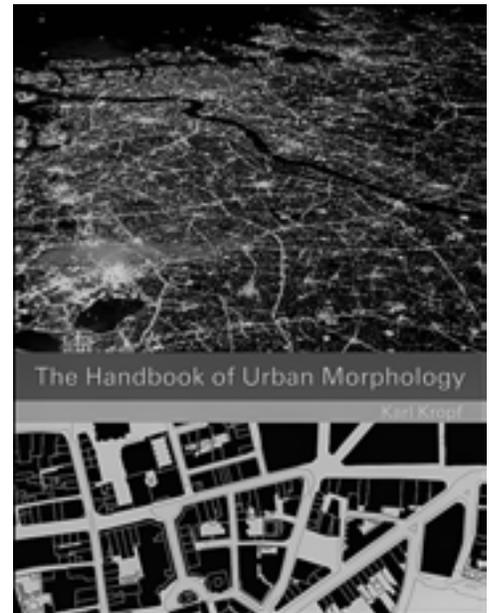
## METHODOLOGY

### Methodology

A good methodology is important for any type of research and analysis because it will help create a guided path that will steer the development of the project. Throughout the development of my project, this became an essential component and was especially instrumental during the creation of the Cottage Communities. During the initial research phase of this project, I thought, I had a clear idea of how I would create a cottage home development. It seemed that this approach would create tangible results and I could execute a swift conclusion. At first, I knew exactly where I was going, but it soon became apparent I really did know how I was going to get there. At this point in the project, it was time to re-assess my methodology and figure out a new approach that would facilitate the desired conclusion. The project had been branching off in so many different directions, the path wasn't clear anymore, that was until I adopted the morphological approach to research and analysis. I was introduced



to the concept of morphology early on while reading Collage City but I didn't fully understand the concept. Thankfully, after reading several journals on typology and morphology, I found a phenomenal book entitled The Handbook of Urban Morphology. In this book Karl Kropf not only outlines the exact steps for how to conduct a morphological analysis, he also provides concepts and case studies. I felt a wave of relief to find a book that supported my ideas on morphology and identified key strategies that would help build the foundation of my final methodology. While this methodology definitely supported my ideas, it didn't fully realize what I had been trying to accomplish in this project and thus I developed my approach to reflect some of the key components outlined in the handbook but not all. I merged and rebranded different concepts and components and then I developed a methodology that consisted of three basic steps: Compilation, Analysis, and Formulation. I'll expand on the each of these steps and identify key elements in each.



The Handbook of Urban Morphology  
by Karl Kropf

## 1. Compilation

Create a map

- a. Find open source data
  - i. Building footprints
  - ii. Streets
  - iii. Municipal boundaries

## 2. Analysis

Print/Export Map

- a. Identify prominent features
  - i. Patterns
  - ii. Geometric Shapes
  - iii. Density
  - iv. Unique Structures
  - v. Natural Elements
- b. Compare urban form relationships
- c. Identify the most prominent urban forms

## 3. Formulation

Create Cottage Home Development

- a. Use the most prominent urban form

## Compilation

In this step, I needed to identify key data sets to create city maps that would allow me to find significant features that would help guide the Cottage Home design process. I knew this could prove to be a difficult task, but I was unaware just how difficult it would be. I knew, I wanted to map cities from key geographic regions in the United States (East coast, Midwest, and West coast), but I wasn't exactly sure how to retrieve the data. Realizing that every city in the United States is a public entity and provides open records of all available data, I started my search there. I could either visit a city website directly in an effort to access their data at the source or I could use keywords to narrow my internet search engine results. I started my search for open data sets in the form of shapefiles utilizing city data and using thematic mapping skills and tools primary GIS. The shapefiles I needed for this step included municipal boundaries, streets, and building foot prints. I found that, while most cities have shapefiles related to municipal boundaries and streets, many do not have building footprints. This created a large hurdle to find the exact data needed to complete the analysis and find cities in the key geographic regions of the US I wanted to explore. Data gathering is a key component of the Compilation process, so I began to search for cities with good reference data. After an extensive search, I was able to find all three thematic data points (municipal boundaries, streets, and building footprints) for eight different cities throughout the United States: Thankfully most of these data points were available through city web portals.

After gathering these data sets, I created multiple maps using a Geographic

Information System (GIS) in a program called ArcMap. Within ArcMap, I could manipulate each data set to use the appropriate scale, size, and color. Each map that was created highlighted a thematic data point by using the figure ground techniques to accentuate one or multiple features to be examined during the analysis phase.

## Analysis

After creating the maps using the three data points, it was time for analysis which is the crux of the processes. During this phase, it was important to identify prominent features such as patterns, shapes, density, unique structures, and natural elements. To identify these prominent features, I would print and export each map to conduct a visual examination. I often used both a building footprints map and street grid map side by side to identify related elements. I found it helpful to look at the maps from different angles and perspectives. I also had colleagues look at and share their input concerning these elements. I then traced, circled, outlined, and measured the different features that I had identified. It was important to analyze and scrutinize those shapes and patterns in comparison with the whole city. Many times, when comparing different features within the context of the entire city or between maps, I would find contributing design elements that would be useful during the Formulation phase.

Finally, after comparing all the prominent features, I chose the one that I would base the cottage home design on. The choice of a prominent feature was based solely on what I found to be desirable, but in most cases, I would try to use elements that were representative of the city. In this way, I took



artistic license or liberties as the designer opposed to a strict method of selection. Whatever feature was chosen would then be made into a miniature map of the area and used as a reference in the Formulation step.

## Formulation

The final step of this methodology is Formulation, where the culmination of Compilation and Analysis are expressed in a figure ground diagram. Using the chosen city feature as inspiration, I would sketch a few different designs with paper and pencil directly on the printed maps. I found it important to the process that I sketch on the printed maps to show a side by side comparison between my ideas and the prominent city feature. Many times, I was able to formulate the design quickly and I would draw only one quick sketch. Other times, I would create multiple iterations and have to weigh the merits of each. Once the initial design of the cottage community had been sketched, it was time to create a digital representation. The primary design program used to create the cottage community diagrams was Google Sketchup. Each diagram would be composed of three main elements, 4-10 homes (building footprints), a common space or courtyard, and pathways. Other contributing factors like setbacks would be used in the final iteration of design to make the abstract illustrations more applicable in a real world implementation. Each diagram would start by drawing the structure at one of two scales, 38x26 or 34x22. The building footprint scales were originally developed using measurements loosely based on the golden ratio while trying to get close to 750 and 1000 square feet dimensions as possible. Once the building foot print was established I could measure the sets backs and

prepare a simple lot outline. Finally, I would focused on the pathways and determined if the design would be for pedestrians only, auto friendly, or auto dominate. During each step in the digital design, I consulted the maps and sketches I had made, and also my knowledge about cities. I used my expertise and the new information revealed during the Analysis phase to help guide my decisions in the final design.

The final designs represented in the 8 Cities section of this book follow the methodology that I have outlined. It is important to note the key elements remain consistent throughout each design and are part of my effort to prepare these abstract diagrams for real world implementation.

## 8 Cities Common Elements

During the creation of each macro to micro design there were re-occurring themes throughout. I will address those themes that re-occurred in an effort explore other elements in each 8 cities creation process. These were the three elements always used in each design: pathways, open space, and building footprints. There were also four thematic data sets used to create the base maps for each city: municipal boundaries, streets, building footprints, and waterbodies.

## Design Elements

### Building footprint

All diagrams could contain 4-10 structures based on regulations in the Tulsa zoning code.

In every diagram there were two building footprint sizes used – 38x26 and 34x22

No footprint exceeds 1000 square feet

**Setback**

For each development, I used 4 standard set backs to be consistent and in line with the City of Tulsa Zoning Code.

In the front - 35 feet

In the rear - 20 feet

On each side - 5 feet

In between each building - 10 feet

**Pathways**

There were three distinct pathway styles in each diagram. The pathways used also needed to consider the courtyard focus required by the zoning code.

The singular pedestrian focus only allows entry to the cottage community by foot. The auto friendly approach allows for both vehicles and pedestrians.

The auto dominate approach emphasizes creating space for automobile parking and travel.

**Open Space**

A minimum of 1000 square per design was used to create a court yard in each diagram.

Consideration was given to all open space areas in the diagram including the front and rear yards and areas in between the structures.

**Thematic Data**

The GIS program ArcMap was used to create multiple maps for each city. The data files used in ArcMap are called shapefiles and contain

geometric, numerical, and typographical data. Each data set was examined for completeness and accuracy. In most cases thematic data was compared to aerial photographs of the corresponding cities. The aerial photos were provided through the ArcMap software.

**Municipal Boundaries**

Starting with this layer I would set the scale and coordinate system. The coordinate system used for this project is the North American datums of 1983.

**Building Footprints**

This data set was the most important and received a high level of scrutiny to confirm the correct shapes and outlines where used.

**Streets**

In the majority of cities, the streets data needed to be modified, so I will provide more details in the 8 Cities section.

**Waterbodies**

In an effort to inform the identification of key prominent features I made the decision to add waterbodies into the maps. While waterbodies were not necessary to development cottage communities I felt they would be a welcome addition to the project.



# IMPLEMENTATION

# BOULDER COLORADO





## STREETS MAP



### Compilation

All the data needed to create the figure ground maps was provided by the City of Boulder.

The following is a list of shapefiles I used and source of the data.

City Limits: City of Boulder – This data was not modified.

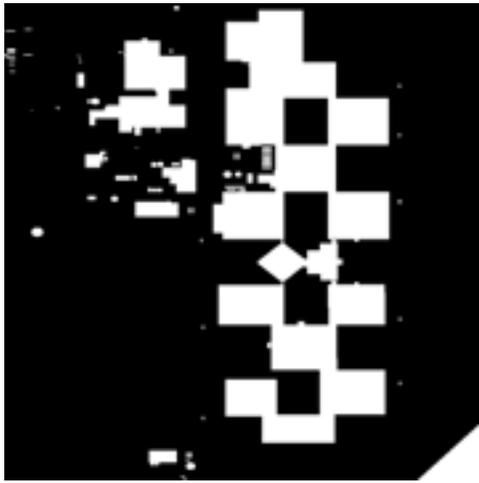
Streets: City of Boulder, Planning & Development Services Department. Based on Merrick & Co centerlines.

For this data set I used symbology to define specific street values in an effort to focus on the most important figures. Many times when viewing a city at the macro scale smaller elements are hidden to help disseminate information more quickly. In this map I choose to use these street values: Local Str, and Major Roads. When you have every street on a map it tends to be overload at a large scale.

Water bodies for Colorado and New Mexico: USGS – This data was not modified.

Building Footprints: City of Boulder – This data was not modified.





## Analysis

After creating the maps I started the initial analysis to find and identify prominent features. To conduct this analysis I printed a map of the building footprints and focused on density and unique structures. There were many areas of the city that provided interesting features, but none as prominent than the IBM facility. In Boulder in the most north eastern section of the city I noticed a dense checker board pattern of buildings. This unique structure immediately drew my attention away from the main section of the city and became the prominent feature I would use to design the first cottage community.

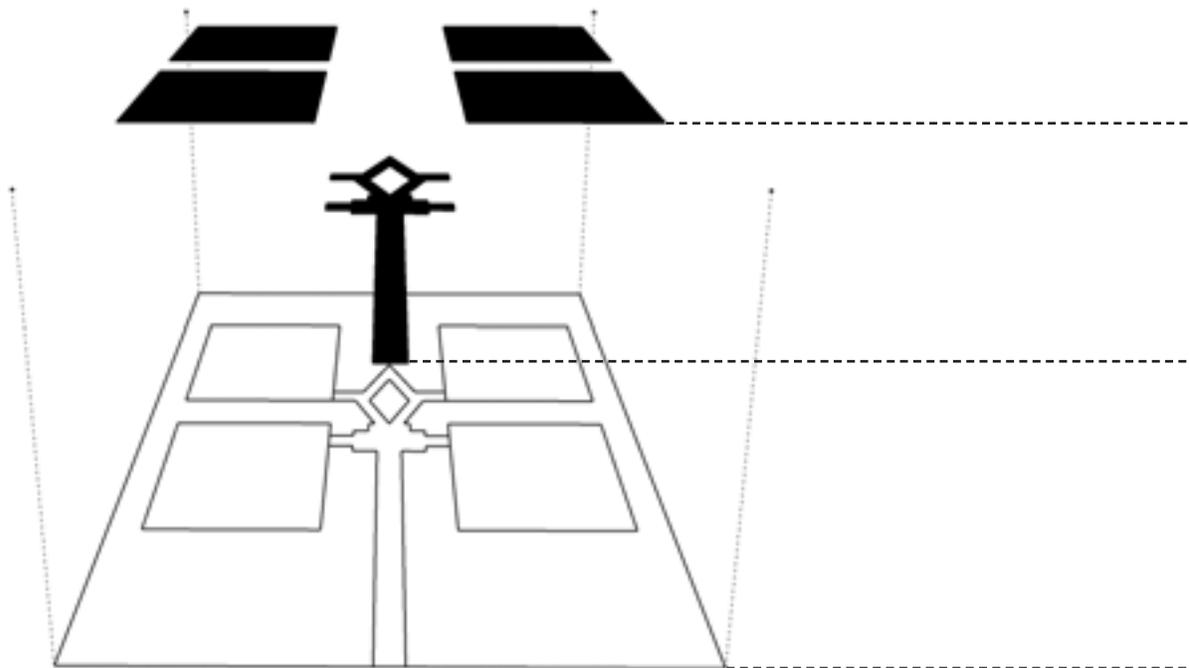
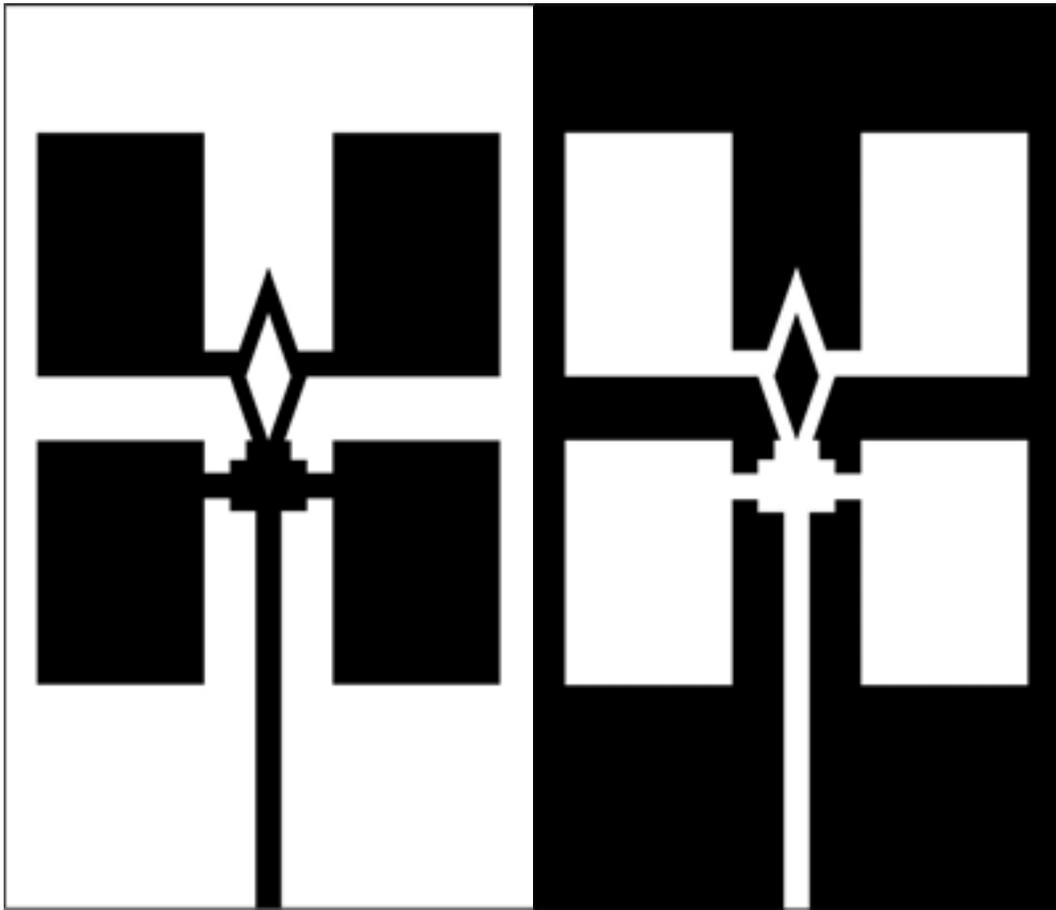


## Formulation

### Boulder Diamond

I started by identifying elements of the IBM facility that I would use in my design. The first element I thought would be the primary focus was the checker board pattern. I sketched three designs trying to implement that feature with no significant results. The second element I knew would be key in my design was a diamond shape central to the IBM facility. I sketched four iteration of this element before finding the best implementation. In the final I chose to focus exclusively on a diamond shape present at the center of the facility.





## Cottage Community

### Building Footprint

4 Homes

38x26

988 square feet

### Pathways

Pedestrian Focused

### Open Space

Single Court Yard with two design patterns

Front and Back Yard

-----Structure

-----Pathway

-----Open Space

# CAMBRIDGE MASSACHUSETTS





## STREETS MAP



### Compilation

The City of Cambridge had one of the most extensive and well-organized GIS databases of any city in this project. All the data needed to create the figure ground maps were provided by the City of Cambridge. The shapefiles provided by the City of Cambridge were so good I didn't need to make any modifications.

The following is a list of shapefiles I used and source of the data.

City Boundaries: City of Cambridge - This data was not modified.

Buildings: City of Cambridge - This data was not modified.

Street Centerlines: City of Cambridge - This data was not modified.

Water Bodies: City of Cambridge - This data was not modified.





## Analysis

The level detail in the data provided by the City of Cambridge was ideal for the initial map analysis. I used a printed map of building foot prints and focused on shapes created by the buildings. The maps revealed a city built in a predominantly triangular pattern. It was an easy decision to use these geometric shapes as the prominent feature in my Cottage Community design. Later after trying to digitally manipulate some triangle for the design I notice a unique building pattern in the eastern section of the city. After I quick internet search I found this housing development is an apartment complex name Newton Court. This apartment complex mirrored some ideas I had tried in my early design of this Cottage Community. I decided to combine the shapes of the city and this unique structure in the final design.

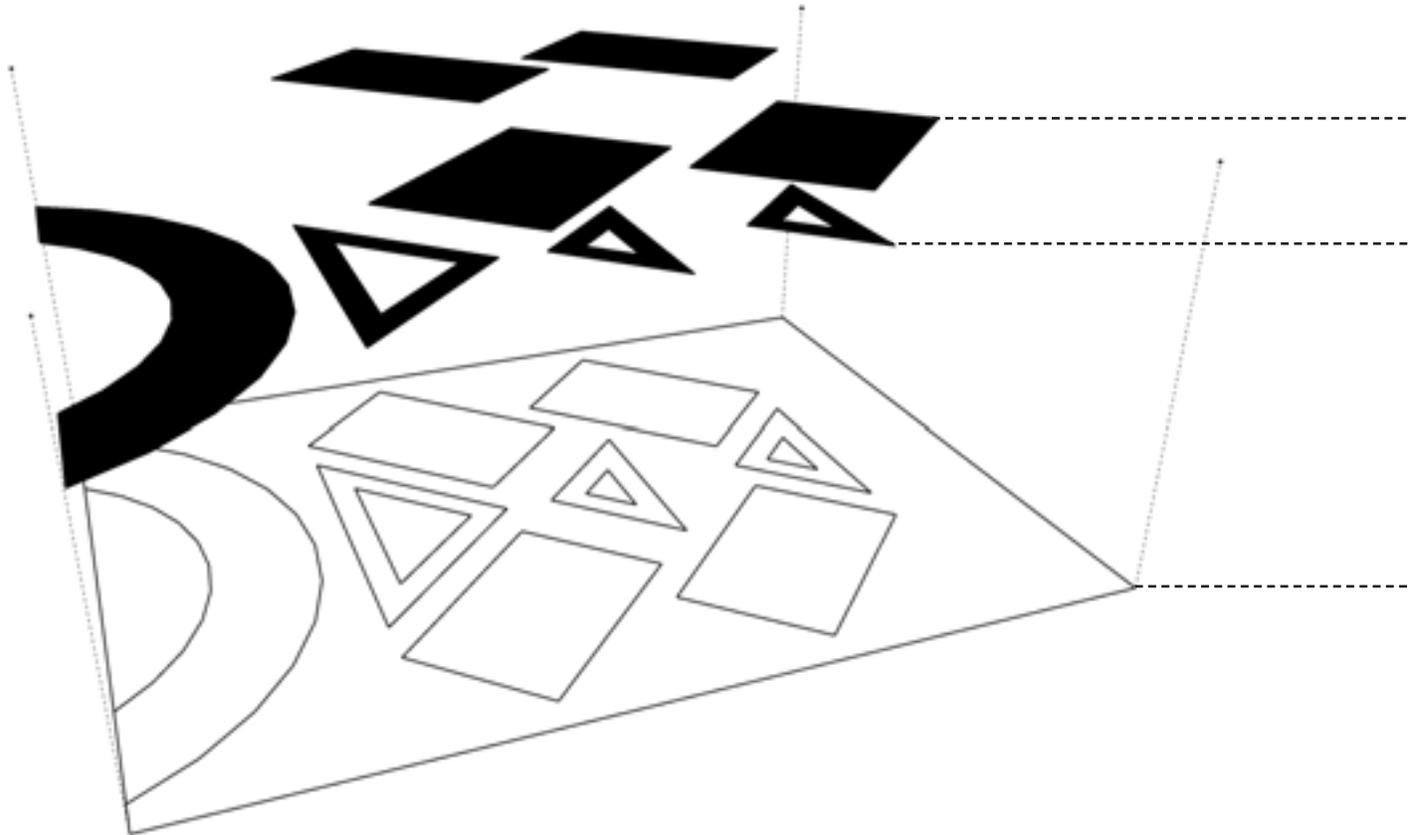
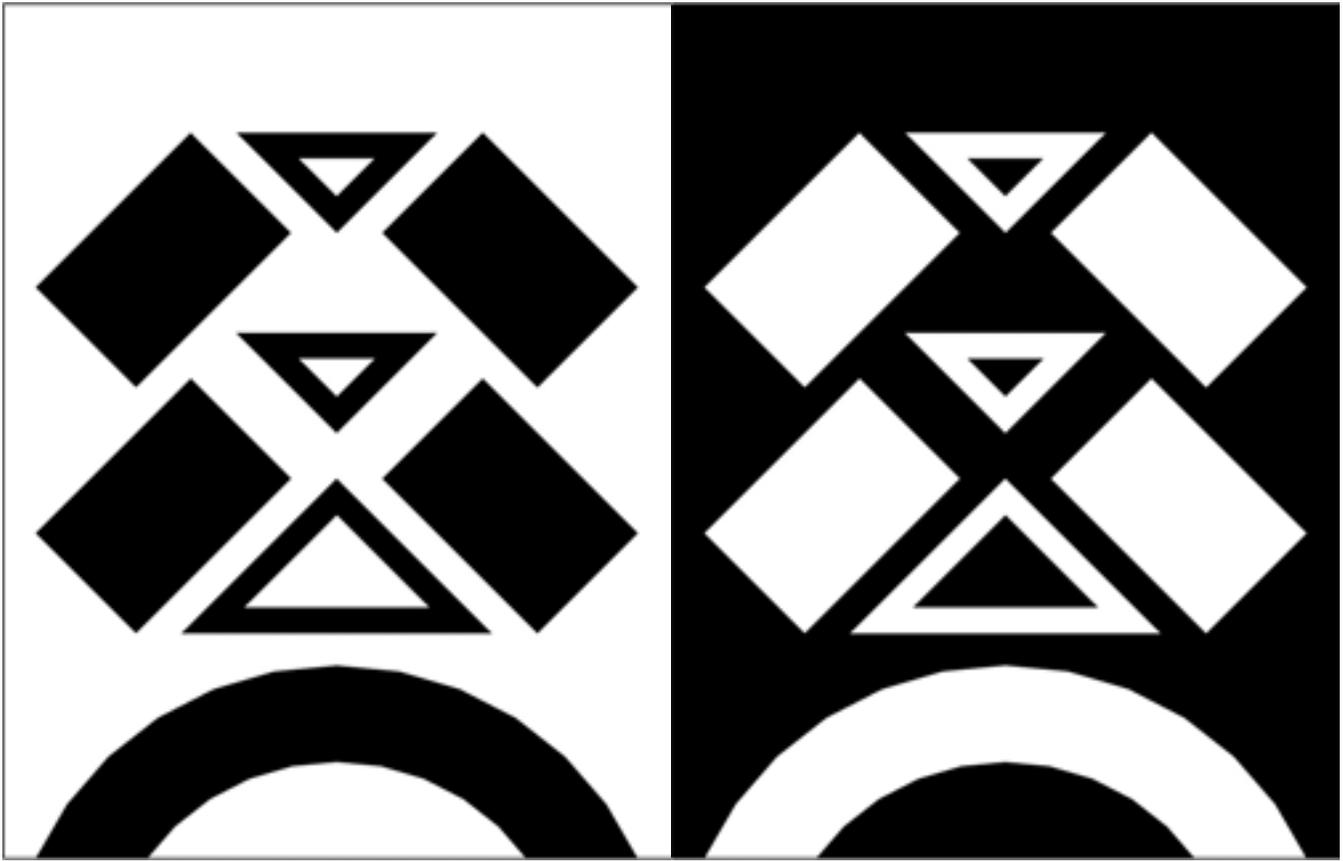


## Formulation

### Cambridge Iso

In the beginning of the design process I traced numerous triangular patterns created by the city from and then using a variety of computer programs excised the triangles. Then I simply tried to piece the triangles together in the hope I could create a unique courtyard design. It quickly became apparent this approach wouldn't work. I went back to the map of building foot prints I had created and began to trace different areas of the city. While doing that I notice a unique development that allowed me to pivot toward a new design. I did a quick sketch on the paper map and a final design was created. Using the triangle elements as the main feature of courtyard paired with a circle drive I decided this would be a slightly more abstract concept.





## Cottage Community

### Building Footprint

4 Homes

34x22

748 square feet

### Pathways

Auto Friendly

Circle Driveway

### Open Space

Triple Court Yard with one design pattern

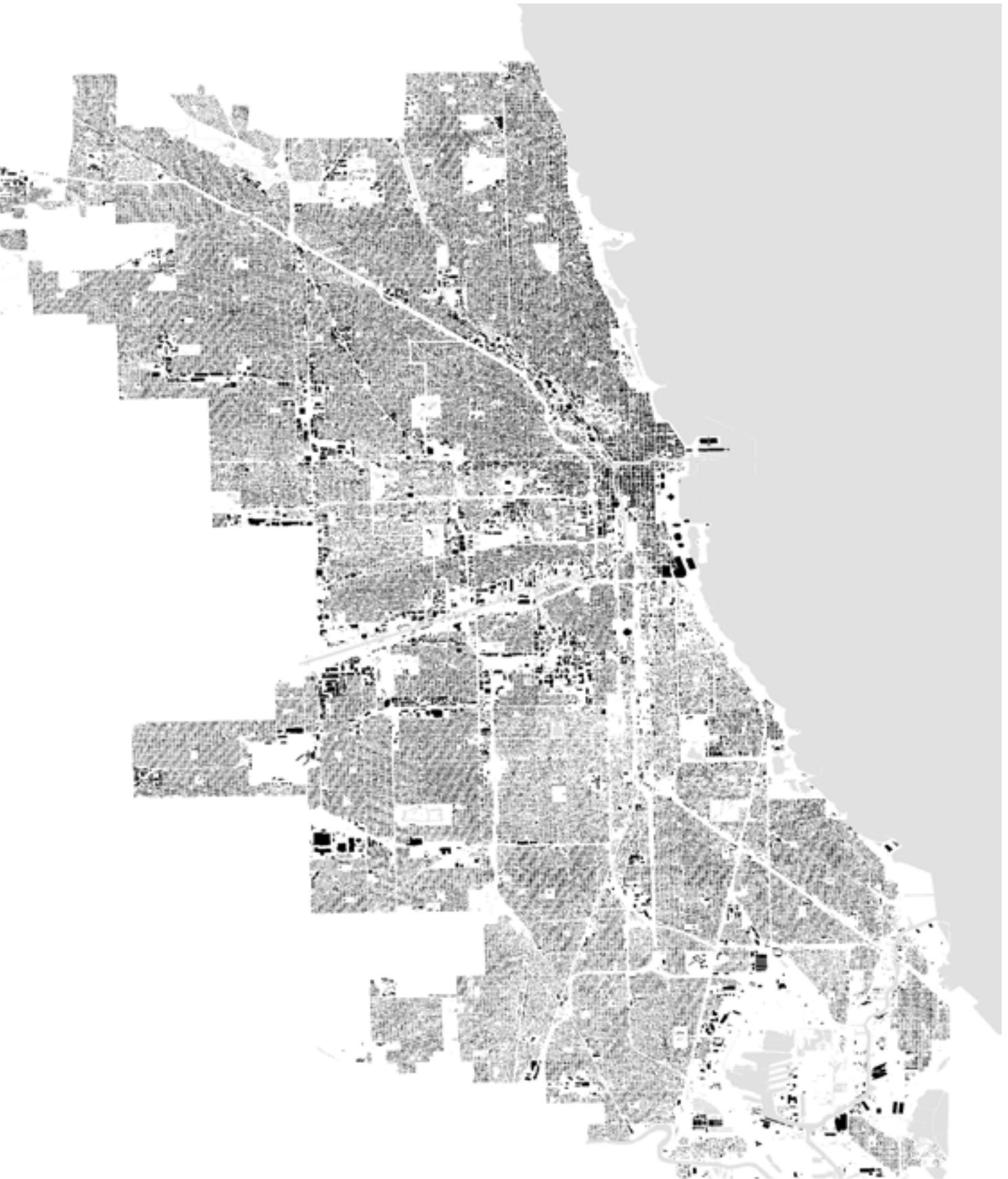
-----**Building Footprint**

-----**Pathway**

-----**Open Space**

# CHICAGO ILLINOIS





## STREETS MAP



### Compilation

The GIS data used to create the maps of Chicago were the largest files for the entire project. Most shapefiles were saved on a flash drive, but files for Chicago had to be saved on a computer hard drive to use. Another issue I had during the compilation process was obtaining the GIS data. Almost every city uses a GIS portal to download shapefiles, but in the case of Chicago their portal was very difficult to use. Over all the compilation process for the City of Chicago was the most difficult.

Building Footprints: City of Chicago – This data was not modified.

Street center lines: City of Chicago

The street center lines were very difficult layer to manipulate because the street values fields were oddly named. The creators of this data set used values that don't correspond with the type of data portrayed in the shapefile. After reviewing each value set I was able to trim things down to a manageable eight values in map street layer. The values I used include: 1,2,3,5,7,9,99, and RIV.

Waterways: City of Chicago – This data was not modified.

Boundaries – City: City of Chicago – This data was not modified.





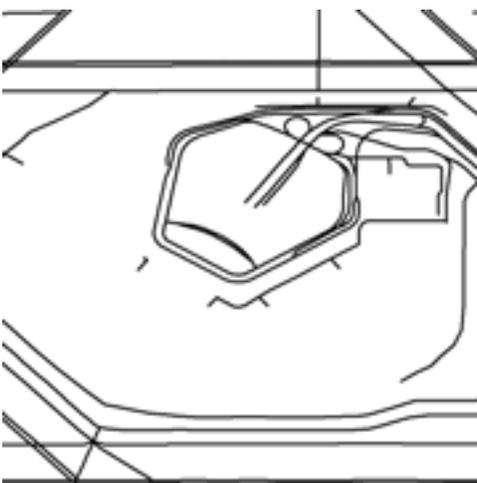
## Analysis

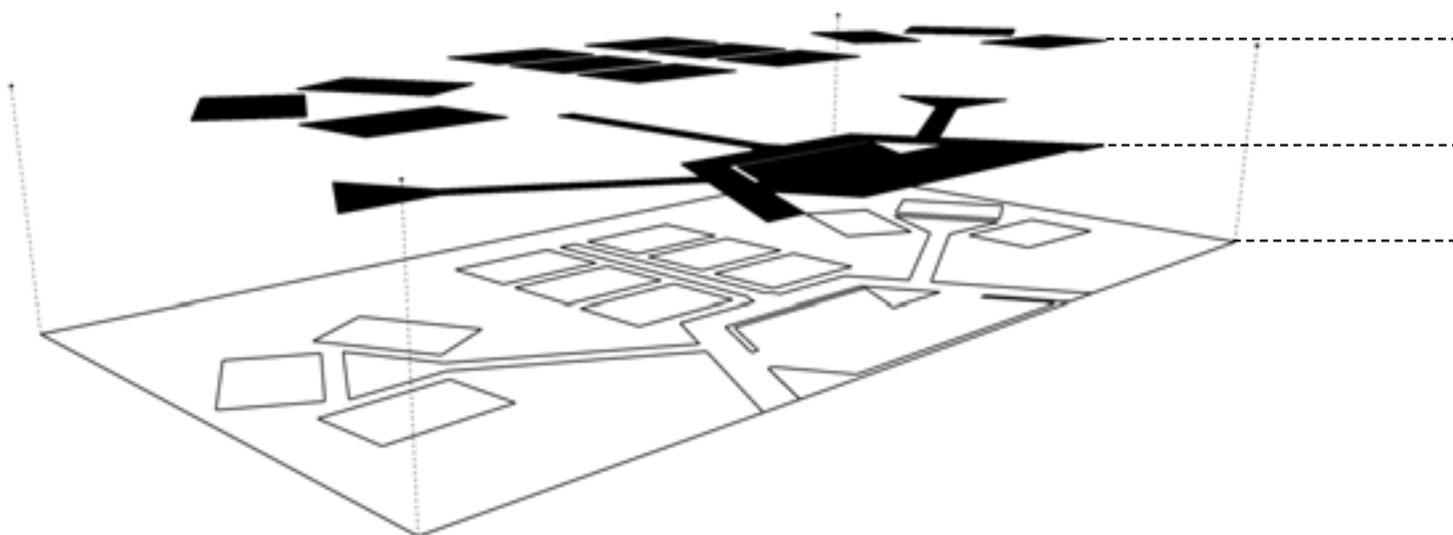
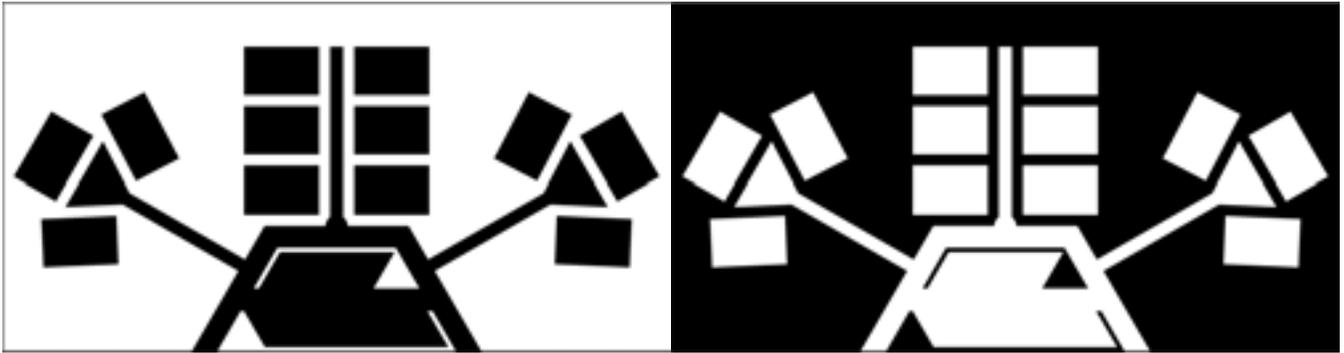
Chicago was such a large city I didn't know what would be revealed during the analysis process. I started by printing both a building foot prints map and streets maps and comparing both side by side. The amount of roads and structures didn't provide any immediate revelations. As I started to become concerned I wouldn't be able to find a prominent feature for my design. Then almost out of the corner of my eye I saw a unique structure on the outskirts west of the city. A quick internet search reveal the structure to be the O'Hare International Airport. This airport would become the prominent feature used to formulate the Cottage Community.

## Formulation

### Chicago Air

The unique structure I chose to focus on in Chicago turned out to be an airport. Airports are designed to accommodate airplane traffic and this factor provides a different design aesthetic from other structures. In the case of O'Hare there are many branching sections that split off from three main corridors. I choose to focus on three distinct sections of the building in my design: one linear middle section and two sections the branch out into a Y shape. This design became the most challenging to create in terms of the shape and scale. I drew three initial sketches on the printed building foot prints map as a starting point. Next, I began the digital interpretation where I had numerous issues with the setbacks and angle of the homes. The design called for three distinct housing areas to match the style of the airport. I choose to create one linear section with six homes and two triangular sections with three homes each. I went outside the regulatory 4-10 house in this design to show case a larger development. This could be easily scaled back though by removing two homes. The driveway and parking areas where also done in a





triangular pattern for continuity. When creating the parking area, I took time to calculate the size, angle, and number of spaces needed to accommodate the scale of the development.

## Cottage Community

### Building Footprint

12 Homes

34x22

748 square feet

### Pathways

Auto Friendly contains large parking with three distinct pedestrian areas

### Open Space

Three Court Yards two with design patterns containing a long walk ending in a small court yard and one with a continuous linear courtyard.

Front and Back Yard

-----**Building Footprint**

-----**Pathway**

-----**Open Space**

# DALLAS TEXAS





## STREETS MAP



### Compilation

All the data needed to create the figure ground maps was provided by the City of Boulder.

Dallas City Limits GIS Layer: City of Dallas – This data was not modified.

Street: City of Dallas GIS Services

To find the correct arrangement of street values I ended up creating two street layers inside ArcMap to find the best layout for the final map. The street field values that I finally used are as follows: Dallas Area Highway, Highway, Major Arterial, and Primary Highway.

Structures (Building Footprints – Polygon: City of Dallas GIS Services – This data was not modified.

Hydrologic features – Polygon: Sanborn & City of Dallas Storm Water and GIS Services – This data was not modified.





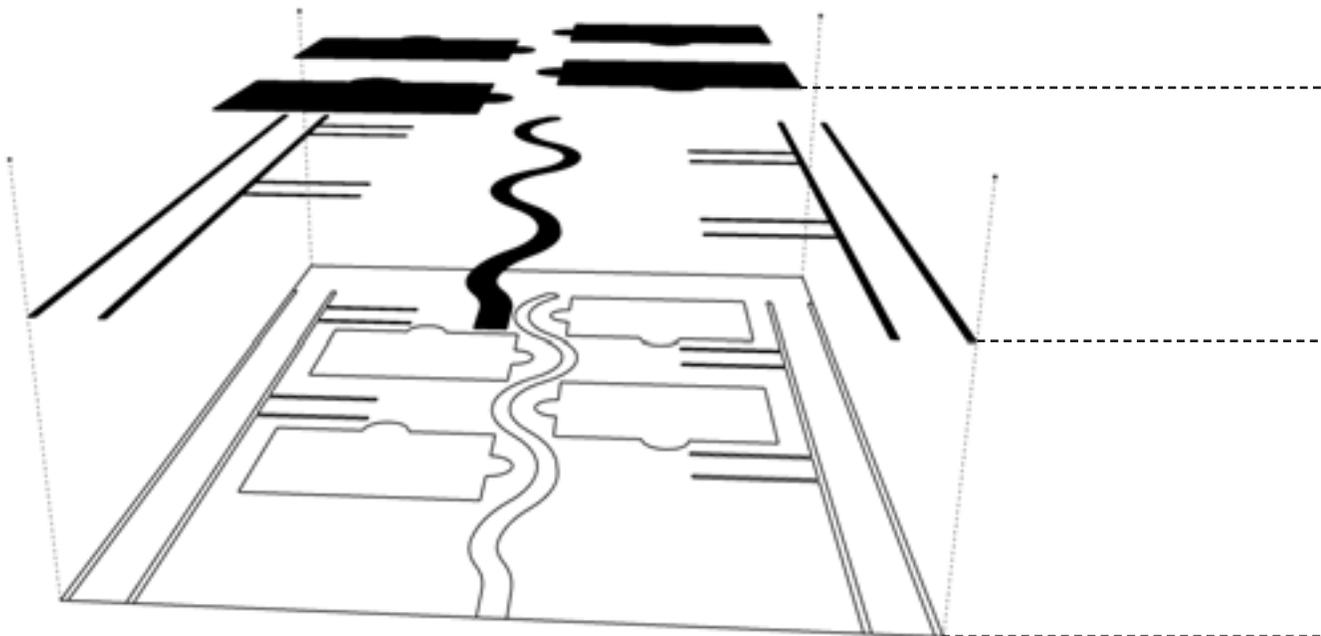
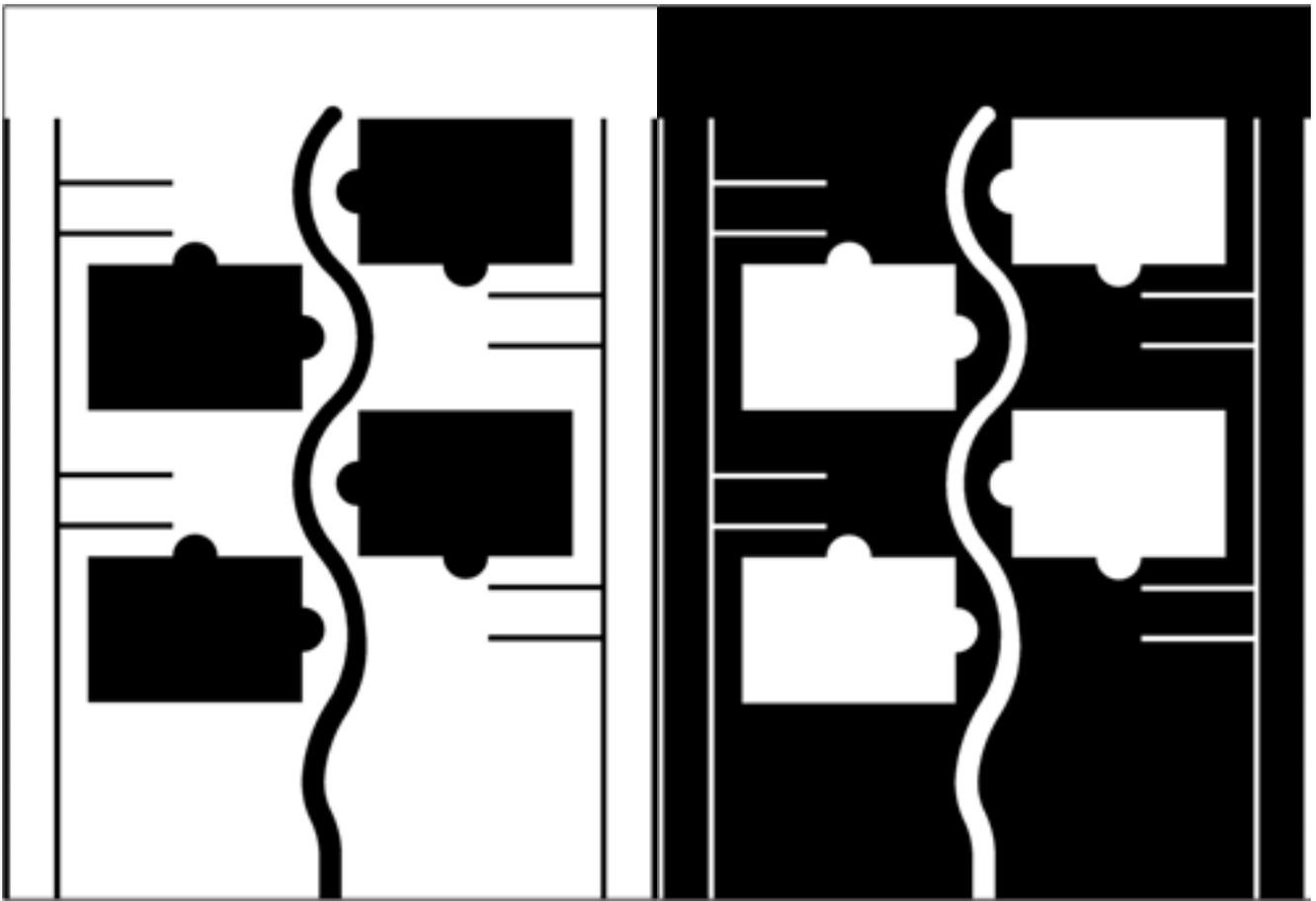
## Analysis

The Dallas analysis went rather quickly in comparison to the other cities. I printed both a building foot print map and streets map. After I brief look at both maps natural elements seemed to be the key prominent feature I would select. On both maps I circled and outlined the river systems that flow through the city. A key observation when choose the river feature is how it divides the city almost directly in half. I thought is would be an interesting element to focus on in the final design. One noteworthy component of the analysis phase I think is worth mentioning is the comments related to the municipal boundaries. Some of the interesting feedback from a few casual observers included seeing: a man with his tongue out, stag beetle, and a plucked chicken. While none of these observation were made to the benefit of the final design I though they would be a fun addition to this analysis section.

## Formulation

### Dallas River

The primary focus in this development was the meandering river that gently curves through the homes. Originally, I had traced the Trinity River and tried to insert and fit it in between the cottage homes. This approach didn't have the desired effect and I settle on portraying the spirit of the river instead. Next, drawing of personal experience I decided to opt for the larger of the two building footprints because everything is bigger in Texas. I also knew from my time in Dallas that the area is very auto centric, and I would definitely need parking areas. After just a few hand sketches I settled for the final design with one extra feature added during the digital rendering. In this design unlike any other I added additional components to the structures. Each structure has a bump out which I envision as stairs or possible window nook.



## Cottage Community

### Building Footprint

4 Homes

38x26

988 square feet

### Pathways

Auto Friendly with low impact drive ways on either side of the property line

### Open Space

Continuous

Front, Back, and Side Yard

-----**Building Footprint**

-----**Pathway**

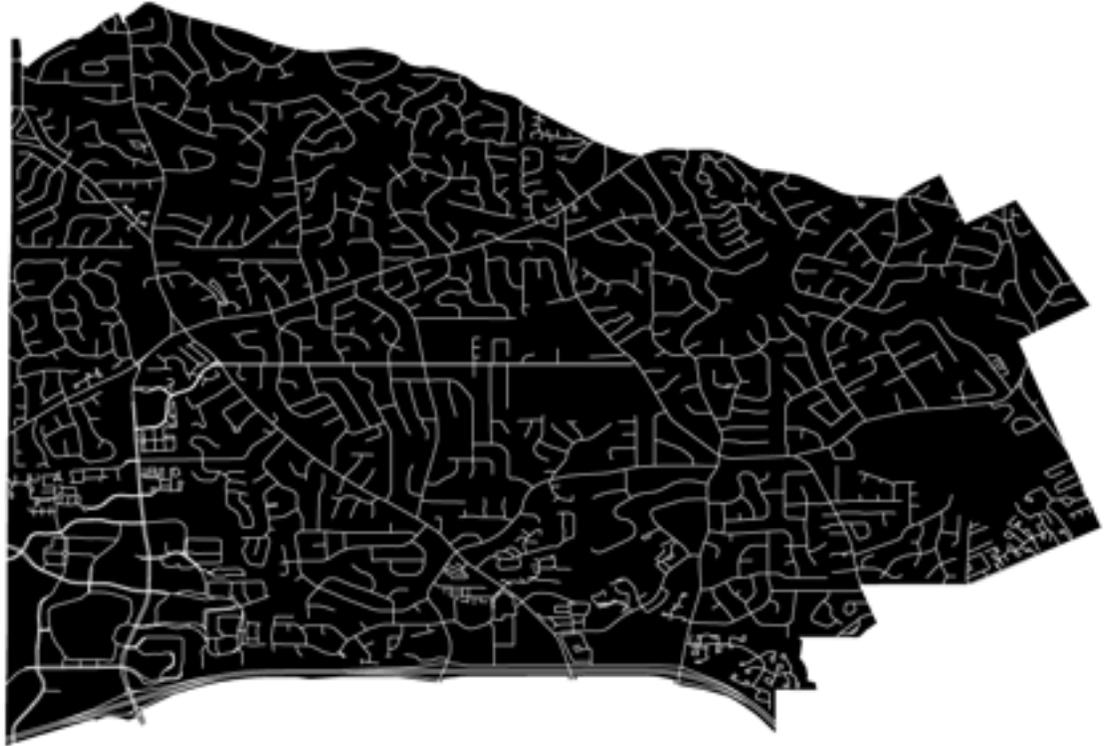
-----**Open Space**

# DUNWOODY GEORGIA





## STREETS MAP



### Compilation

I found the city of Dunwoody early on in the project and was very impressed at the GIS data available for such a small city.

Streets Layer: City of Dunwoody

The value fields are very well defined for this city and the only one I didn't use is the trail value. This wasn't pertinent for the project and didn't add value to the map.

Lakes: City of Dunwoody – This data was not modified.

City Limits Layer: City of Dunwoody – This data was not modified.

Building Footprint: City of Dunwoody - This data was not modified.





## Analysis

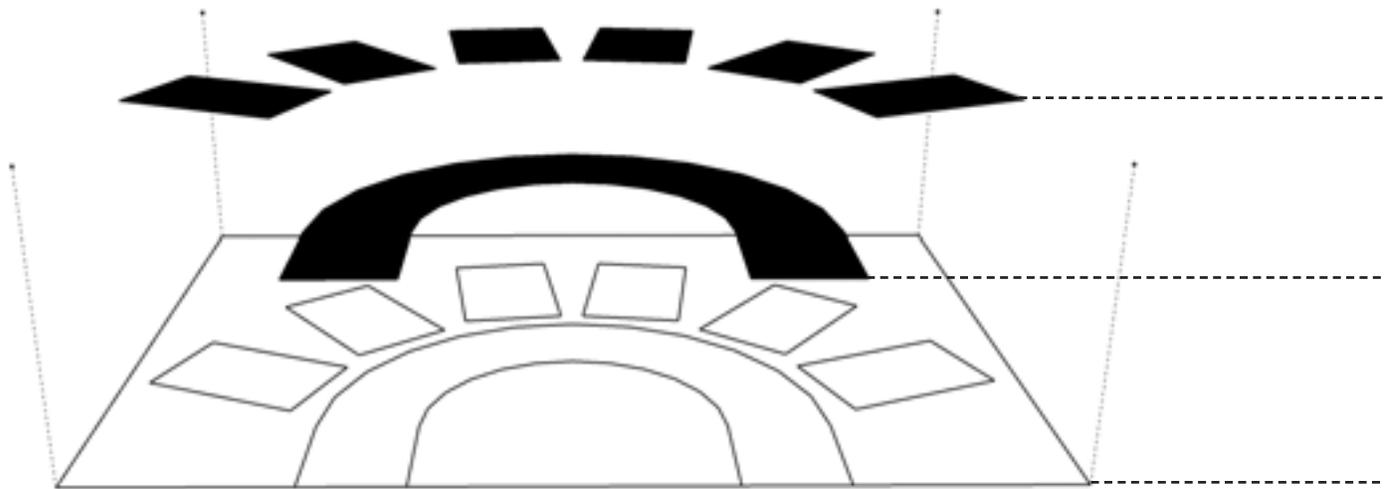
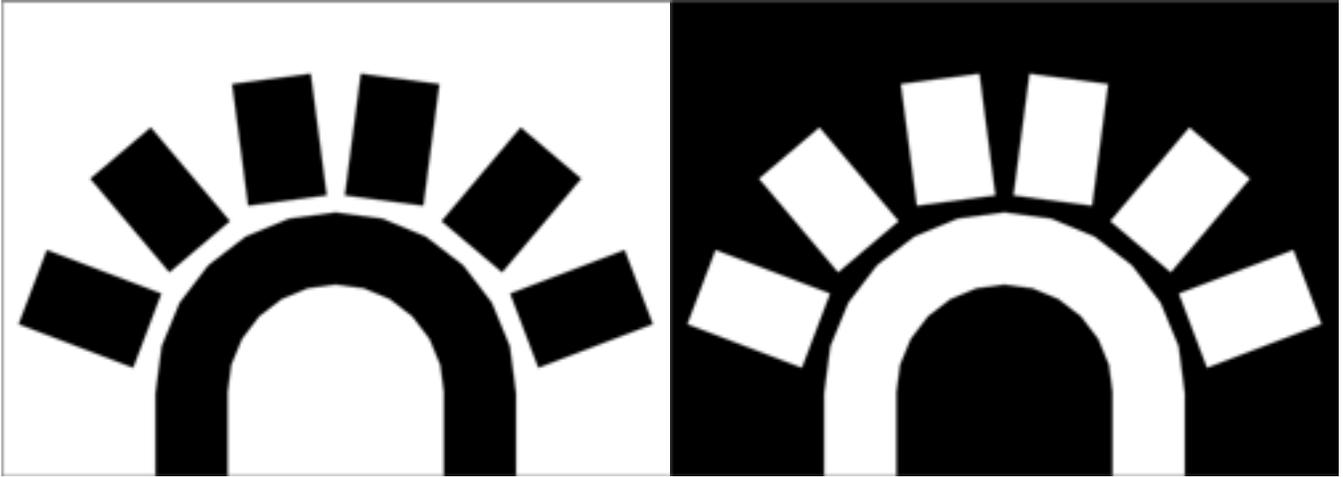
Dunwoody is such an interesting city to view from the macro scale because of the development patterns and size of the city. During the analysis I took to calling this the suburb city. It seems the entire city has been developed on the neo-subdivision layout. When looking at the street map you see the majority of street end in a cul-de-sac. This cul-de-sac street pattern makes the building foot print map even more interesting! I describe the building foot prints as ant trails or worm tracks. I knew the cul-de-sac would be the prominent feature I would focus on.

## Formulation

### Dunwoody Sac

My main source of inspiration for this design are the cottage courts on Route 66 in Springfield Missouri. There are only a few left, but their design lends itself perfectly to the macro scale of Dunwoody and the spirit of Cottage Communities. This design is completely auto dominate with the only pathway a circular drive way fronting a court directly off the street. While this design seems simplistic I had quite a bit of difficulty arranging the structures along the circle drive. I spent quite a lot of time trying to find the best angle to position the homes. In the end I settled on what is represent here, but I have never been satisfied with the arrangement.





## Cottage Community

### Building Footprint

6 Homes

34x22

748 square feet

### Pathways

Auto Dominate with a circle drive

### Open Space

Single Court Yard at the front of the property

Front and Back Yard

-----**Building Footprint**

-----**Pathway**

-----**Open Space**

# PORTLAND OREGON





## STREETS MAP



### Compilation

The Portland GIS data sets were not easy to manipulate and took a long time to find.

Streets: City of Portland – This data was not modified.

I was very unsatisfied with this shapefile none of the value fields allowed me to consolidate the number of streets shown on the final map because they were all segmented in odd and different ways.

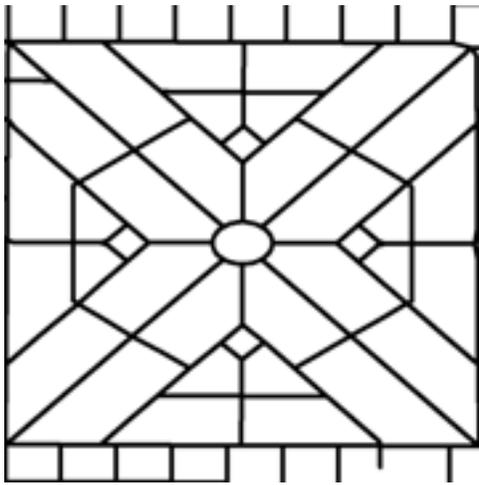
Buildings: City of Portland – This data was not modified.

City Boundaries: City of Portland

The City of Portland, for some odd reason, included all the surrounding cities in this shape file and I had to use symbology to isolate the Portland field value.

USGS National Hydrography Dataset Oregon State: USGS – This data was not modified.





## Analysis

Despite the issues with the GIS data this city element was probably my favorite to discover. In the heart of the Portland's city grid a section has been completely off set and turned between 45-90 degrees off axis. The offset creates an X that completely breaks up the city street pattern. It creates a unique pattern on both the street map and building foot print map. I did an internet search that revealed this area to be a subdivision named Ladd Circle. The subdivision streets intersect at the central circle bounded in every cardinal direction by diamond shaped gardens. This unique city pattern became the prominent feature I based this design on.

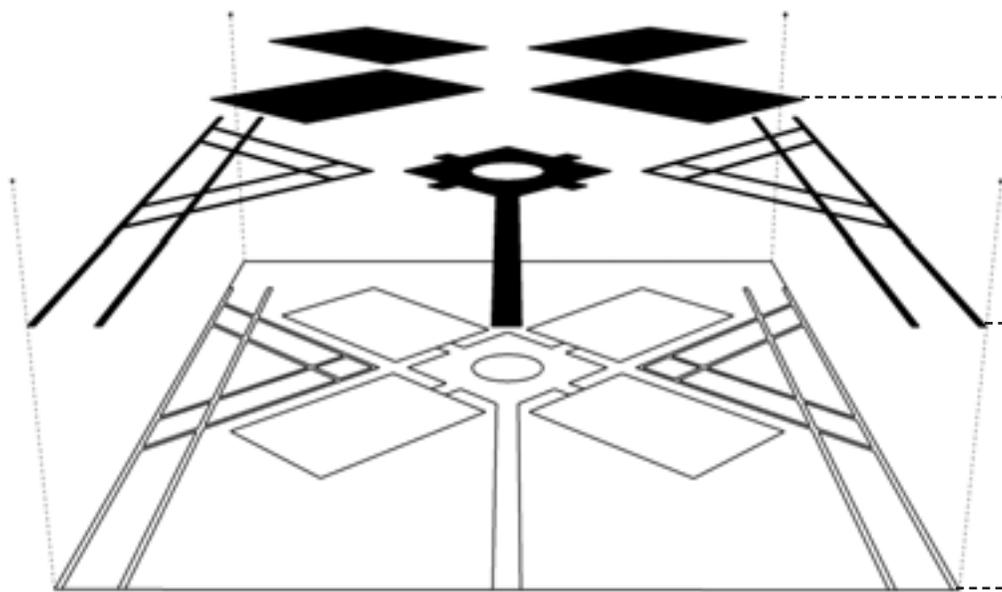
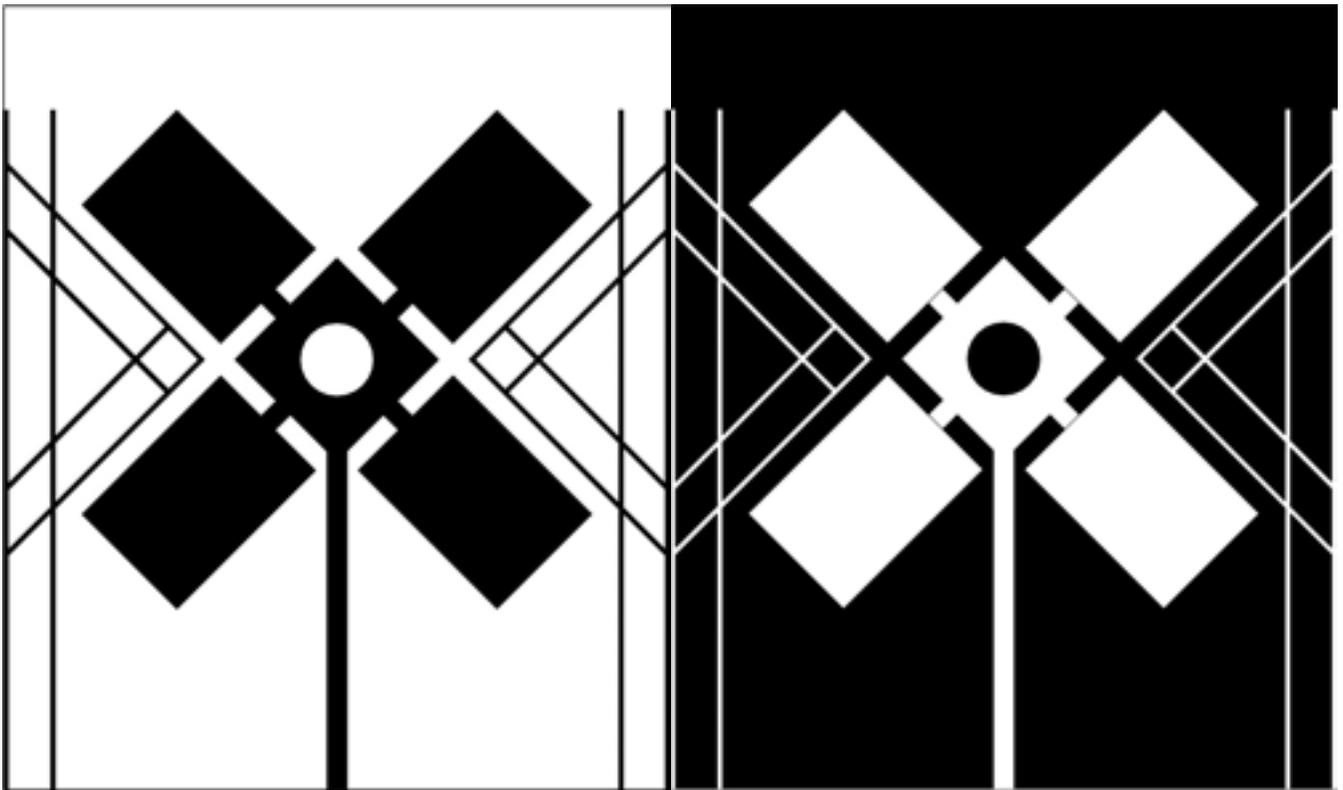


## Formulation

### Portland Windmill

It was never my intent for this Cottage Community to look like a windmill, but after reviewing the finished rendering there was no denying it's form factor. The intent was to have one Cottage Community fully focused on the interior courtyard. I wanted to implement multiple attributes from the original feature, so I utilized the central circle, diamond shape, and chevron. Those elements combined with a central walk way created the final rendering. The low impact automotive pathways on either side of the lot were supplemental to the design for additional flair. I see the auto friendly elements as only optional.





## Cottage Community

### Building Footprint

4 Homes

38x26

988 square feet

### Pathways

Auto Friendly with low impact driveway design on either side of the property line

### Open Space

Single Court Yard with two design patterns

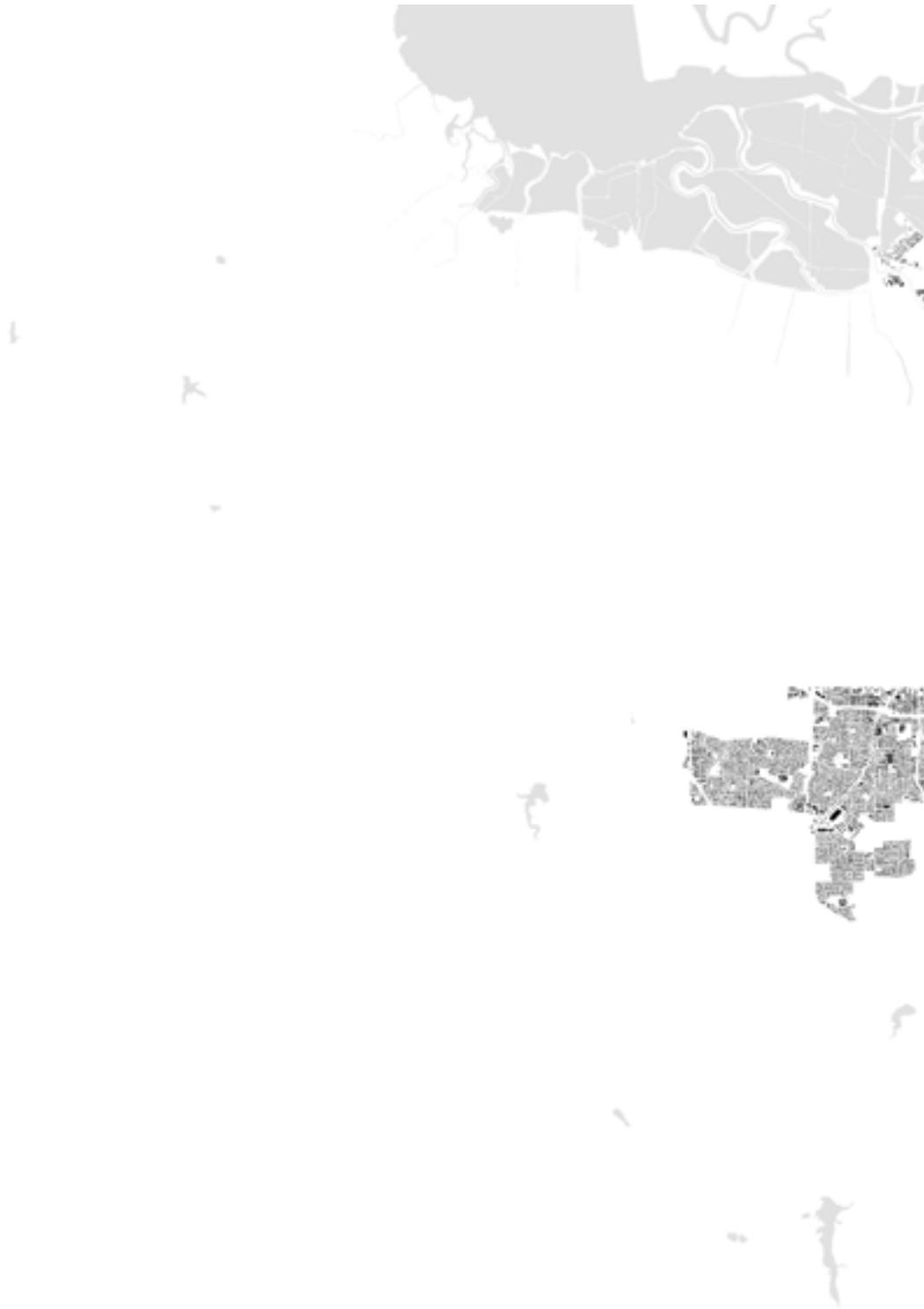
Front and Back Yard

-----**Building Footprint**

-----**Pathway**

-----**Open Space**

# SAN JOSE CALIFORNIA





## STREETS MAP



### Compilation

All the data needed to create the figure ground maps was provided by the City of San Jose.

City Limits: City of San Jose – This data was not modified.

Basemap\_2: City of San Jose

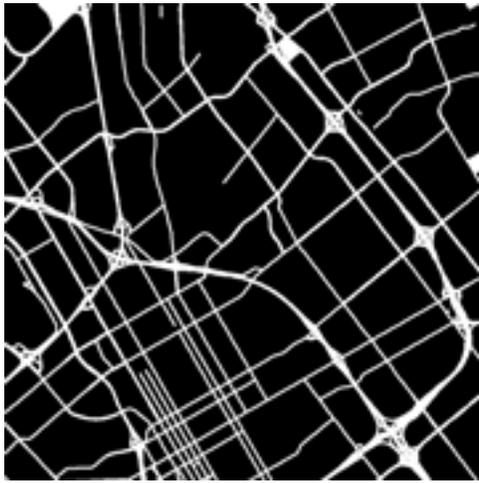
This shapefile contains multiple data sets which included building footprints. To isolate the building footprints, I removed all other data sets. No changes were made to the building footprints data.

Basemap: City of San Jose

This shapefile contains multiple data sets which included Single Streets Centerlines. To isolate the Single Streets centerlines, I removed all other data sets. Within the data for Single Streets Centerlines I used symbology to isolated key field values: Freeway, Highway, Major Arterial, and Neighborhood Collect. San Jose had the best labeled values other than Tulsa.

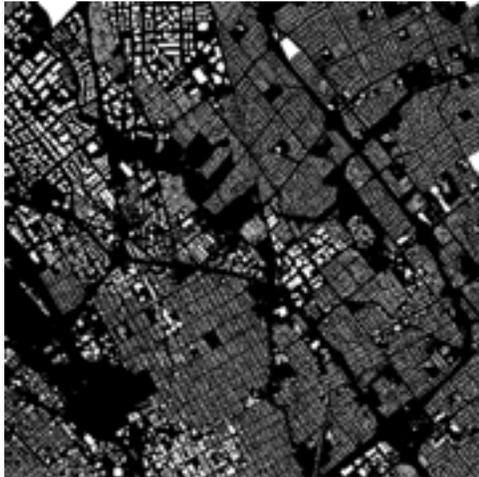
Santa Clara County Water Bodies: SCVWD Open Data – This data was not modified.





## Analysis

To analyze the city of San Jose I started by printing both a streets map and building footprint map. Neither map lent themselves to the formulation of any type of design inspiration. Thankfully I had visited San Jose a few months prior to the development of this project. Drawing on the time I spent in San Jose and recalling my personal experience there was one experience I couldn't forget. Every time I think of California I can't help but to remember how focused everyone was on traffic, specifically highway traffic. I knew this could be the inspiration for my design. I went back to the maps and while reviewing the streets map I noticed an abundance of cloverleaf interchanges. This was the prominent feature I would focus on, this highway element.

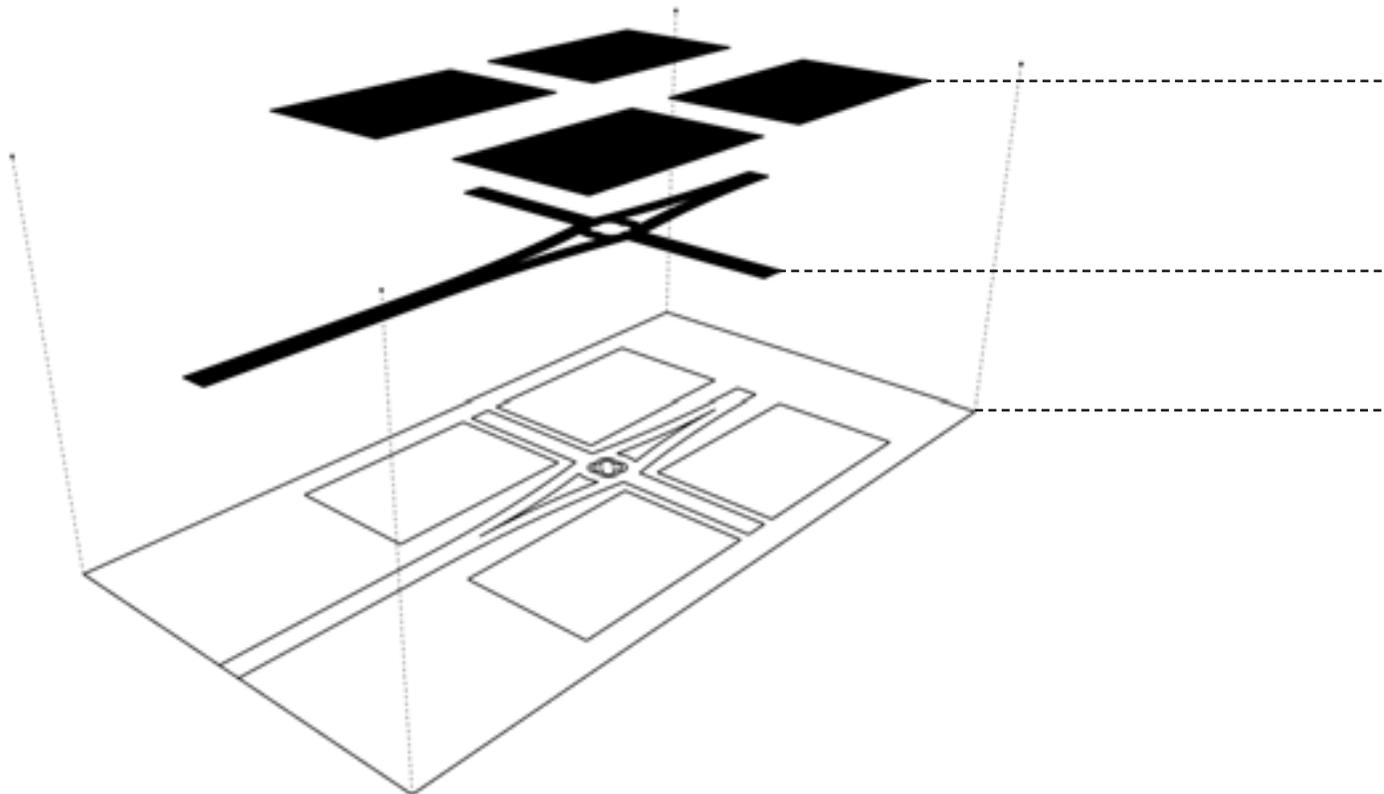
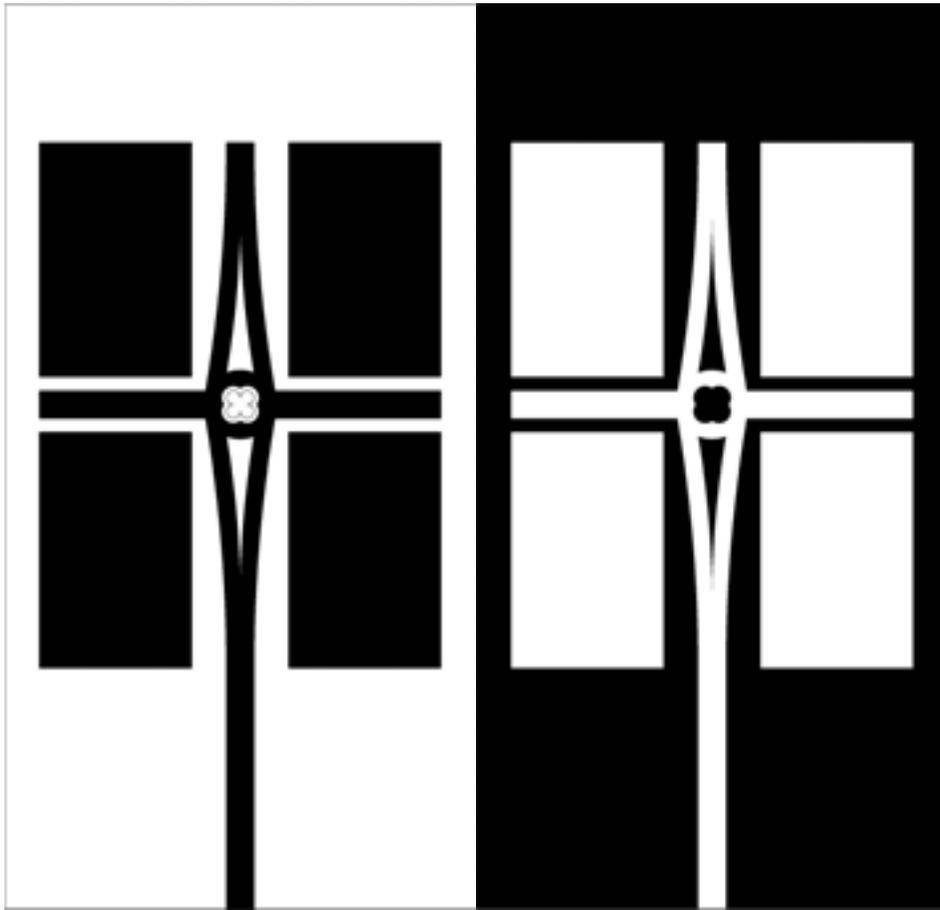


## Formulation

### San Jose Clover

The knot or cover leaf pattern became the main focus of this design. I took to using knot and cover leaf interchangeably because I thought of the traffic in knots. At first I didn't know how I would translate this feature into the design. Would this be an auto focus or pedestrian focus? I ultimately chose to use the feature in a purely pedestrian form, using the clover as the central element in the courtyard. I also wanted this development to be an iterative design that could be repeatable and built in phases. Most of the other Cottage Communities are standalone developments while this one is designed in a way that allows for expansion from every direction. Originally I want to show case this feature, but in the end chose to focus on one iteration.





## Cottage Community

### Building Footprint

4 Homes

34x22

748 square feet

### Pathways

Pedestrian Focused

### Open Space

Single Court Yard with one design patterns

Front and Back Yard

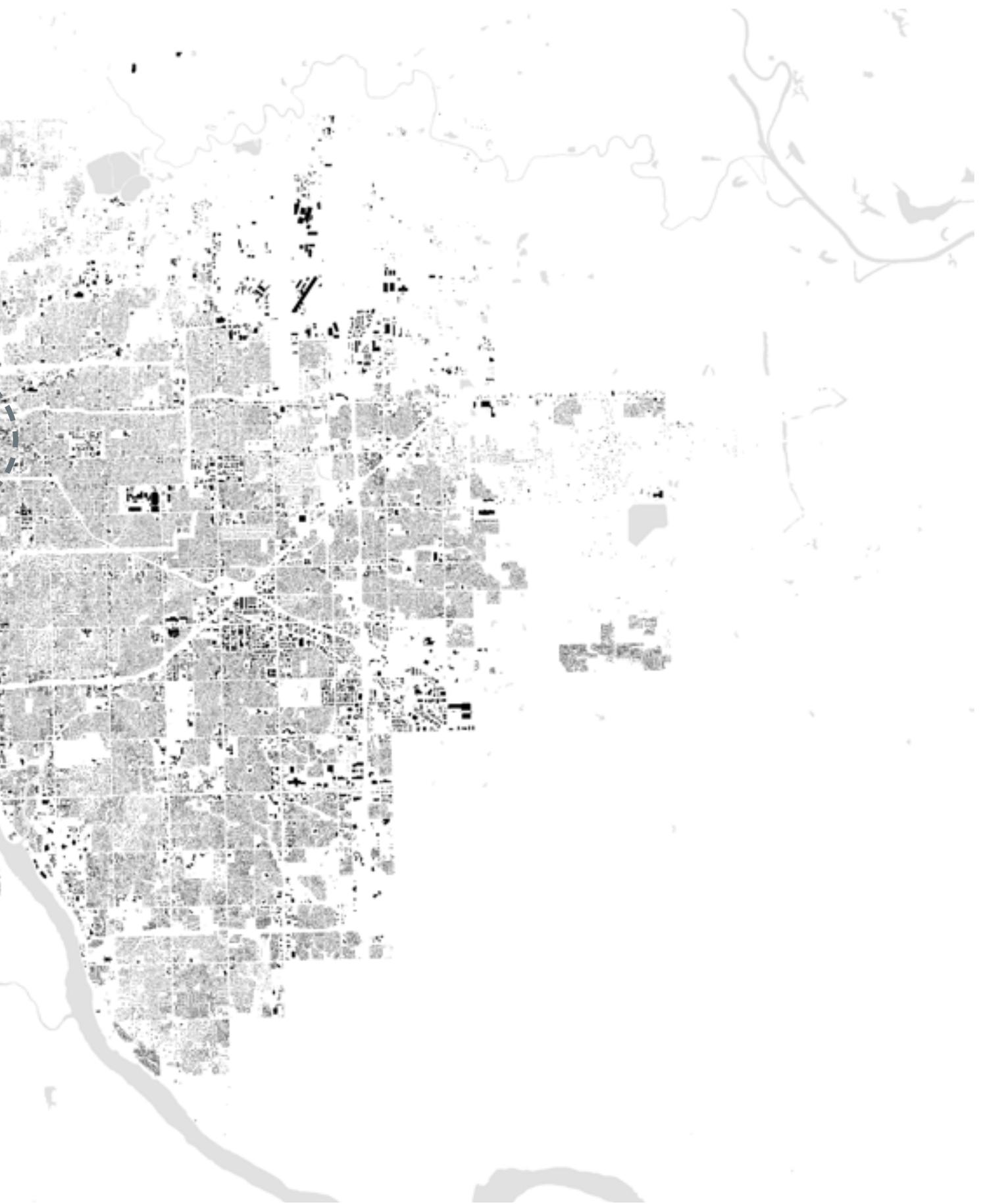
-----**Building Footprint**

-----**Pathway**

-----**Open Space**

# TULSA OKLAHOMA





## STREETS MAP



### Compilation

Fortunately, during this compilation process I had an inside knowledge of Tulsa's GIS data and full access. I used a variation of the streets shapefile called the major streets and highways plan. This provided the best data to create maps for the analysis process.

Waterbodies: City of Tulsa – This data was not modified.

Building Footprints: City of Tulsa – This data was not modified.

Major St Hwy Plan: City of Tulsa and INCOG – This data was not modified.

This shape file was really helpful in creating maps because I didn't have to use any symbology to isolate specific street values.

City Limit: City of Tulsa – This data was not modified.





## Analysis

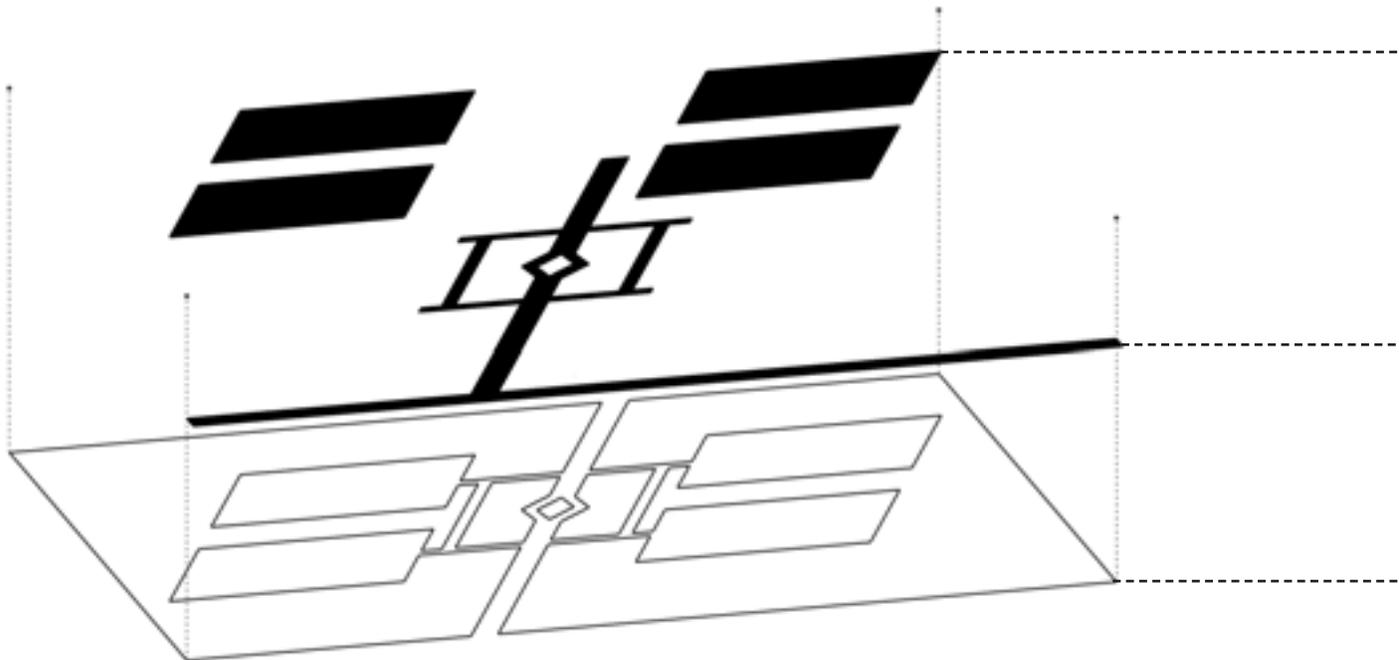
The Tulsa analysis was probably the quickest and longest analysis of the entire project. While I knew from the beginning I would focus on the offset grid system within the downtown Tulsa interdispersal loop (IDL), I also needed to use Tulsa to test my methodology. This meant walking through a step by step morphological review of the city. While this review was important it doesn't provide any additional insights that need to be highlighted here. The crux of the details end with my decision to focus on the 65 degree offset Tulsa grid as the prominent feature in the design.

## Formulation

### Tulsa Angle

For the Tulsa design I choose to focus on the angle of the downtown grid compared to the rest of the city grid. I found the downtown grid to be offset at a 65 degree angle in relation to the rest of the north south east west grid in Tulsa. To create this design I fist drew a walking path at 65-degree angle. Next, I drew four rectangles at a 38 feet by 26 feet and off set each match the angle of the walking path. The final element I used in the design was a diamond in the central courtyard. This diamond is representative of the shape of the IDL which when views at the macro level slightly resembles a diamond. It is important to note what these offset structures might resemble if constructed at that angle. The angled section of the foot print is meant to be a porch or stairs and isn't meant to reflect the interior of the structure which would remain square.





## Cottage Community

### Building Footprint

4 Homes

38x26

988 square feet

### Pathways

Pedestrian Focused

### Open Space

Single Court Yard with one design patterns

Front and Back Yard

-----**Building Footprint**

-----**Pathway**

-----**Open Space**

## CONCLUSION

In conclusion I have found there is no one size fits all solution for developing any structure or development. In the beginning of this project I put myself and my ideas in to a box, but quickly realized there wasn't enough room. After a while and some guidance I came to understand that sometime it is better to build a box that fits the product you have created. I realize this is a rather metaphorical way to conclude this project, but after eight months dedicated to a project you learn as much about yourself as the material you have been working on. The cottage home development will at some point be built in Tulsa as it already has been in other parts of the country, but I doubt I'll be the one to do it. There are too many factors that need to align to make it work and I don't think they're quite ready yet. For now I'll stick to abstract concepts and explore the theory behind the design. What I can say for sure is that it take people to make these idea become reality and while there are plenty of professional architecture



and planning firms trying to create and recreate urban design techniques for cities, there is an equal force of untrained grassroots activist that are trying to makes these ideas happen on their own terms. It is important to acknowledge these two divergent practices and try our best to learn from one another. During this project I tried my best to learn for those that had been there done that, and those that never heard of morphology or figure ground. By taking this approach I was able to gain insight into what “experts” say is required and what laymen understand as needed. It is important that these two thing coexist.

At the beginning of this project I thought I knew exactly what I would research and the possible conclusions I might draw. Then half way down the road there was a street closure and I had to take a detour. Just like any great American road trip I found some unique sights along the scenic path that I would have never found driving down the highway. I found the morphological approach to urban design that helped me create a method. That method joined the research and practice for the figure ground diagrams and drawings I created. These two principles became a symbiotic relationship to development the Cottage Community Macro to Micro project you see today. It was a humbling experience to create this project and I hope the insight and illustration provide a thought provoke and enjoyable experience.

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