Designing a High-Performance Sustainable Mixed-Use Systems

How can Downtown of Auburn be Designed as a High-Performance Sustainable Mixed-Use Systems?

[Research Design Project]

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Research Question: How can Downtown of Auburn be Designed as a High-Performance Sustainable Mixed-Use Systems?

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ACKNOWLEDGMENTS

This book is a summary of my thesis research for the Master of Landscape Architecture at Auburn University. This one-year research is not only the first crowing of my achievements in the field of Landscape Architecture but also represents the beginning of my Landscape professional career. This is my complete final design documents to identify my analytic abilities of research in design. When I was at Auburn University in 2014, of a project I was involved in for a whole semester, from the start to every step of it, justifying all my skills including using 3D Max and 3D painter. Meanwhile, I displayed rigorous research logical.

The book is dedicated first and foremost to my parents, without their love and encouragement and support, I would not have been able to complete my master's degree education in the United States (US) and motivate myself to fulfill my dreams to be good landscape architect.

This research project would have been impossible without the support of our thesis Prof. David Hill. Thank you Prof. David for helping me to build my confidence and authority in the theory and practice of landscape architecture with your broad knowledge and insight and for your helping me to persist in building strong theoretical framework through keeping deep into a higher level of research and design qualities.

I would also like to thank my other advisors, Prof. Rod Barnett and Prof. Charlene LeBleu for their never ending constructive criticism and helpful advice concerning both my research project and life at large.

Finally, I would like to thank all of my classmates and friends, for their encouragement, care and support which leaves me with precious memories of Auburn.

INTRODUCTION

Moving from China to the US, the changing landscapes observed through the journey provided me a chance to discover the differences between these two large countries. One thing which is most interesting for me is the divergent feelings of living in different places. I began to think about why I need to stay at a place with a unique way of living. What are the factors that influence my living routines?

In Beijing (China), where I grew up, people are getting used to go to work on foot or by public transport systems every day. With the transformation of the wide and narrow roads, along which there are many stalls doing variety of trades, the city provides a rich repertoire of urban living to the public for watching on their ways. In addition to the differences both in cultures and the standards of livings, which are two important factors lead two divergent life styles of these two metropolitan areas, another strong factor is the varieties in their urban forms or the urban public space patterns.

I believe these patterns are taking a very important role of changing people's daily life and the world. Take a little change in my current apartment complex for instance, after the realty enclosed the community by using fences which pushed people living there had to go out of the complex only through the main entrance which is one hundred meters farer away from the public transit station than the former shortcuts, I began to more dependent on my own car to go to school. I also found many friends of mine living in the community are complaining about this change.

All the observations and interesting feelings stated above provided me a great passion in doing research on the urban high-performance sustainable mixed-use, especially in the decaying downtown areas of the US, which had used to be the most vibrant urban public spaces for local citizens but due to the rise of personal automobiles are getting degraded. I proposed to find appropriate ways of influencing the existing patterns to provide a better living environment to people and to regenerate the places.

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PROJECT STATEMENT

Along with the sustainable development of the global development strategy, the landscape emerges as the times require high-performance sustainable mixed-use systems. Meanwhile, the human cognitive capacity of continuous improvement that more and more pay attention to the rational development of environment and sustainable development that people in the search for a harmonious coexistence with natural balance.

This design research the potential of the high-performance approach to the design of an urban landscape. Therein, the design of outdoor space and architectural surround environment can also make the site more sustainable. These areas I will be based on the protection of resources that the natural resource regeneration. Additionally, the ecological landscape environment of a city can reflect some extent the urbanization level. The high performance to improve the ecological environment of the city landscape within a certain area and the adjustable climate, the maintenance of energy and other natural resources, protection of biological habitats, so as to improve people's living quality that the in relief city development and ecological environment problems plays an important role.

As global warming continues, there is increasing evidence that extreme heat events are becoming more frequent, more intense and longer-lasting. Because Auburn is located in the south of the United States, so the weather is hot. And in the surround of the Downtown gathered a lot of parking that emit more heat causing the whole Downtown regional climate to feel uncomfortable. As a result, the incidence of heat-associated adverse health outcomes will escalate among vulnerable subpopulations, such as the elderly, young children, and people with preexisting medical conditions (Balbus and Malina, 2009; Peng et al., 2011; Smith et al., 2013). Unsurprisingly, in recent years, heat-related health disorders have become a major public health concern associated with global warming. Furthermore, when game day (i.e., football game) people would gather at the Downtown for a variety of activities, thus creating a suitable people activity both artificial landscape and the ecological landscape is particularly important, and this kind of high-performance landscape system can explain well the this a point.

The treatment of a high-performance system landscape investigated a series of complex approaches of which I think the approach is suitable for the Downtown of Auburn including urban agriculture, rain gardens, green roofs and according to different micro-climate and geographical conditions are created an artificial landscape. This research project will be they become a landscape system and through the processing complex approach of these high-performance system landscape design will be Downtown get into a livable and gathering activities, as well as become the landmark of the City of Auburn.

1) WHAT IS A HIGH-PERFORMANCE SUSTAINABLE MIXED-USE?

High-density, mixed-use, complete neighborhoods are defined by three key attributes: The first is their density. Although among planners there is no agreed-to definition of what qualifies as high density, the level of density much be that which provides enough dwelling units per hectare to support both a rich mix of retail and commercial at grade and public transit such as at-grade or underground light rail transit. The second is the mix of uses both horizontally and vertically allowing for residential, commercial, retail, institutional and even some types of industrial uses to be mixed together to provide opportunities for inhabitants to live and work in close proximity. All of these uses are mutually re-enforcing, with high-density residential occupancies providing the necessary population to support a variety of retail and commercial activities at street level. The third is a provision of planning for active transportation including both walking and biking, combined with an effective network of public transit.

Although the benefits of density are clear, many cities continue to under-invest in the necessary infrastructure for density and have typically failed to develop coherent strategies to finance growth. Indeed, most cities around the world continue to sprawl outwards at low densities.

The mixed-use densification of cities is best facilitated within a regulatory environment which not only disincentives the tremendous human and environmental costs caused by low-density urban sprawl but rewards innovative design and efficient use of space and infrastructure.

2) THE THEORETICAL FRAMEWORK OF MIXED-USE DEVELOPMENT

Taking into consideration Jacobs attempt and more specifically publication of her book entitled "Death and Life of Great American Cities" in 1961 created lots of critics regarding the zoning of urban activities. The major critics were dealt with the prevalence of Sprawl development, lack of liveliness and functional segregation of land uses (Angotti and Hanhardt, 2001, Grant, 2002, Hoppenbrouwer and LOUW, 2005, Hirt, 2007). According to Jacobs's writing, a balanced combination of the place of residence, workplace, services, and activities will create a safe and livable social urban space. She believes in differences between primary land uses and secondary ones regarding the purpose of combination (Hoppenbrouwer and LOUW, 2005, Hirt, 2007). To her primary land use corresponds with residential one capable of gathering many active and energetic people together. Residential land use demands the existence of secondary uses including shops, restaurants, bars and other small businesses adjacent to the place of their residence. The movement associated with the interaction of people and activities during different hours will lead to many tidal live movements in urban space. From Jacob's point of view (Jacob, 1964) this, in turn, will lead to a better distribution of demands during a day. It is argued that in urban development based on zoning just one type of land-use is being utilized. However, in mixed-use development there exist more functional variations with respect to land uses. Mixed-use development is basically concerned with planning issues. In other words, more attention is being devoted to social, economic and functional aspects of urban land uses (Talen and Knaap, 2003). Urban theoreticians believe that mixed-use development is being considered as a very prominent component of urban development paradigm comparing with smart growth, new urbanism and sustainable urban development paradigms (Downs, 2001; Hirt, 2007).

3) THE DIMENSIONS OF THE MIXED-USE DEVELOPMENT APPROACH

Rowley argued that functionally speaking the implementation of mixed-use development could take place at different levels including building, blocks, neighborhood and even the entire city. This in turn, is associated with share premises, horizontal, vertical and periodical dimensions. Rowley model basically emphasizes residential and commercial typology capable of converting into other uses (Hoppenbrouwer & LOUW (2005)). He further added the spatial scale to his model. Rowley believes that there is a difference between buildings, blocks, edges of streets and neighborhoods. Moreover, there exist differences between metropolitan, interurban districts, small towns, suburbs and green fields dealing with the mixed-use approach. Rowley believes in an appropriate density regarding both different land uses and the number of residences in order to guarantee live and active life (Rowley, 1996). To him key properties include the size of the holdings and their penetration potential and permeability level.

He further added the spatial scale to his methodological procedures and made a difference between buildings, blocks, street edges, districts, and urban networks. The four areas in which mixed-use could be implemented include a central part of the city, urban regional centers, suburban and peripheral zones and green fields located at the peripheries. However, they are different in terms of mixed land uses capabilities and potentials. From a functional standpoint those varied urban functions are capable of locating in some other areas as well (Rodenburg, Vreeker, and Nijkamp (2003)). As already mentioned mixed-use development from a functional standpoint is associated with share premise, horizontal, vertical and periodical dimensions. These are helpful for understanding of mixed-use development (Hoppenbrouwer & LOUW (2005)). The combination of land uses may be affected by some other conditions as well (Rodenburg, 2005).

DESIGN PRINCIPLES

1. Green Urban Public Space Framework
   Nature can enrich life in the city.

2. Sustainable development
   Provide a clean, reliable green infrastructure system to treat water, energy, microclimate on site.

3. Economic Development
   Preserve current jobs and create new ones while facilitating social equity and supporting growth opportunities.

4. Transit Network
   Design a safe transportation system that encourages walking, and biking.

5. Healthy development
   Foster a safer, healthier and integrated community that embodies the aspirations of both current and future residents.

PROJECT ABSTRACT

Current, some people see density and quality inversely in urban planning. The lessons from city building in the last several decades and recent analyses of urban life tell us: the high-density mixed-use development mode is the most efficient approach to urban vacant land development and urban infrastructure use. It is creating many benefits for business development, efficient preserving vacant land, and ecological nature area. In particular, the persistent existence of vacant lots in the urban landscape has been a reality in US cities for many decades (Schukoske, 2000). Nationally, vacant lots comprise almost 17% of the land area in US cities (Newman et al., 2016). The ratio of vacant land to city size has increased by 1.3% points since 1998 (Newman et al., 2016). These vacant parcels have brought many negative impacts to cities. Associated images include disinvestment, degradation, blight, and decay (Jakle and Wilson 1992). For example, Coleman (1982) used phrases such as "dead space" and "disturbed space" to describe bare derelict land, roughly vegetated wasteland, abandoned buildings, and an assortment of various temporary uses such as materials dumps and construction sites. Perhaps the most creative label is the acronym TOADS, which refers to temporarily obsolete, abandoned, or derelict sites (Greenberg, Popper, and West 1990). Therefore, high-density mixed-use is the best approach to achieve sustainable urban development and solve urban vacant land, as well as to achieve a multi-functional neighborhood.

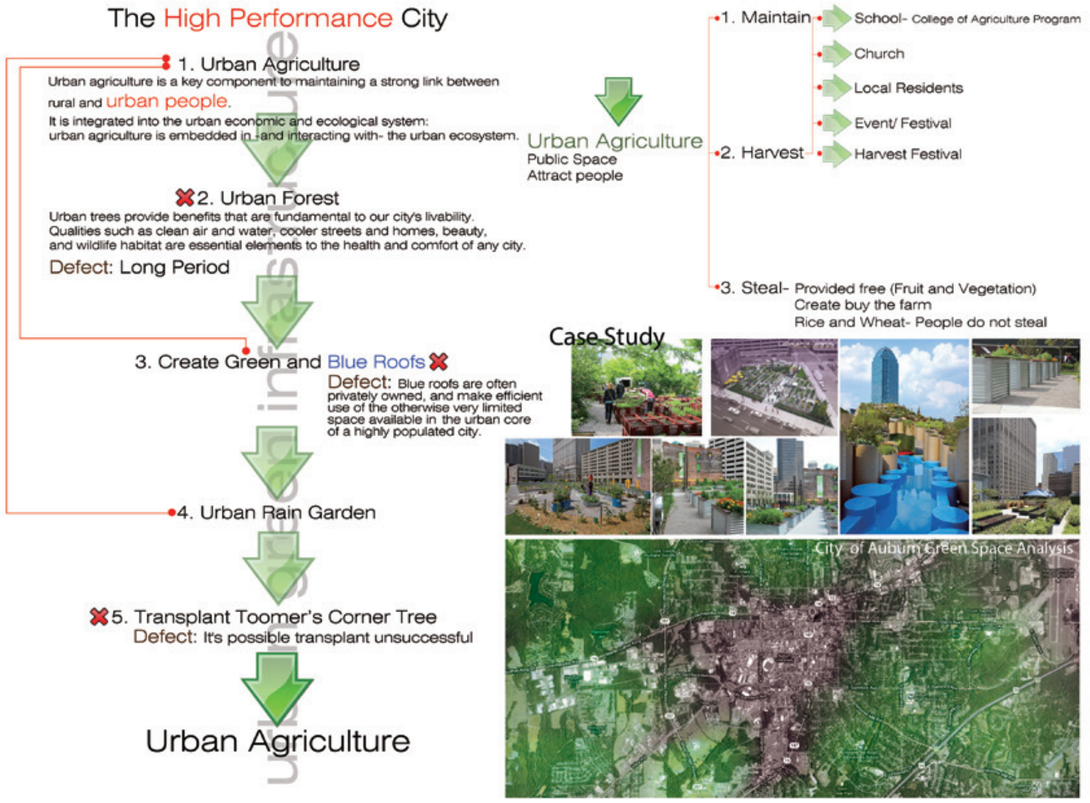
This research project will discuss the application of regenerative landscape design and development in the redrafting of vacant land, leftover spaces in urban settings. The Auburn parking area is framed by buildings. Ground-level uses are important to create an active parking deck area. The connectivity of the parking deck grid increases traffic flow while providing greater convenience in local people's daily life. The Auburn parking area reminds one of the potentials and values of historical infrastructure, the revitalization of which transforms a transportation infrastructure into a leisure space and green belt, extending city dwellers' nostalgia with the past, and a new connection with urban nature. In this project, design and citizen engagement bear witness to a participatory process of regenerating urban infrastructures, while providing food for thought for other cities. This area was integrated into the grid, while apartments, cultural facilities, and retail mixed with office development started to reactivate the urban environment.

Creating an identity for the neighborhood helps people connect with each other to create more harmonious urban spaces. The scale of public spaces and buildings combined with architectural style, details and building materials all contribute to urban design that delivers a high quality of life in urban vacant land development.

HIGH-PERFORMANCE CITY

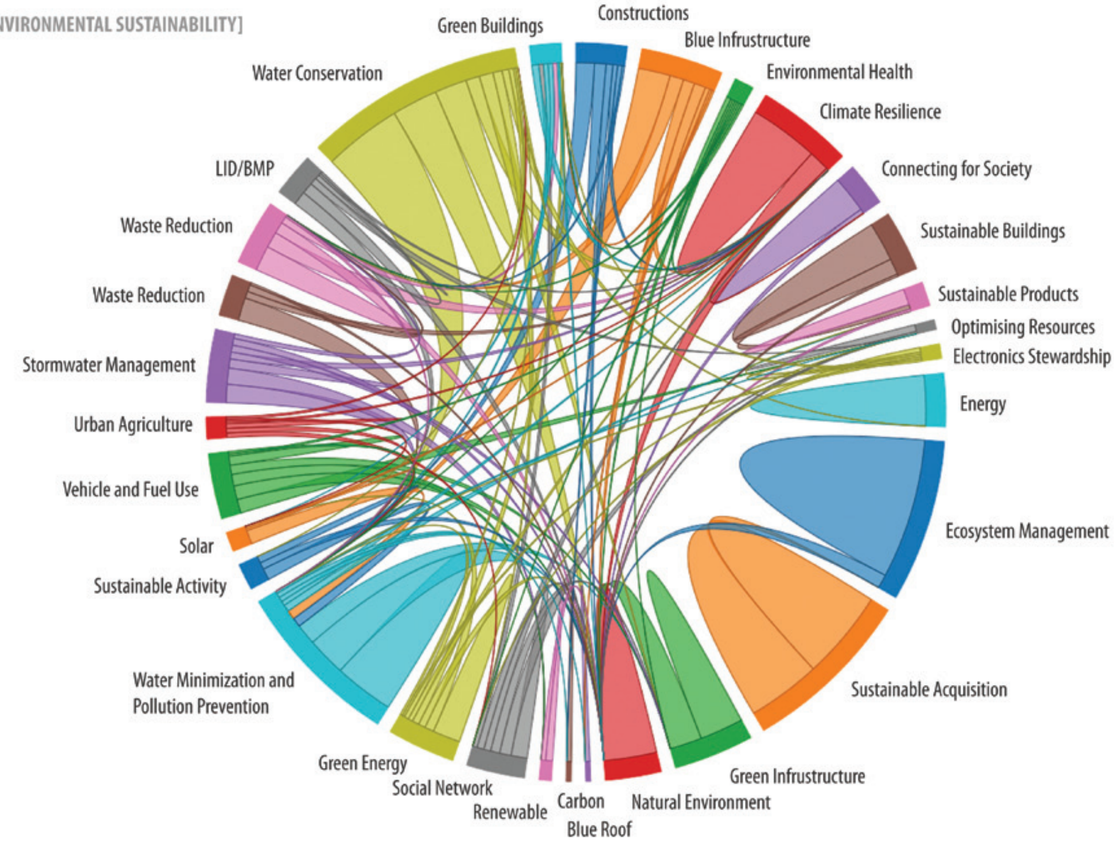
Planners and urban designers have an imperative to design communities that perform better than ever before. What exactly does "performance" mean? Communities should have energy and water-saving systems, but at a high level, there also needs to be a more holistic approach to creating a sense of place and connection, while at the same time being accessible to different demographics and vibrant all throughout the day.

People love and are attracted to high-quality public places that are comfortable, vibrant and accessible to all. A well-developed network of open spaces, such as green spaces, plazas or waterfront areas, regardless of climate, establishes a valuable community asset. For example, urban agriculture is a key component to maintaining a strong link between rural and urban people. It is integrated into the urban economic and ecological system: urban agriculture is embedded in -and interacting with- the urban ecosystems. In addition, urban trees provide benefits that are fundamental to our city's livability. Qualities such as clean air and water, cooler streets and homes, beauty, and wildlife habitat are essential elements to the health and comfort of any city. These spaces which allow people to relax and decompress year-round positively contribute to highly livable and healthy residential and workplace neighborhoods now and into the future. As more and more people choose to live in urban environments, we need to work hard to guide the retrofit and design of our cities to create high-performing places.



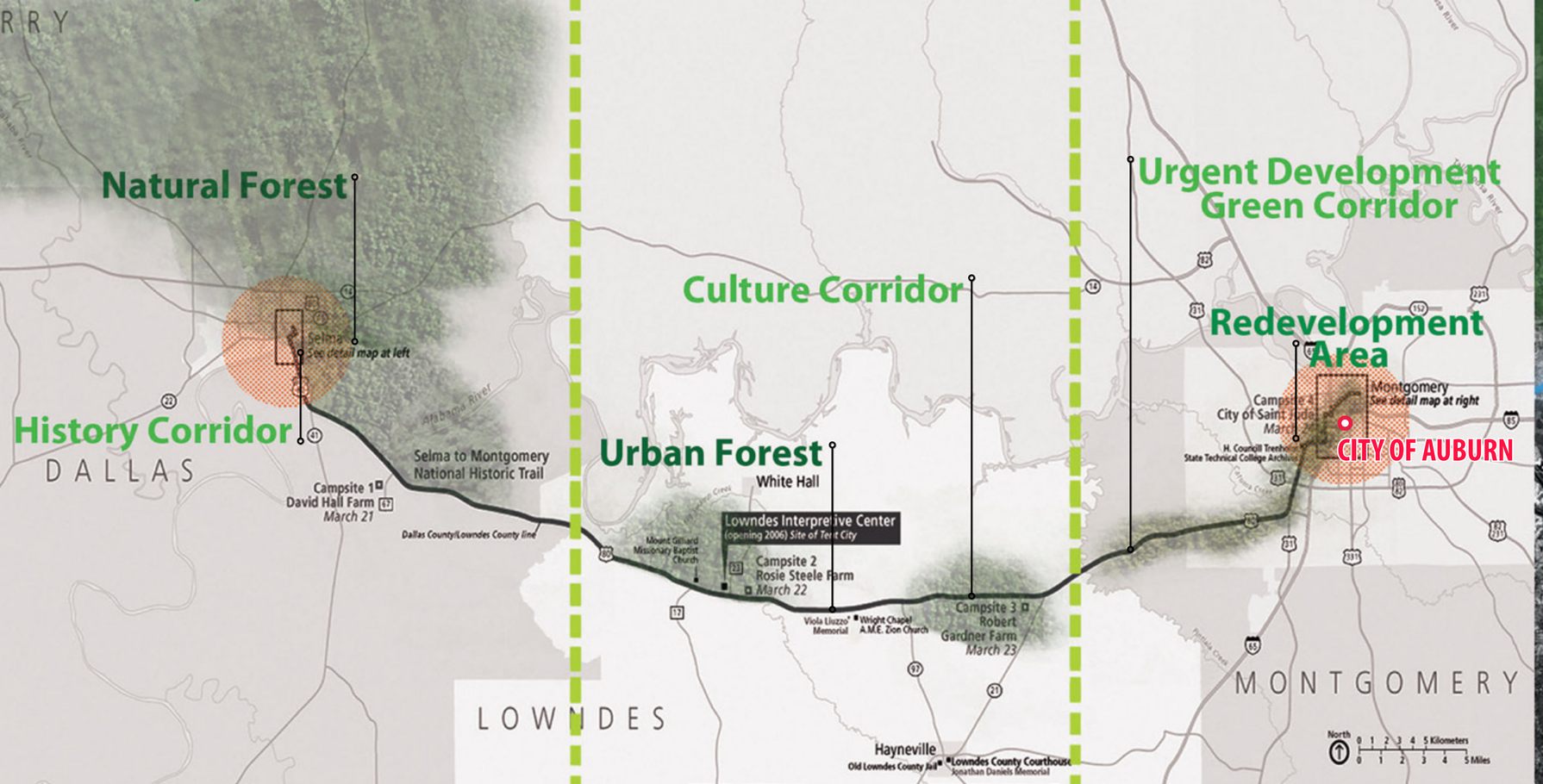
ENVIRONMENTAL SUSTAINABILITY

Environmental sustainability is increasing attention to global environmental concerns. It defines a boundary for us to satisfy our current needs without anyway compromising the quality of the environment/ecosystem so that it remains equally capable of supporting the future generations too. Environmental sustainability is the capacity to improve the quality of human life while living within the carrying capacity of the Earth's supporting eco-systems. Therein, this research project implemented to address the following sustainability areas:



CHAPTER 1

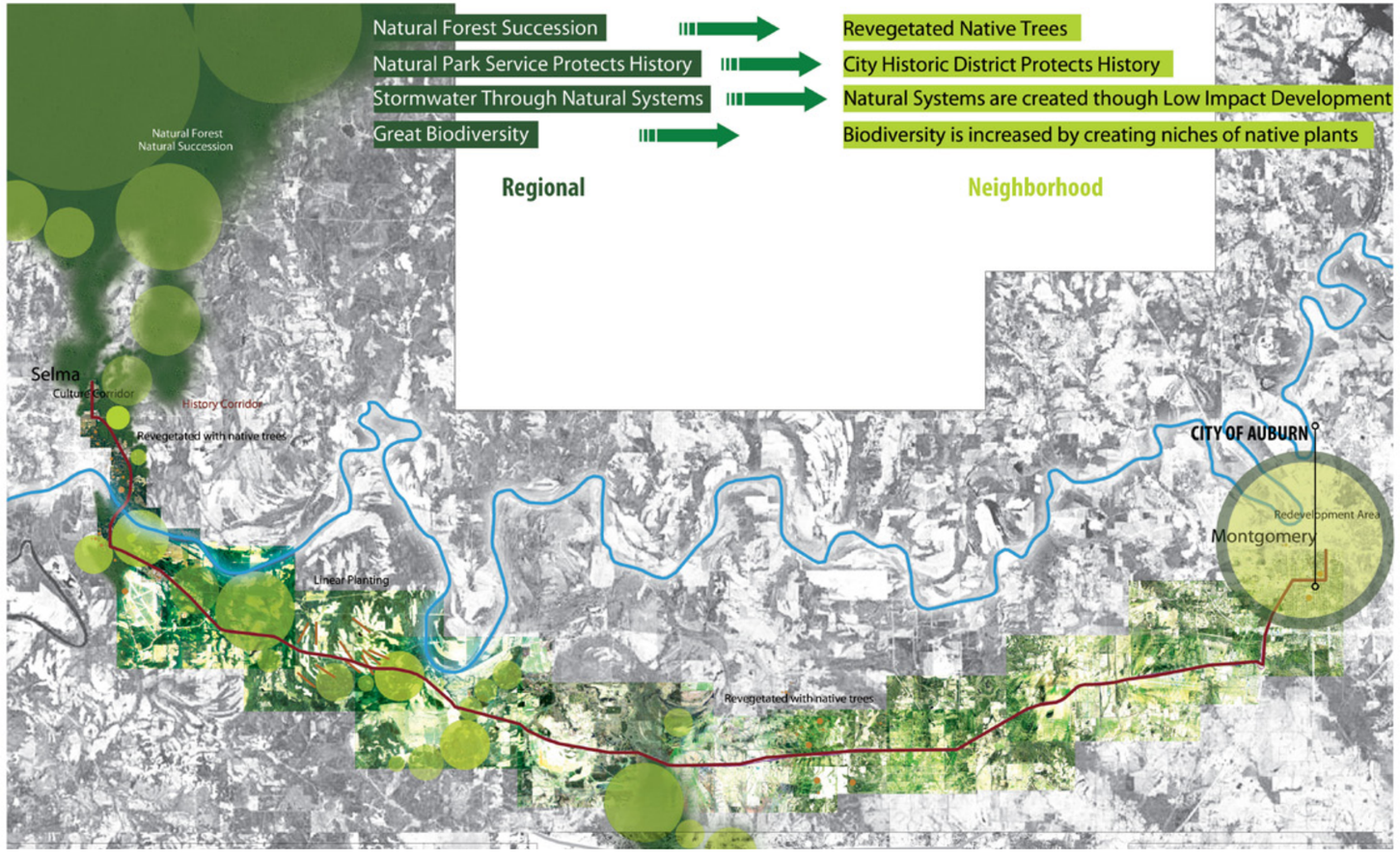
MAPPING CONTEXT


Natural Forest
Culture Corridor
Urgent Development
Green Corridor
Redevelopment
Area
History Corridor
Urban Forest
DALLAS
LOWNDES
MONTGOMERY
Selma
See detail map at left
Selma to Montgomery
National Historic Trail
Campsite 1
David Hall Farm
March 21
Dallas County/Lowndes County line
White Hall
Lowndes Interpretive Center
(opening 2006) Site of Tent City
Campsite 2
Rosie Steele Farm
March 22
Campsite 3
Robert
Gardner Farm
March 23
Mount Gilliard
Missionary Baptist
Church
Viola Liuzzo
Memorial
Wright Chapel
A.M.E. Zion Church
Hayneville
Old Lowndes County Jail
Lowndes County Courthouse
Jonathan Daniels Memorial
Montgomery
See detail map at right
CITY OF AUBURN
Alabama River
North
0 1 2 3 4 5 Kilometers
0 1 2 3 4 5 Miles

HOW DOES THE LARGER GREEN CELL INFORM THE SMALLER GREEN CELL?

Growing a City Sustainably

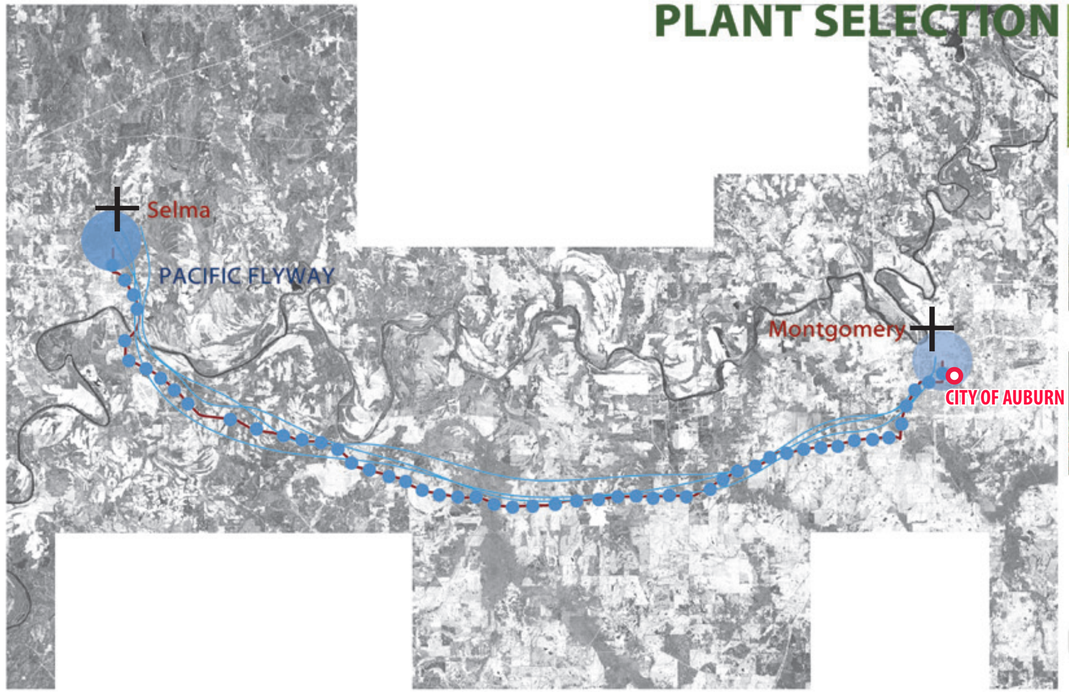
Mixed-use development is, by nature, sustainable. A variety of uses and services are integrated into a single building or open space, which reduces development pressure on greenfields. These types of developments are typically located near or integrated with multi-modal transportation options, which reduces air pollution from cars. The mixed-use development also enhances an area's unique identity and can promote a sense of place and community.



Growing a City Sustainably

Planning is necessary for attractive and productive wildlife habitat. Trees and shrubs are the backbone of any landscaping design and are important for wildlife shelter. Many tree and shrub species are excellent sources of food for wildlife. Proper selection of plant material can meet both the aesthetic needs of the homeowner and the food and shelter needs of wildlife.

Food and cover are essential for the survival of all species. Loss of suitable nesting sites is a major factor in the decline of some bird species. In the wild, many species nest in cavities of dead trees. With the loss of hedgerows in some parts of the country and the removal of dead trees in towns, natural nesting sites are often limited. Also, some highly competitive, non-native species of birds have taken over some of the existing nesting sites once occupied by native birds.



PLANT SELECTION


Native Grasses


Yellow Poplar


Native Cedar


Weeping Willow


Pink Dogwood


White Oak


Native Azalea

IMPORTANT BIRD SPECIES


Alabama Yellowhammer


Morning Dove


Mocking Bird


Finch Gray to Blue


Swallowtail Kite

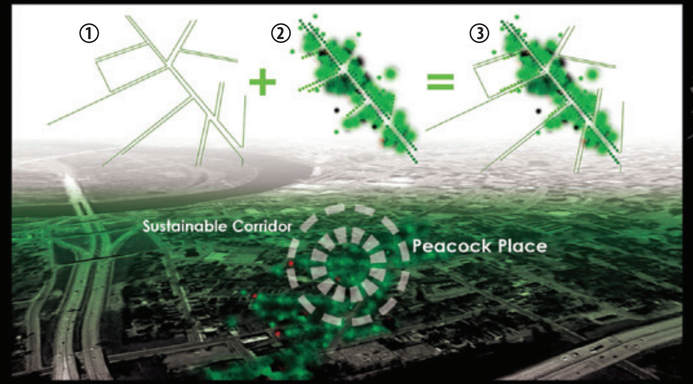
STUDY SETTINGS

This research project conducted a study in the urban district of Auburn City. Auburn is located in Lee County (population 140,247 in 2010) in east-central Alabama, near the Georgia border. Auburn is adjacent to Interstate 85 and strategically located between Birmingham, AL, Montgomery, AL, and Atlanta, GA. The City is one of the fastest-growing in Alabama, with an estimated population increase of 16,576 (from 42,987 to 59,563) from 2000 to 2010.

Lee County's other municipalities include Opelika, Phenix City, Smiths Station, Loachpoaka, Notasulga, and Waverly.

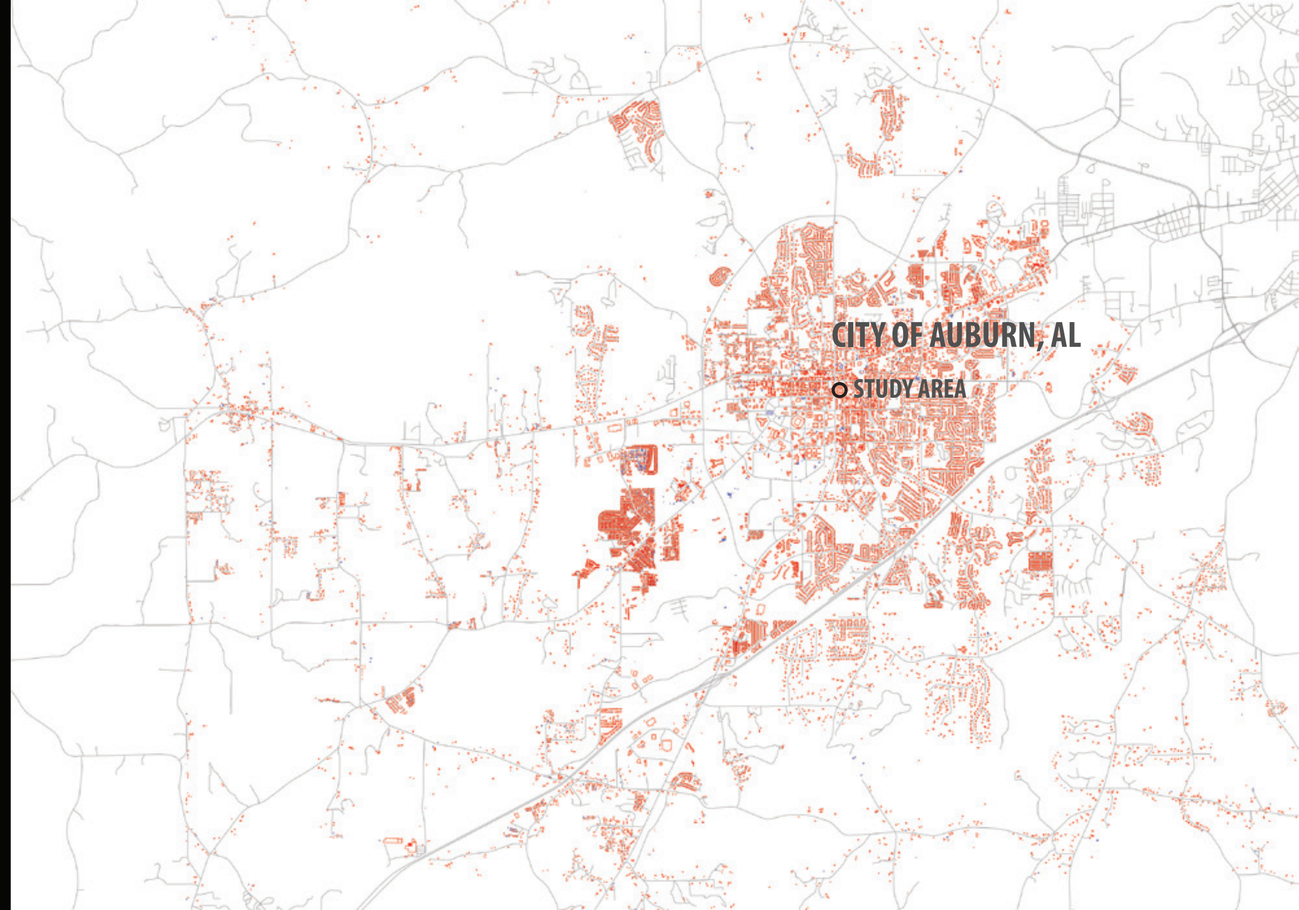
Why Auburn?

Auburn's urban fabric is changing all around us, and at a rapid pace. In particular, the city's mixed-use development is helping to create communities that are vibrant and healthy centers of economic activity.

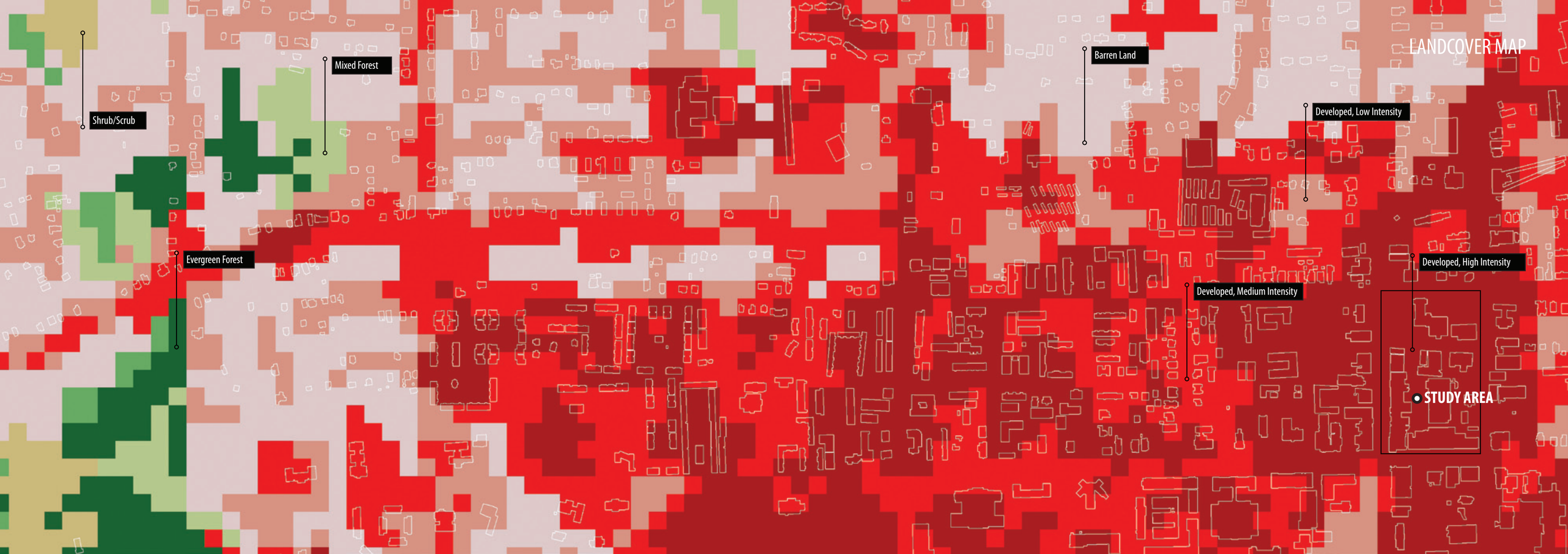


Overall Green Infrastructure for whole Montgomery Corridor Community

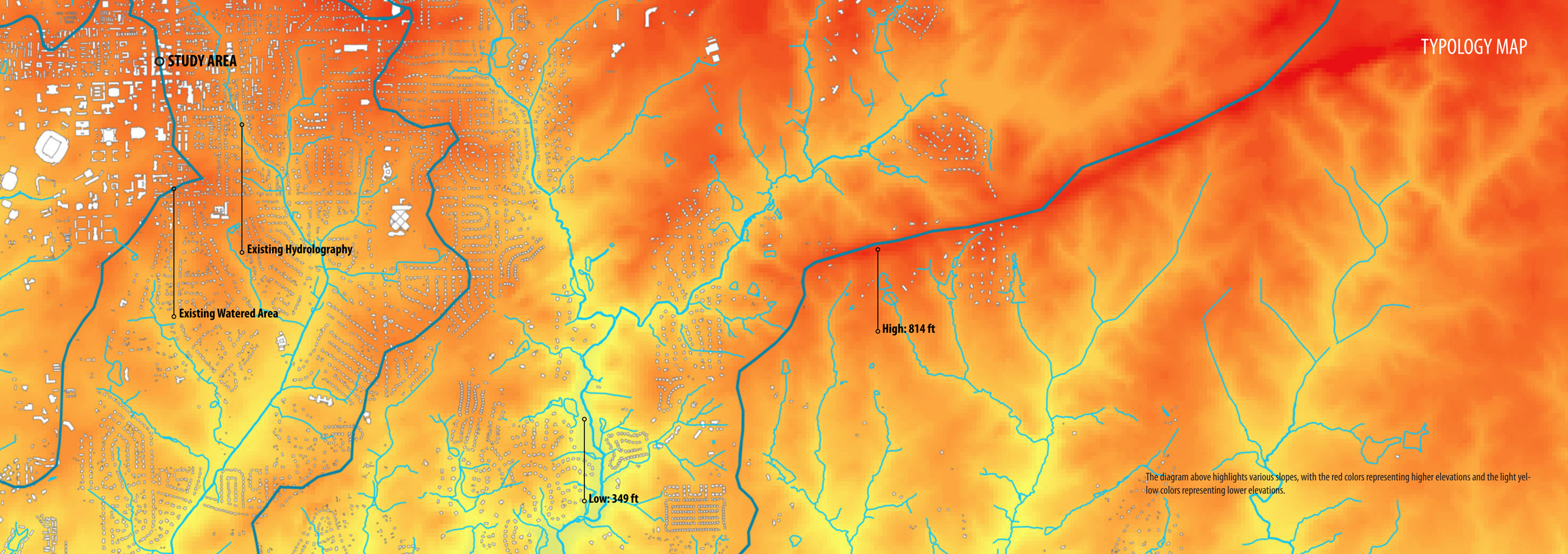
Creating of urban sustainable landscape environmental footprint. Living green landscape over structure can act as buffers to mitigate the impacts of unbridled and unplanned urban growth and development. Mitigating building roofs generates less stormwater runoff volumes, and reduces the heat affect gain that affects our indoor and outdoor environment.



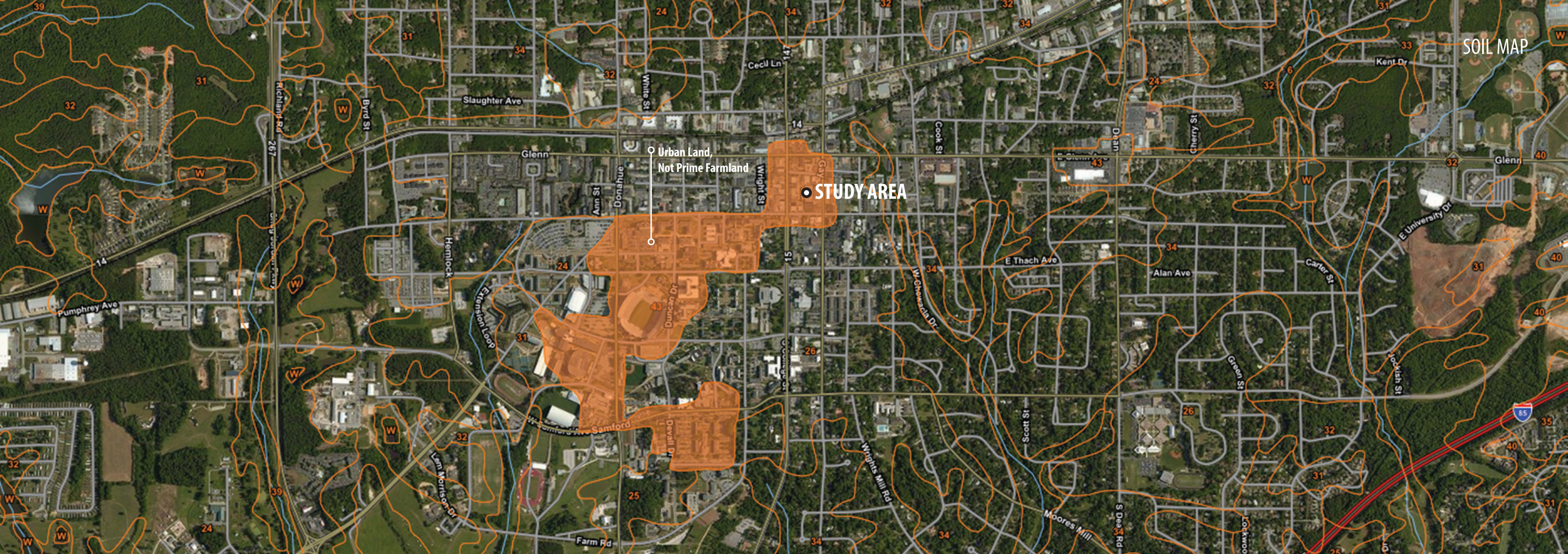

CONTEXT MAP
Residential Areas
W Magonlia Ave
Commercial Areas
• STUDY AREA
Main Campus
Toomer's Oaks
Downtown Coner
Toomer's Coner


LANDCOVER MAP
Shrub/Scrub
Mixed Forest
Barren Land
Developed, Low Intensity
Evergreen Forest
Developed, High Intensity
Developed, Medium Intensity
STUDY AREA

TYPOLOGY MAP

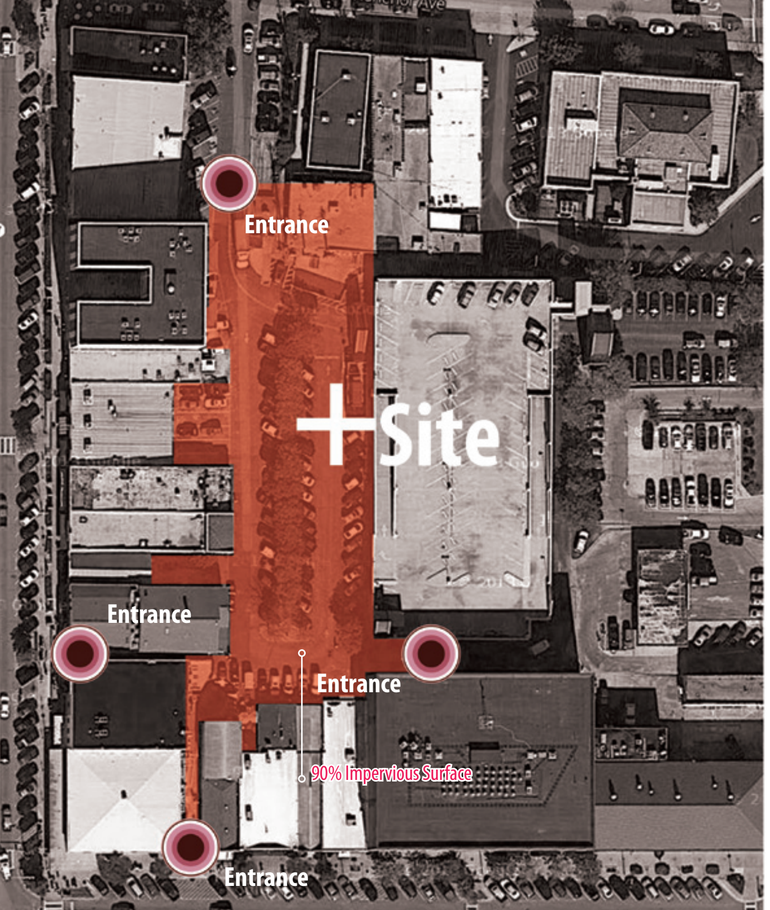


The diagram above highlights various slopes, with the red colors representing higher elevations and the light yellow colors representing lower elevations.


SOIL MAP
Urban Land,
Not Prime Farmland
STUDY AREA
Slaughter Ave
Glenn
Cecil Ln
Kent Dr
Richland Rd
Byrd St
White St
Cook St
Dian
Cherry St
Glenn
Wright St
Ann St
Donahue
Hemlock
Extension Loop
Duncan Dr
E Thach Ave
Alan Ave
Carter St
E University Dr
Pumphrey Ave
W Chewacla Dr
Green St
Lockhart St
Scott St
Wrights Mill Rd
Moores Mill
S Dee Rd
Farm Rd
Len Morrison Dr
Davis Dr
267
147
85

CHAPTER 2

DESIGN INVESTIGATIONS


Entrance
Site
Entrance
Entrance
90% Impervious Surface
Entrance


STUDY AREA

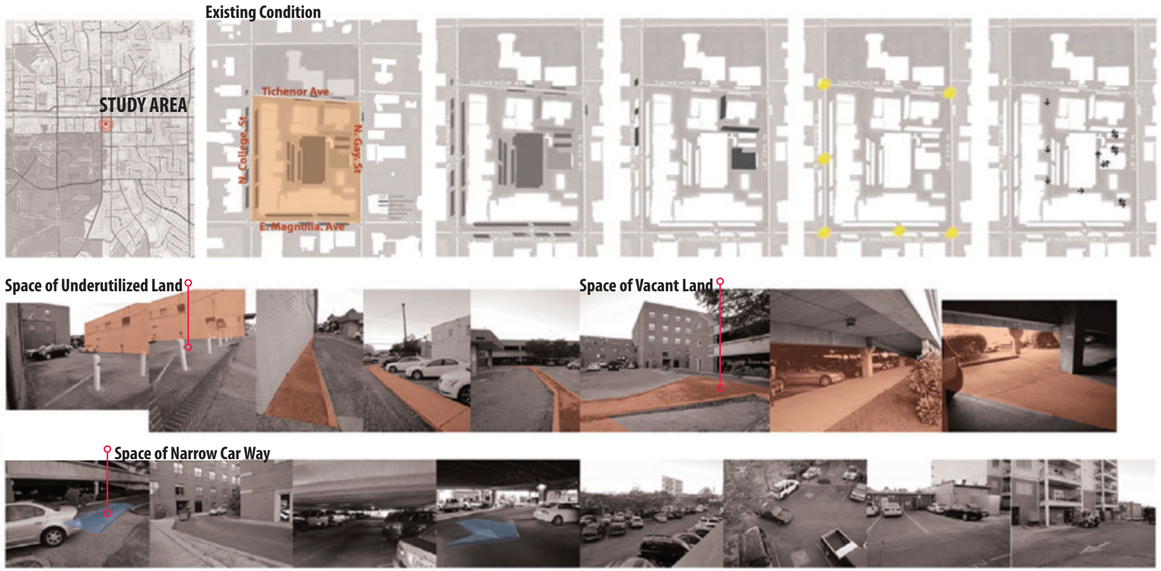

Impervious Surface

Site Photos

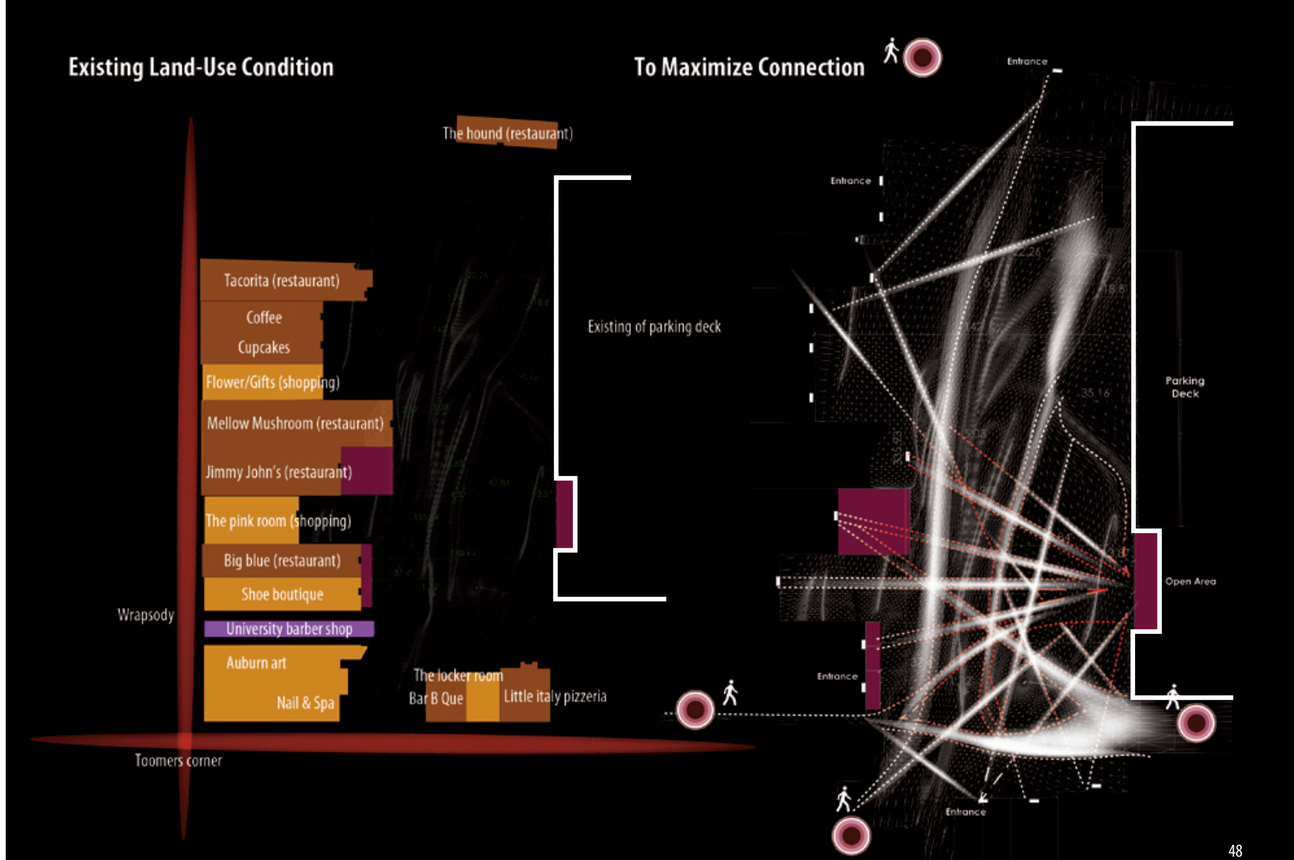
URBAN VACANT LAND

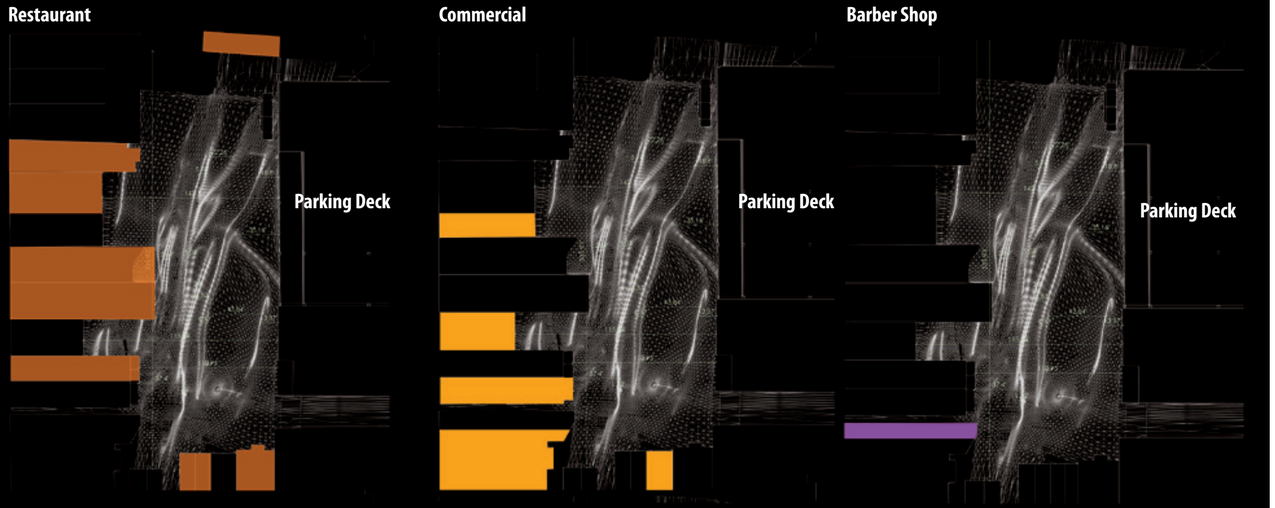
There are multiple definitions of urban vacant land (UVL). UVL has been broadly described as undeveloped land that is not underwater (Niedercorn & Hearle, 1964), dead space (Coleman, 1982), derelict landscape (Jakle & Wilson, 1992), and wasteland areas (Mathey & Rink, 2010). It is also defined as underutilized land which includes derelict land, abandoned buildings and structures, uncultivated land, and razed land (Bowman & Pagano, 2004; Pagano & Bowman, 2000). Depending on land development history, the land is vacant either because it has never been developed, or because a previously developed parcel has been abandoned and the land is presently unused. Gunwoo Kim (2018) identifies vacant parcels as land in urban areas that is either previously developed land or undeveloped land. The previously developed land is an abandoned land that was previously used. It contains public structures and buildings that have been unused for a long time, and the ground is in poor condition. In future land use, the previously developed land can be suitable for limited or unlimited development and potentially contribute to ecosystem conservation (UK Government, 2011). The National Land Use Database (NLUD) in the UK (2011) notes that previously developed land needs or does not need special treatment such as clean-up, demolition, and/or remediation before redevelopment (NLUD, 2003) (Scottish Government, 2014) (Ross Donaldson, 2018). Bowman and Pagano (2004) further clarify the physical characteristics of the UVL. Most vacant lots are a small, odd-shaped and impervious surface that deter land space's potential development.

A study by Gunwoo Kim (2015) shows that due to lack of public interest, policies, and economic investment, UVL often becomes wasted and underused space. Also, Taylor and Hough (2008) (1994) present that the land may be vacant parcels due to complex or unknown ownership, and zoning restrictions. Although the previous research documents are full of descriptions and definitions of UVL (Galen D. Newman, 2016), these definitions of vacant lots are not relevant or comprehensive in terms of ecological values or ecosystem services. For example, literature of urban studies shows vacant parcels can be defined as unsafe areas (i.e., may be used for illegal activities).



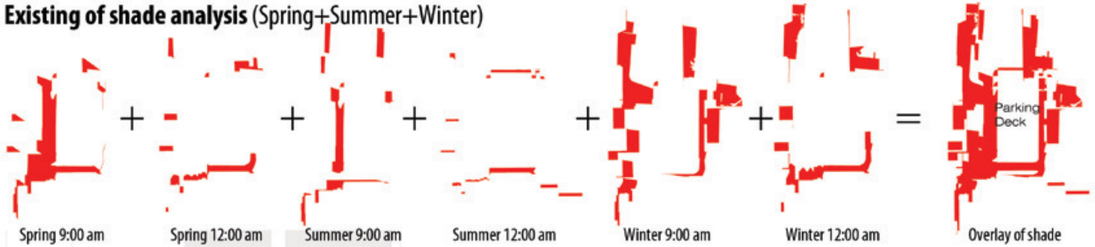
Focuses on existing and potential conditions on and around the building site:
Existing land-use:
The built landscape in the study area is characterized by a mixture of retail, commercial uses, parking lots, and vacant or underutilized land. Commercial uses make up 22% of the Plan Area. This includes areas that are under construction, and low-rise offices associated with industrial land uses. Public and institutional land uses make up the next greatest portion of land.



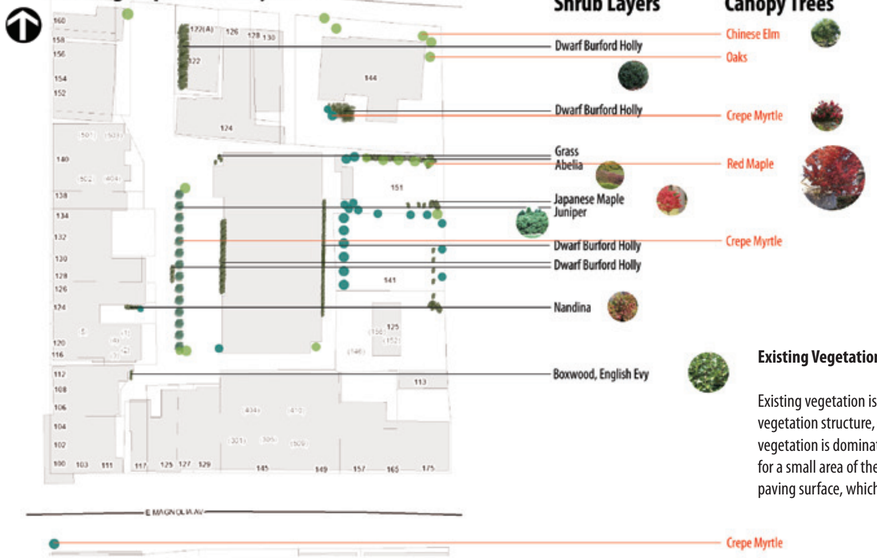


The built landscape in the study area is characterized by a mixture of retail, commercial uses, parking lots, restaurants, and vacant or underutilized land. In addition, this site used to be the important commercial center for the neighborhood. There are still some vacant commercial buildings on the site, such restaurant and groceries. Because there has been no one use in this area for a long time, the appearance of the buildings and the relationship between streets and their frontage has been blurred. Therefore, how to reuse this area as the new commercial space for the neighborhood becomes an important issue. In addition, how to let the development of this area become involved with the basic concept of the project and make the neighborhood complete is another critical problem.

Existing of shade analysis (Spring+Summer+Winter)



Existing of plants analysis



Existing Vegetation Classification

Existing vegetation is the plant cover, or floristic composition and vegetation structure, occurring at a given location at the current time. The vegetation is dominated by tree and shrub layer, but the vegetation accounts for a small area of the study area. Most of the study area is an impermeable paving surface, which can easily cause severe stormwater runoff issues.

CHAPTER 3

DESIGNING A HIGH-PERFORMANCE SUSTAINABLE MIXED-USED

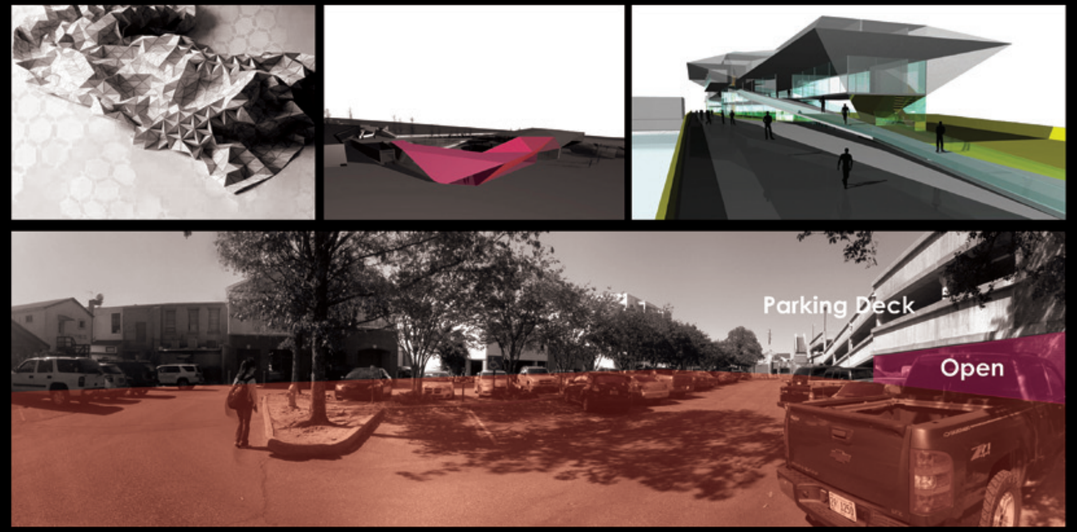
METHODOLOGY

PROCESS OF CONCEPT IDEA

High-Density: Urban Form
Architecture materials & structures transform into landscape environmental.

The architecture of space and the fold
The idea of folding (or "the fold") has been explored extensively in architecture. Calm looks like peristaltic movement: folds and foldings that together makeup inside. The fold has not been investigated in landscape architecture. This research project re-creative how the fold can provide new possibilities for urban landscape. The high-density mixed-use development mode to urban vacant land development and urban infrastructure use. In addition, the architecture connection with landscape environment re-creative new multi-function space. High-density mixed-use is the best approach to sustainable city development and quality of life, multi-function neighborhoods. Creating many benefits for business development, efficient preserving vacant land, and ecological nature area.

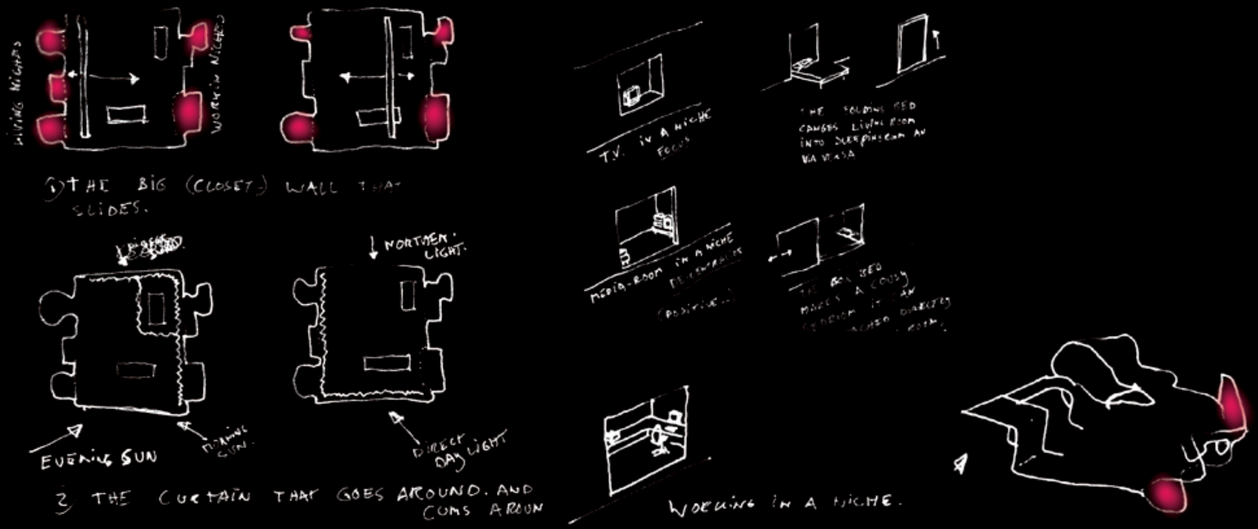
Research & test in analyzing the potential for more productive use of open space and vacant land through increased application of ecological science and urban ecology. I would like to have further opportunities to examine the possibilities. The parking deck area has been covered by new plant and green land supported with multi-function space.



The idea of folding (or the fold) has been explored extensively in Architecture. Folding is a process, not a product; it does not necessarily produce visible folds (although it would later on); it is about creating built forms, necessarily motioniness, which can nevertheless induce the perception of motion by suggesting the continual variation and perpetual development of a form becoming. Calm look like Peristaltic Movement: Folds and foldings that together make up an inside.

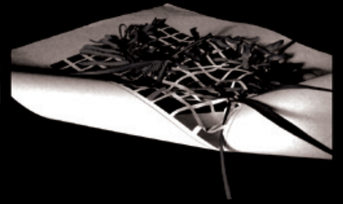
The fold can create the many inside spaces:

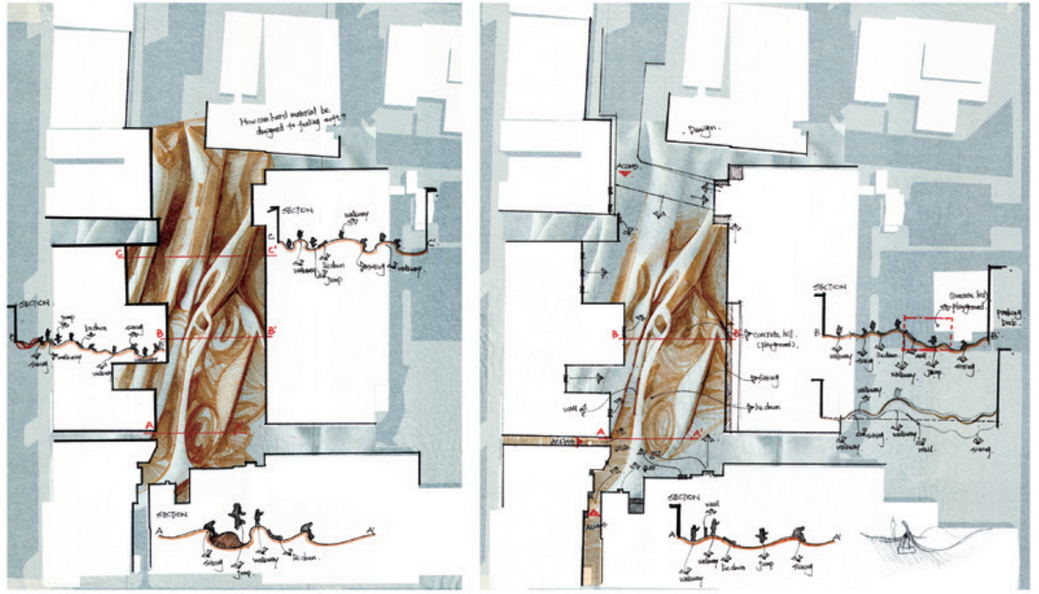
A contemporary interpretation of the fold, which emphasizes the transmutation of formal objects into temporal unities, could be of similar inspiration today.



The fold has not been investigated in Landscape Architecture.
This research project is creative how the fold can provide new possible for urban landscape.

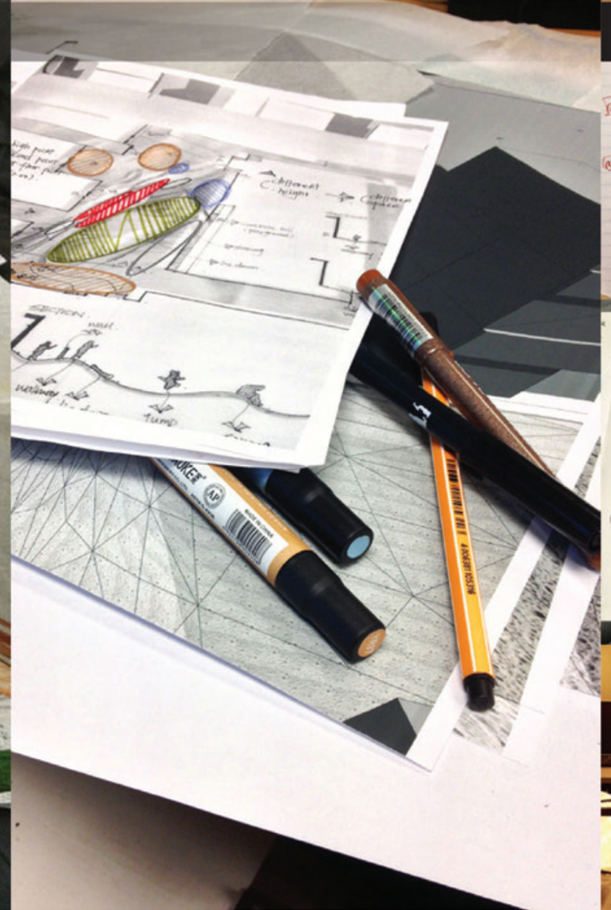
Different shade space





The fold has not been investigated in Landscape Architecture.
This research project explores how the fold can provide new possibilities for the urban landscape.

Thinking Process and Making Process

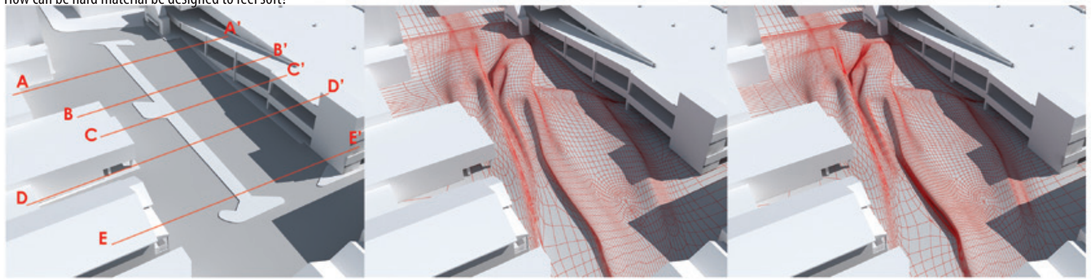


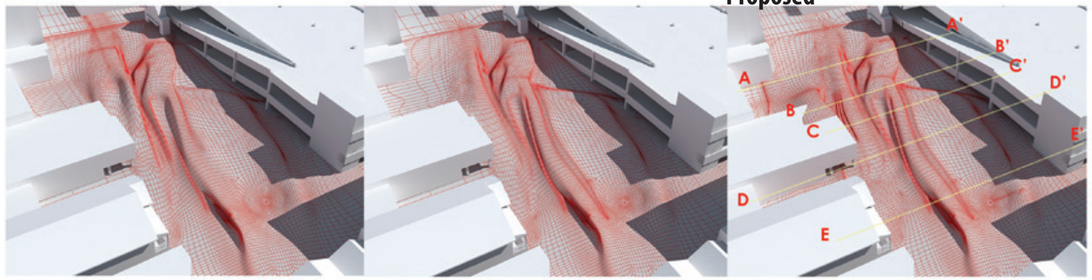
Thinking Process and Making Process

Research Thinking...

Existing Condition

How can be hard material be designed to feel soft?





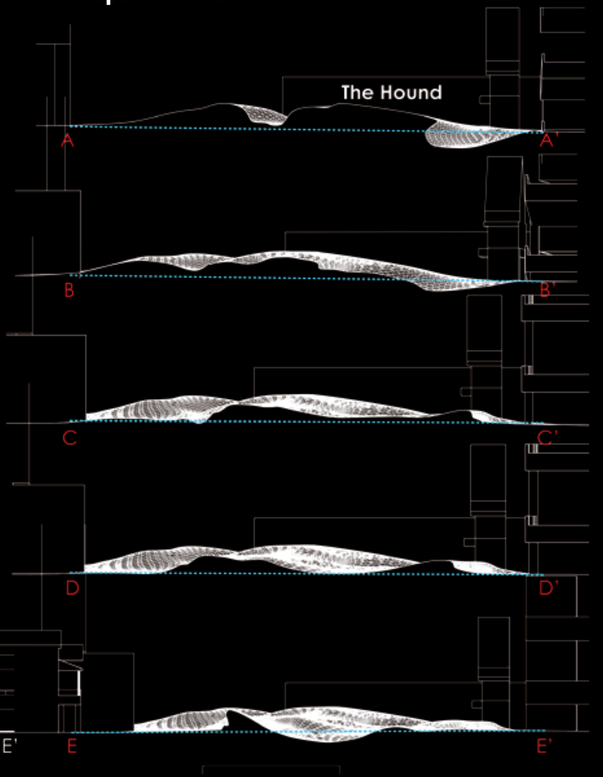
Proposed

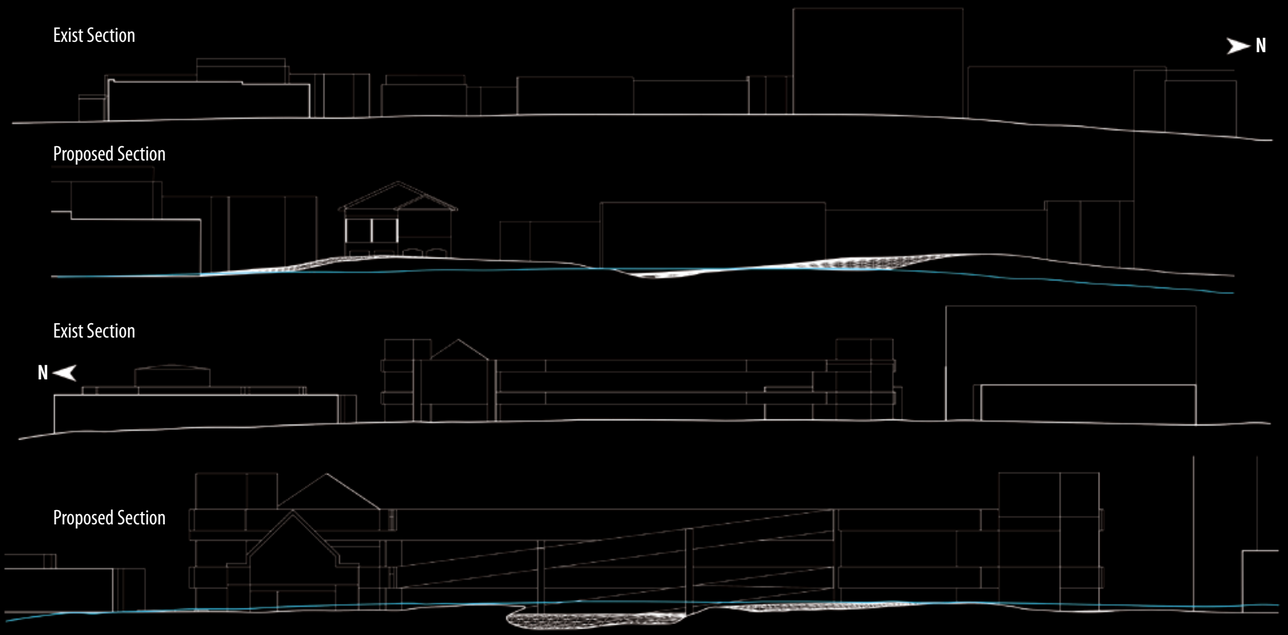
Fabric respond to the building's entrances, windows, height and scale.

To better understanding the terrain which holds the study area and the relationship between the existing streets and parcels, contours of the site and elevations on several important entrances have been made. The terrain of the study area is flat and it is difficult to create a multi-function spatial. Thus, this study project aims to enrich the spatial variation of the site.

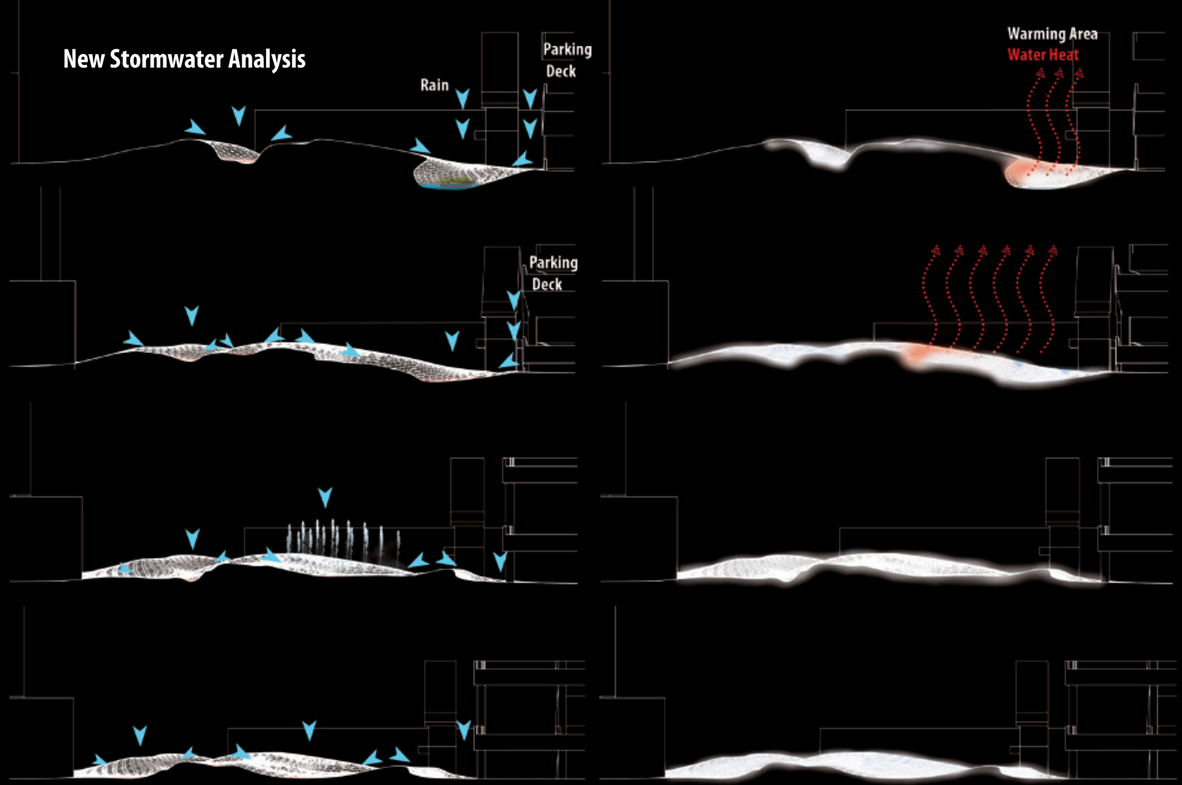
Existing Section

Proposed Section



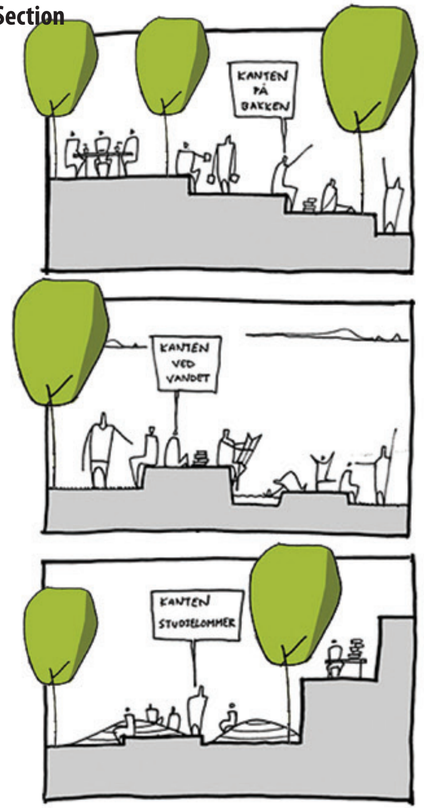


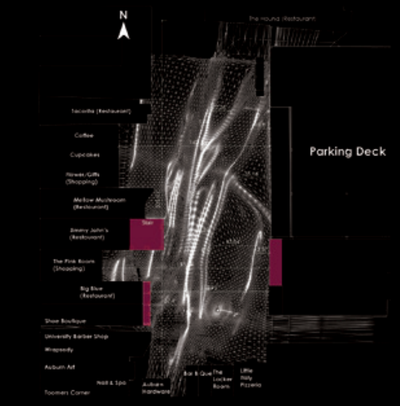
New Stormwater Analysis

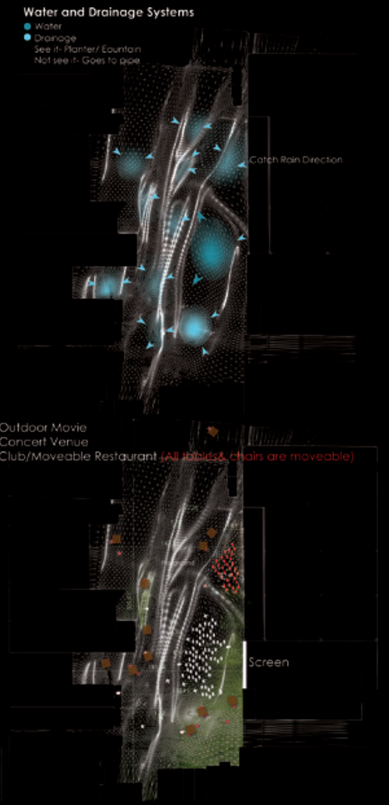


The new stormwater system has different functions at various situations. When the event of rainfall is regular, the natural drainage sites collects, filtrates and distributes the rainwater to the underground pipes and regulates the microclimate of surroundings through the natural water cycle process. When rainfall becomes heavy, the natural drainage sites will help to retain large volumes of rainwater to keep flooding from the urban areas.

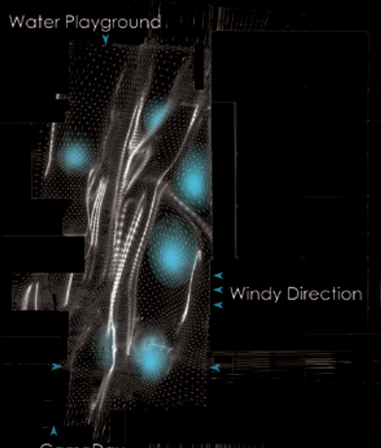
Proposed Section
Ideogram

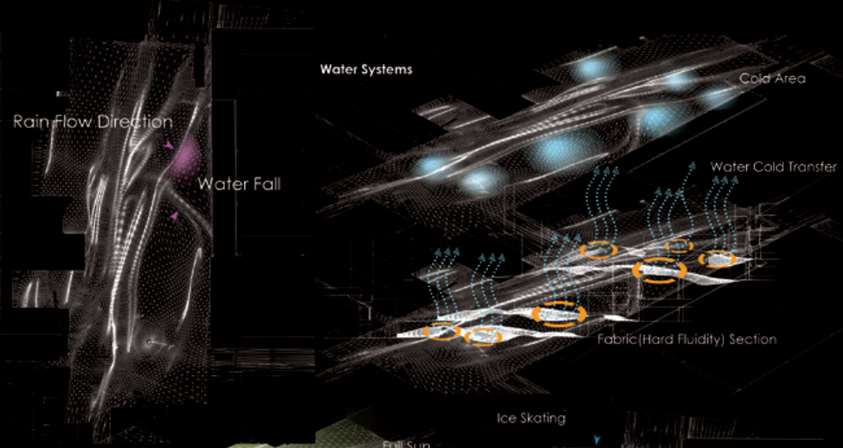


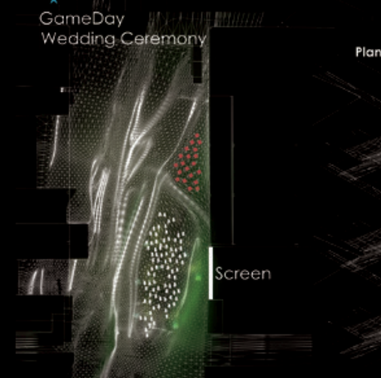


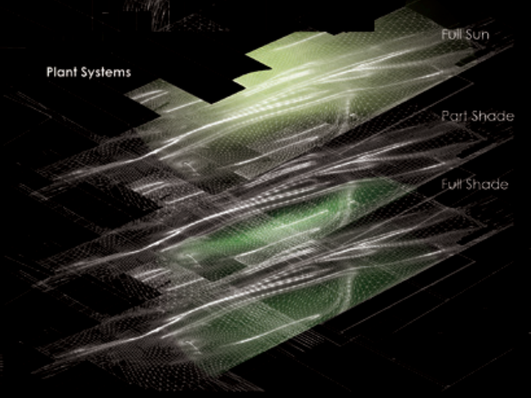


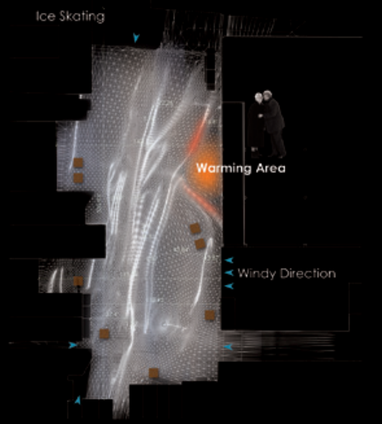
How are static materials designed to be perceived as moving/dynamic?
Can be able to attract people's places are moveable: provides a reason and creative activity for people to gather.
Interaction with Downtown: Allows for people to interact with the hard material while moving/ passing it on the Downtown.



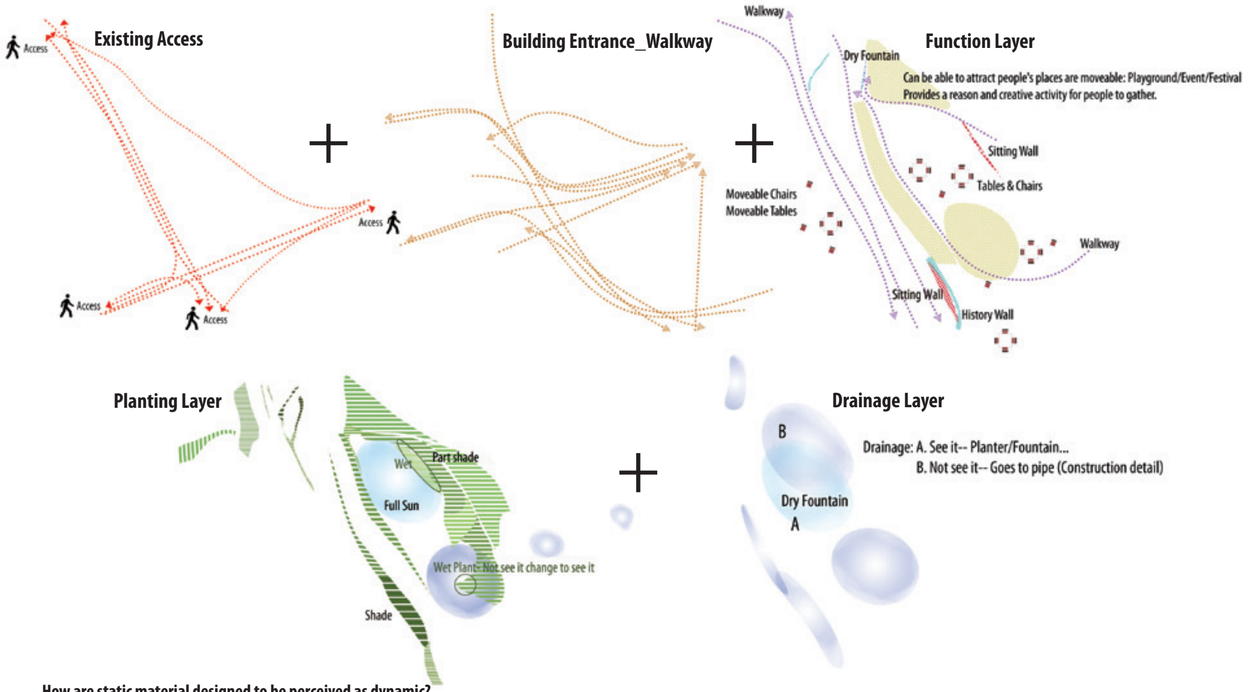






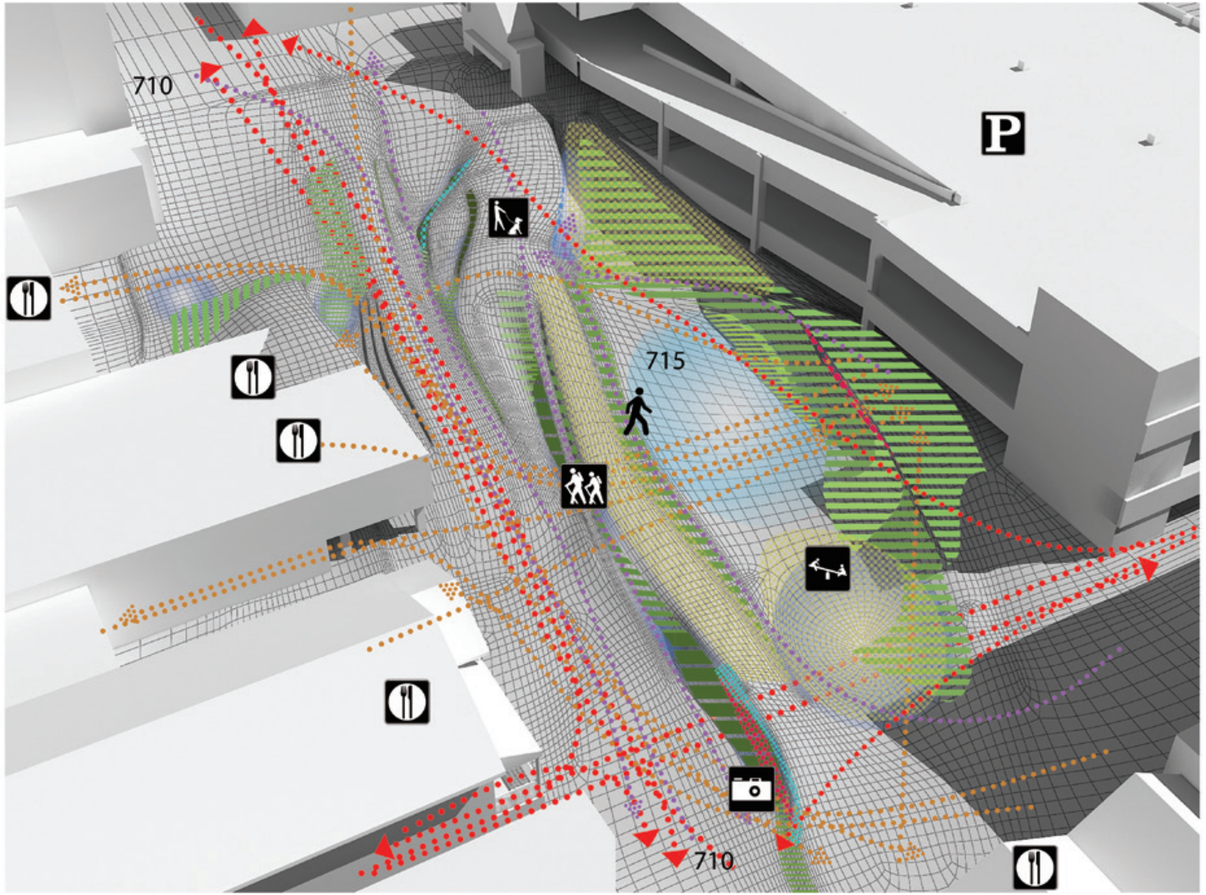


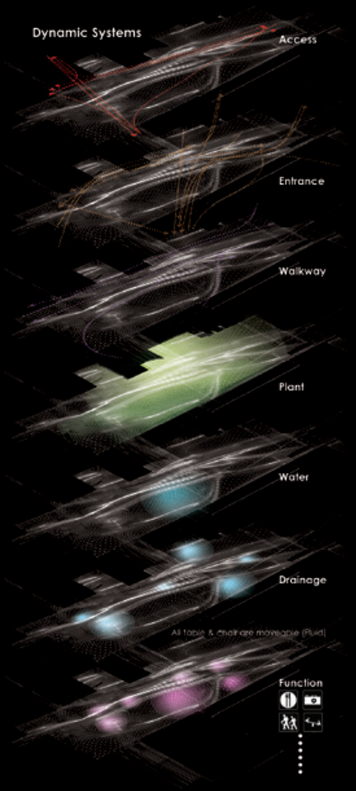
Can be able to attract people's places are moveable: Playground/Event/Festival
Provides a reason and creative activity for people to gather.



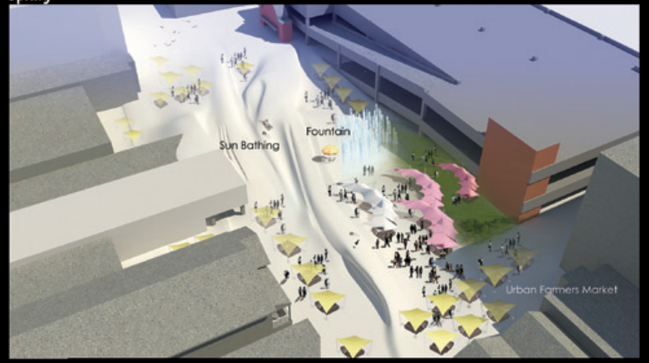
How are static material designed to be perceived as dynamic?

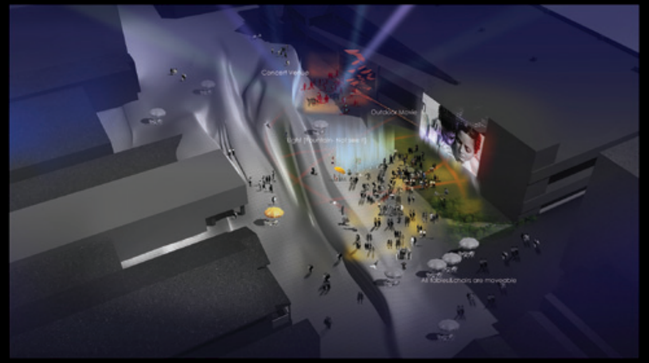
Interaction with Downtown: Allows for people to interact with the hard material while moving/passing it on the Downtown.



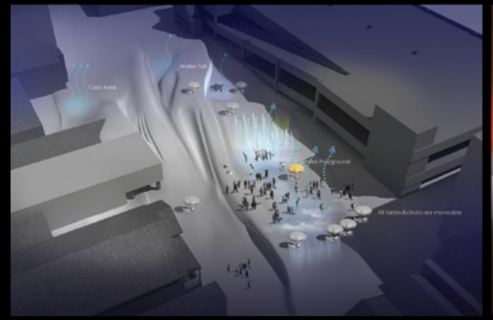


Spring

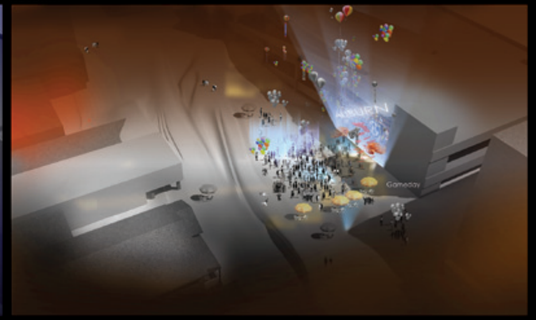




Summer



Autumn



Winter

What do they accomplish?

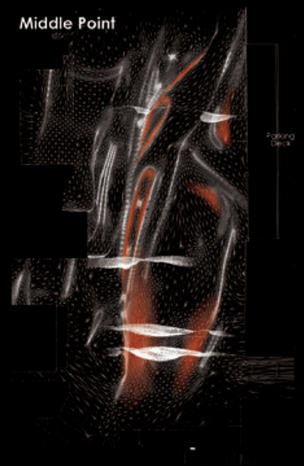
Plants Shade/ Smells good/ Visually soft Wet/ Dry Hang plant

Water Run (Stream)/ Fountain Sound (helps with noise)
Drainage
See it- Planter/ Water fall/ Stream
Not see it- Goes to pipe

Function All table & chair are moveable (Fluid)
Eating- seating/ table/ stand
History Wall
Playground
Outside kitchen

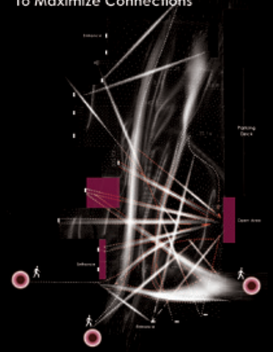
Low Point

Middle Point

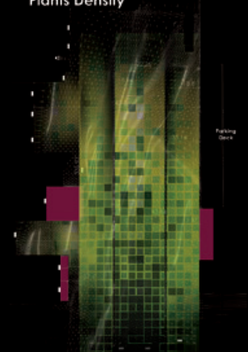


High Point

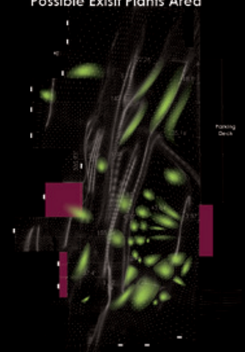
To Maximize Connections



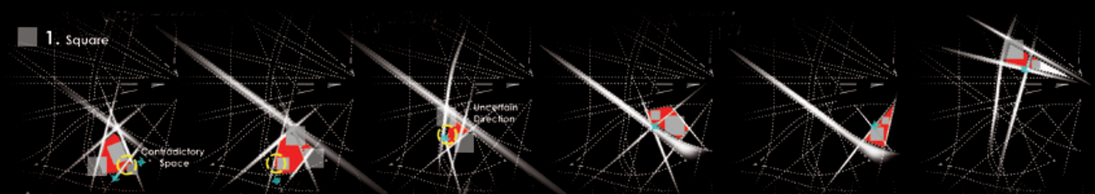
Plants Density



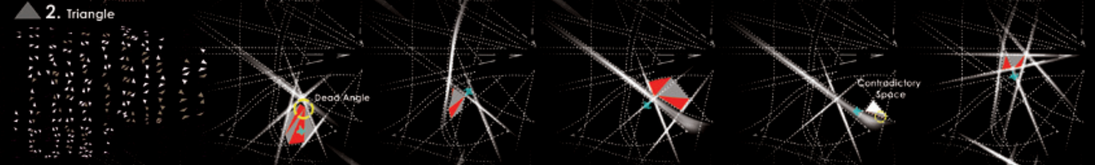
Possible Exisit Plants Area



1. Square

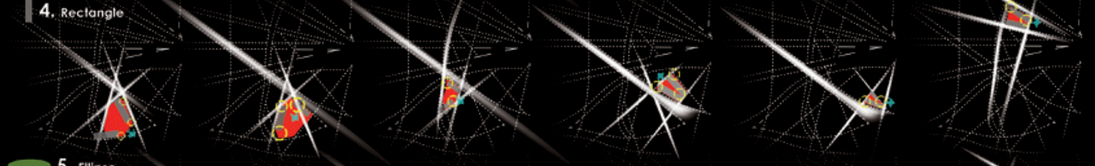


2. Triangle

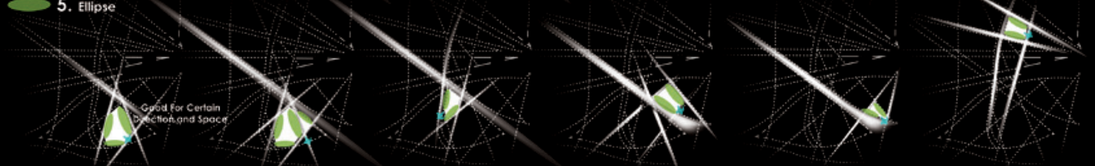


3. Circle

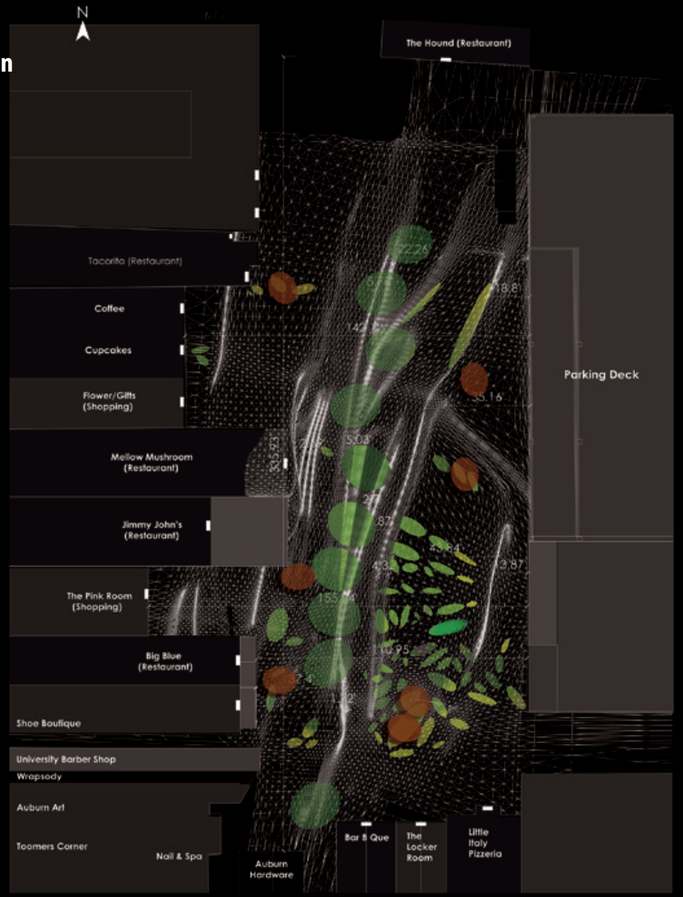
4. Rectangle

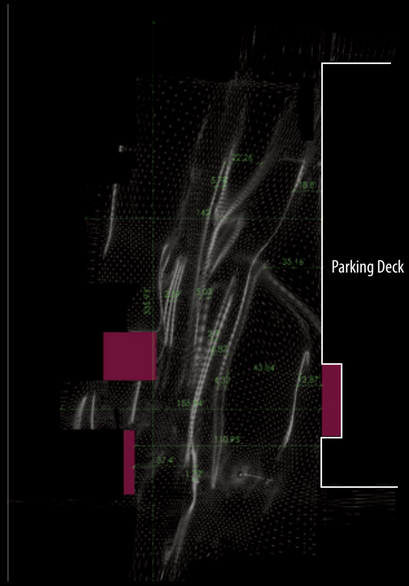


5. Ellipse

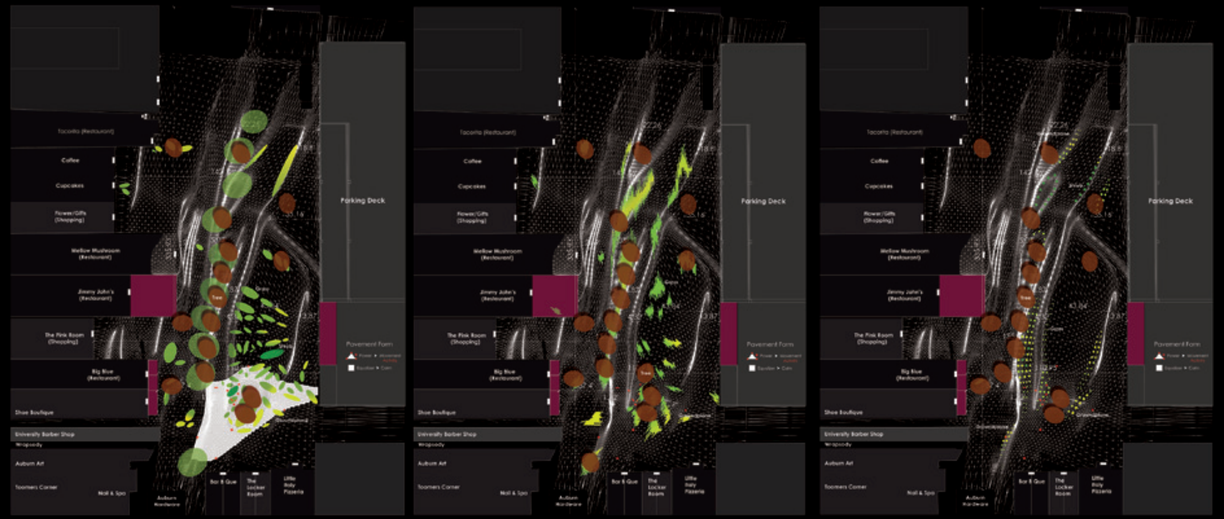


Master Plan

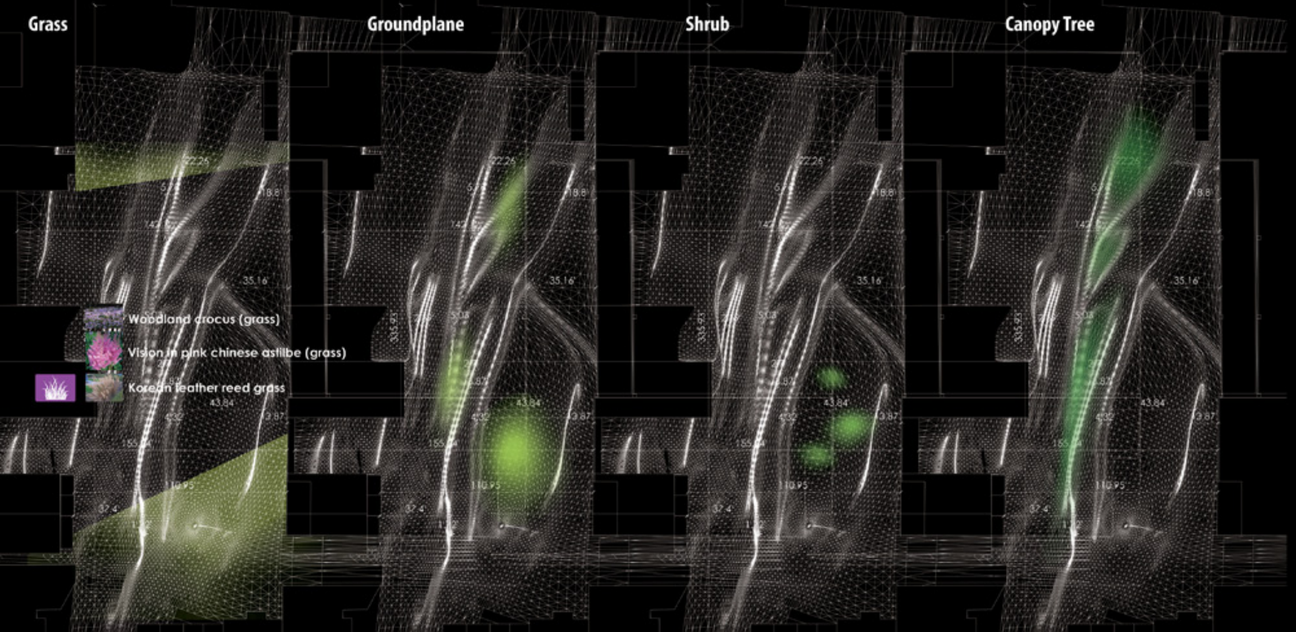




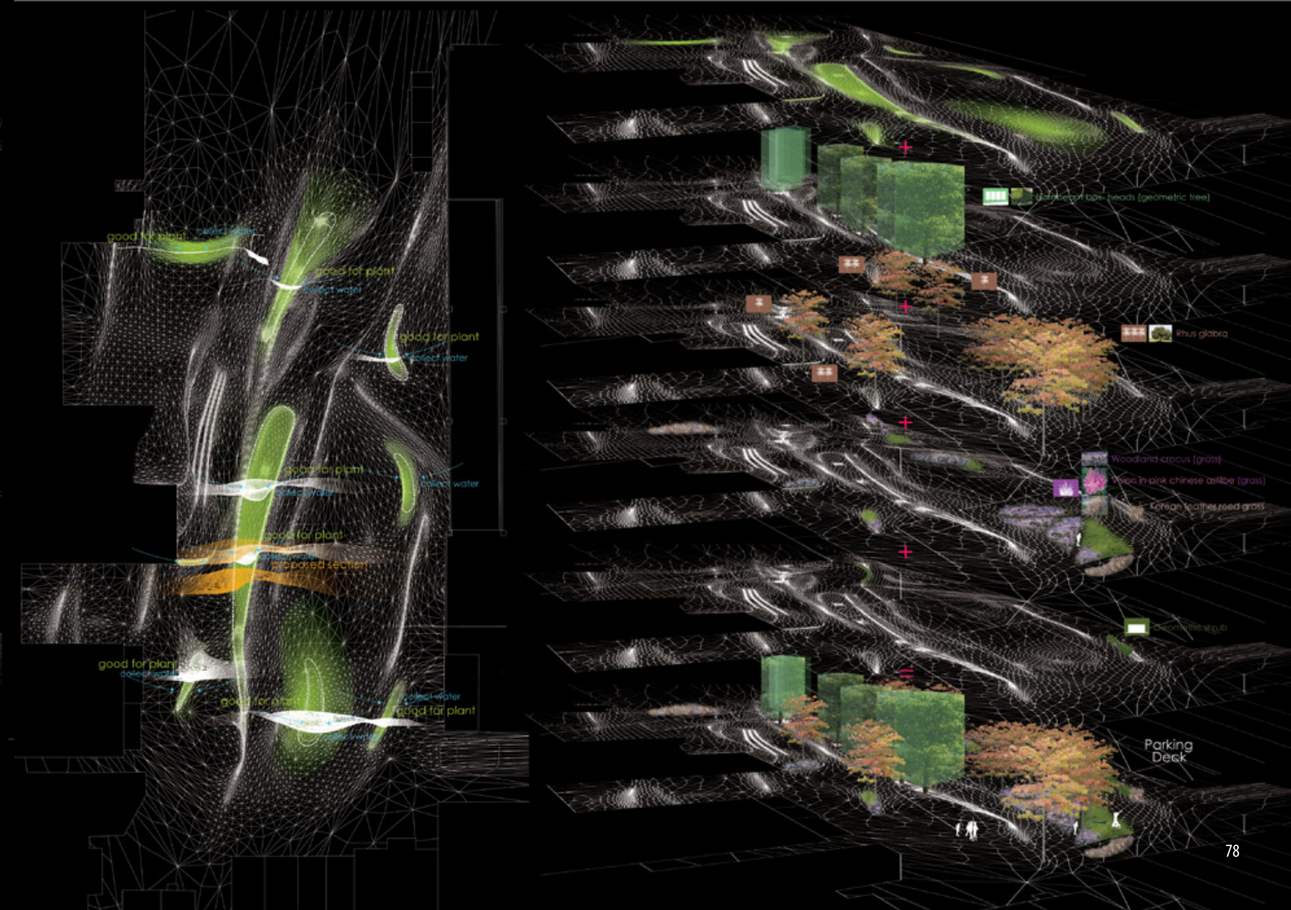
Research & test in analyzing potential for more productive use of open space and vacant land through increase application of ecological science and urban ecology. I would like to have further opportunities to examine the possibilities. Parking deck area have been covered by new plant and green land supported with multi-function space.



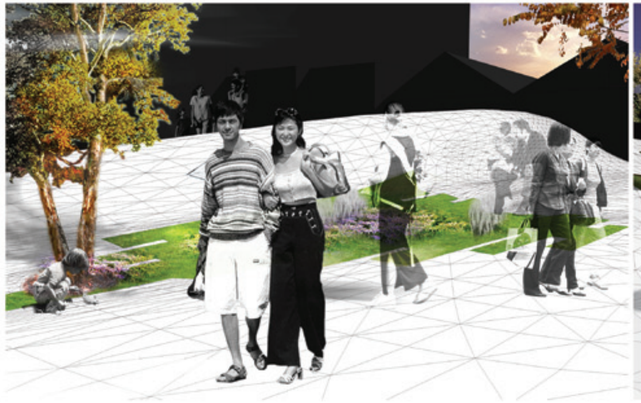
How are static materials designed to be perceived as moving/dynamic?

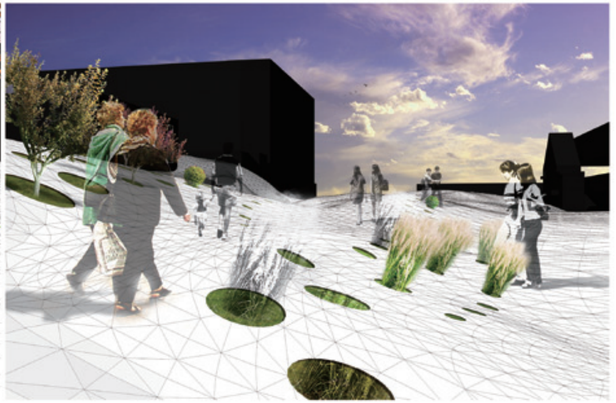


In addition to preserving the existing trees and important plants, the design also considers introducing new plantings to the site according to the soil and terrain conditions to increase the species diversity. Native plants are the first choice on site so that the maintenance could be much easier. Colorful plants are another consideration. The design is trying to create a various view for the site and let residents feel the color change of the site through the whole year. Based on the design concept of rain gardens and wetland area which functions as rainwater drainage and clean system, the species are also chosen according to the practical functions.



Perspectives + Planting Options

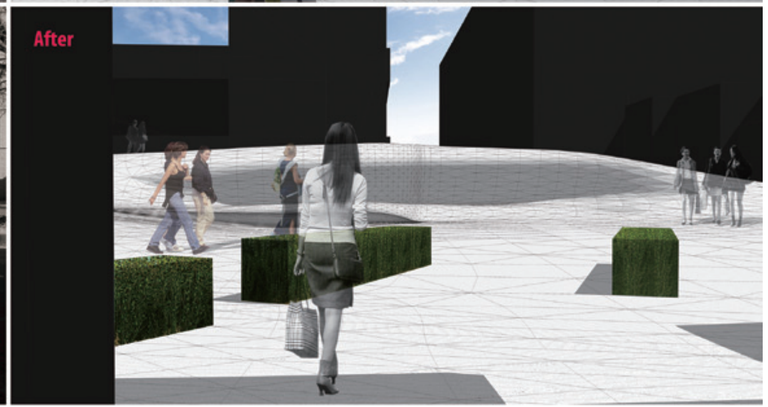


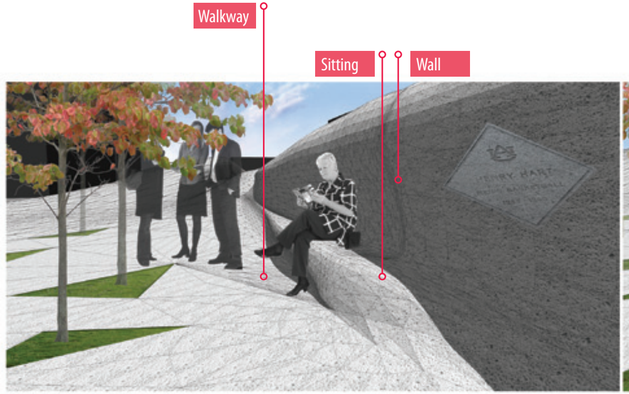



Before

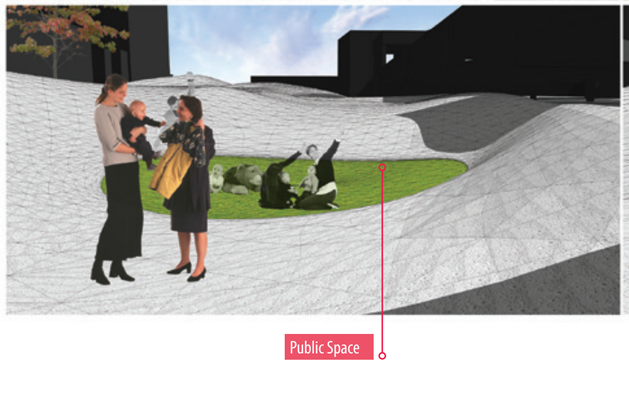

After

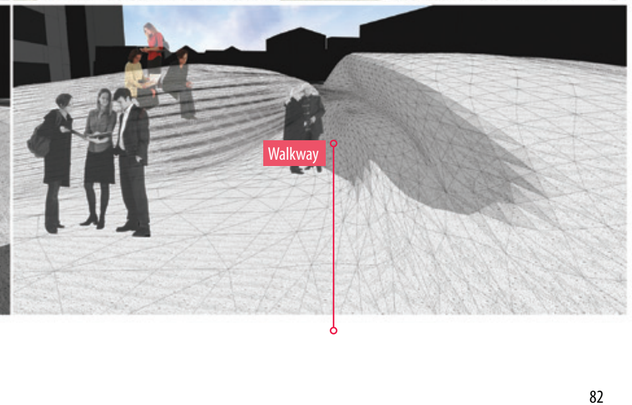

Before


After

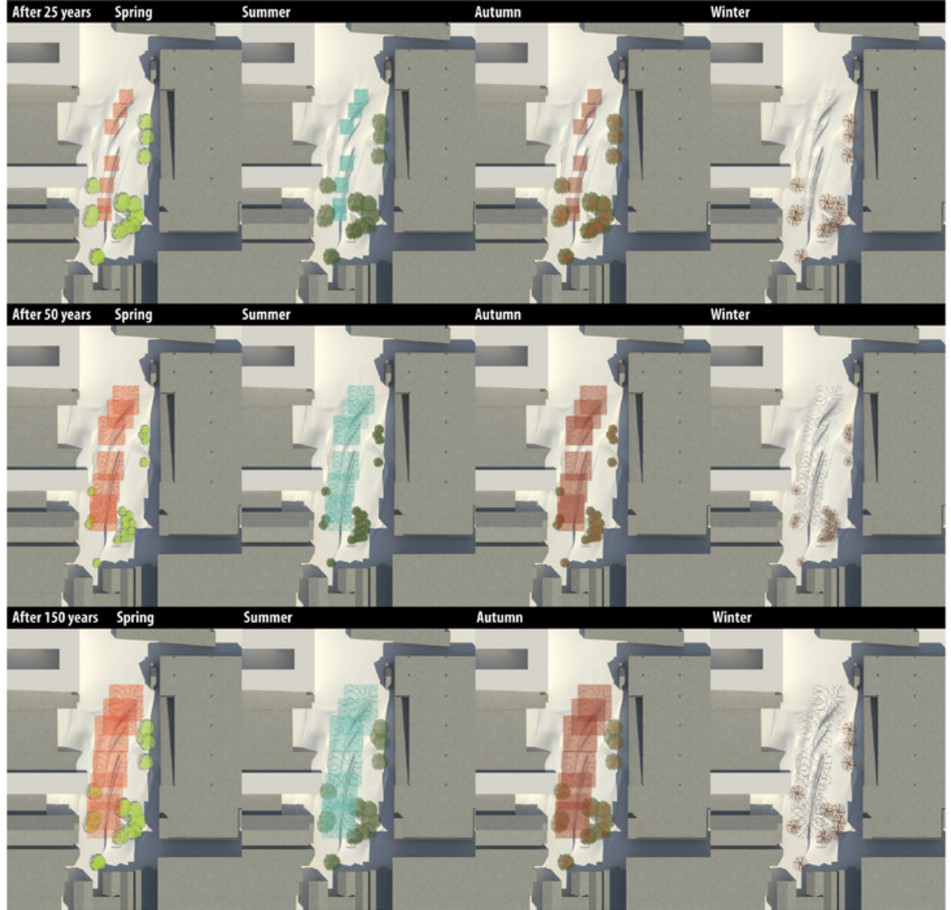

Walkway
Sitting
Wall


Tree Pond

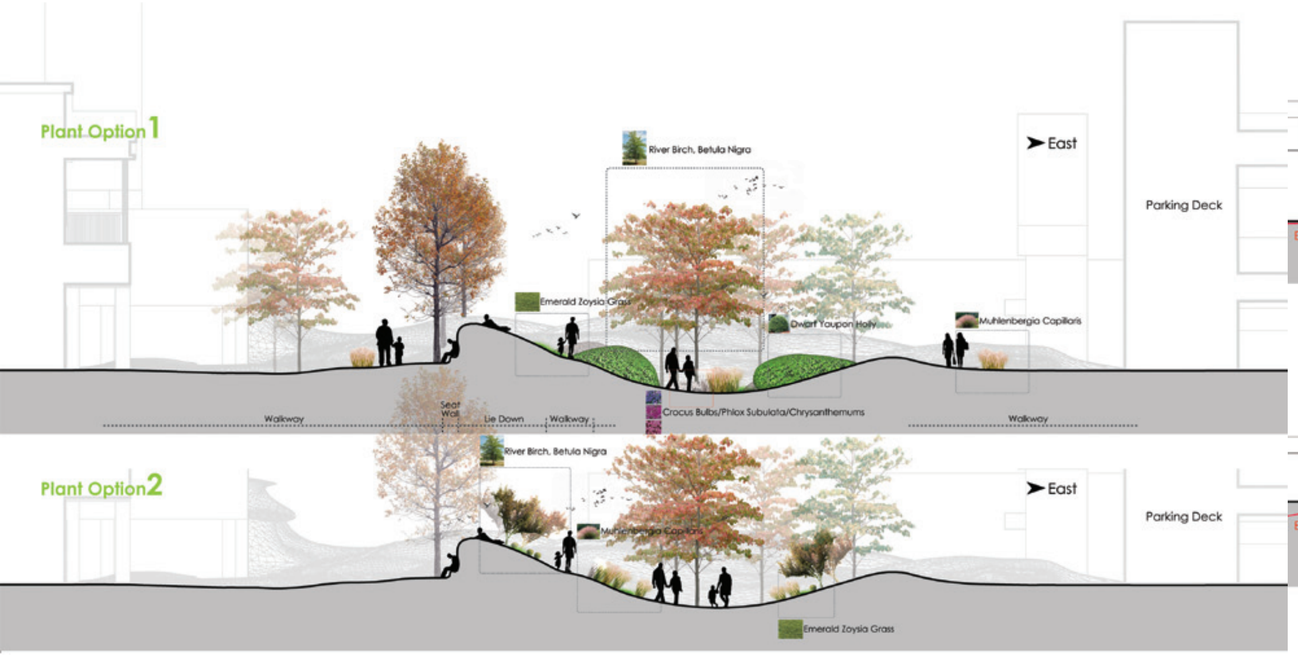

Public Space

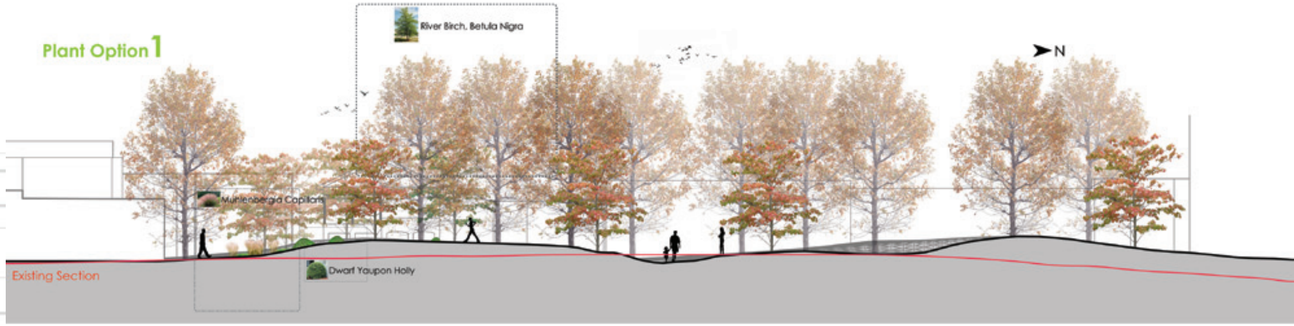

Walkway

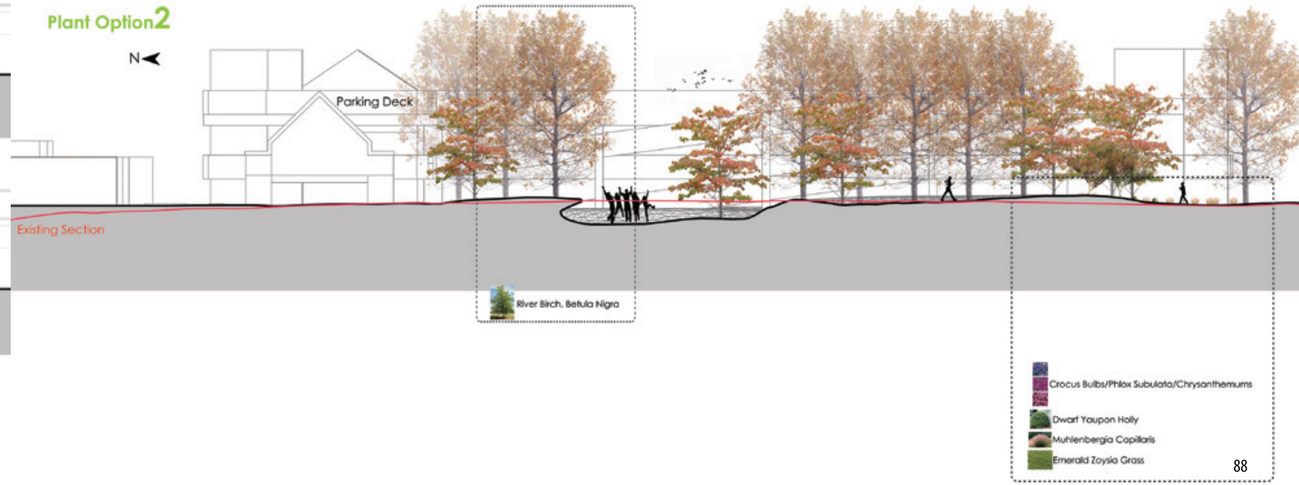
Planting Sustainability

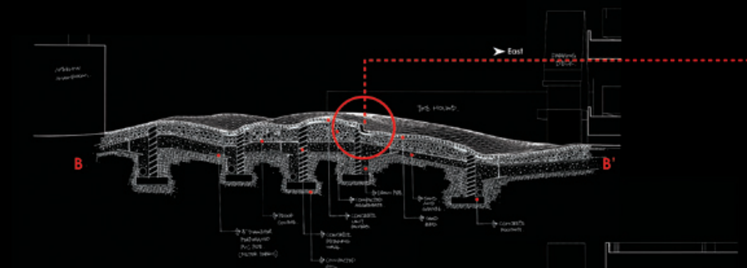


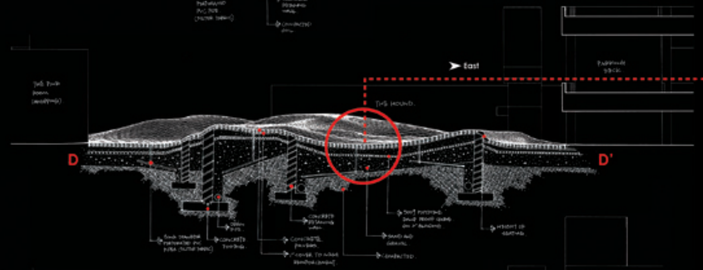
Section

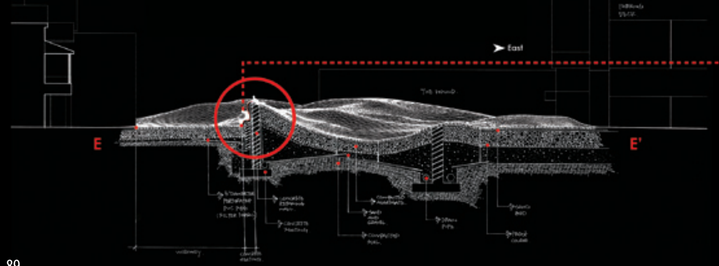

Plant Option 1
River Birch, Betula Nigra
East
Parking Deck
Emerald Zoysia Grass
Dwarf Yaupon Holly
Muhlenbergia Capillaris
Walkway
Seat Wall
Lie Down
Walkway
Crocus Bulbs/Phlox Subulata/Chrysanthemums
Walkway
Plant Option 2
River Birch, Betula Nigra
East
Parking Deck
Muhlenbergia Capillaris
Emerald Zoysia Grass


Plant Option 1
River Birch, Betula Nigra
N
Muhlenbergia Capillaris
Existing Section
Dwarf Yaupon Holly

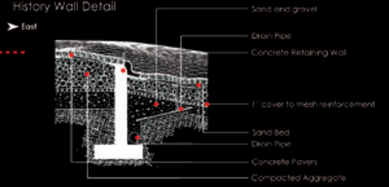

Plant Option 2
N
Parking Deck
Existing Section
River Birch, Betula Nigra
Crocus Bulbs/Phlox Subulata/Chrysanthemums
Dwarf Yaupon Holly
Muhlenbergia Capillaris
Emerald Zoysia Grass



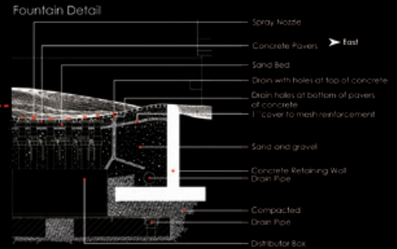




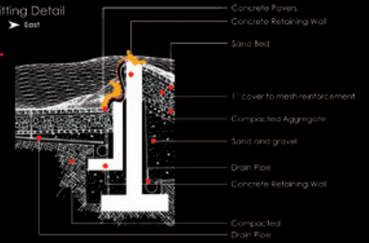
History Wall Detail

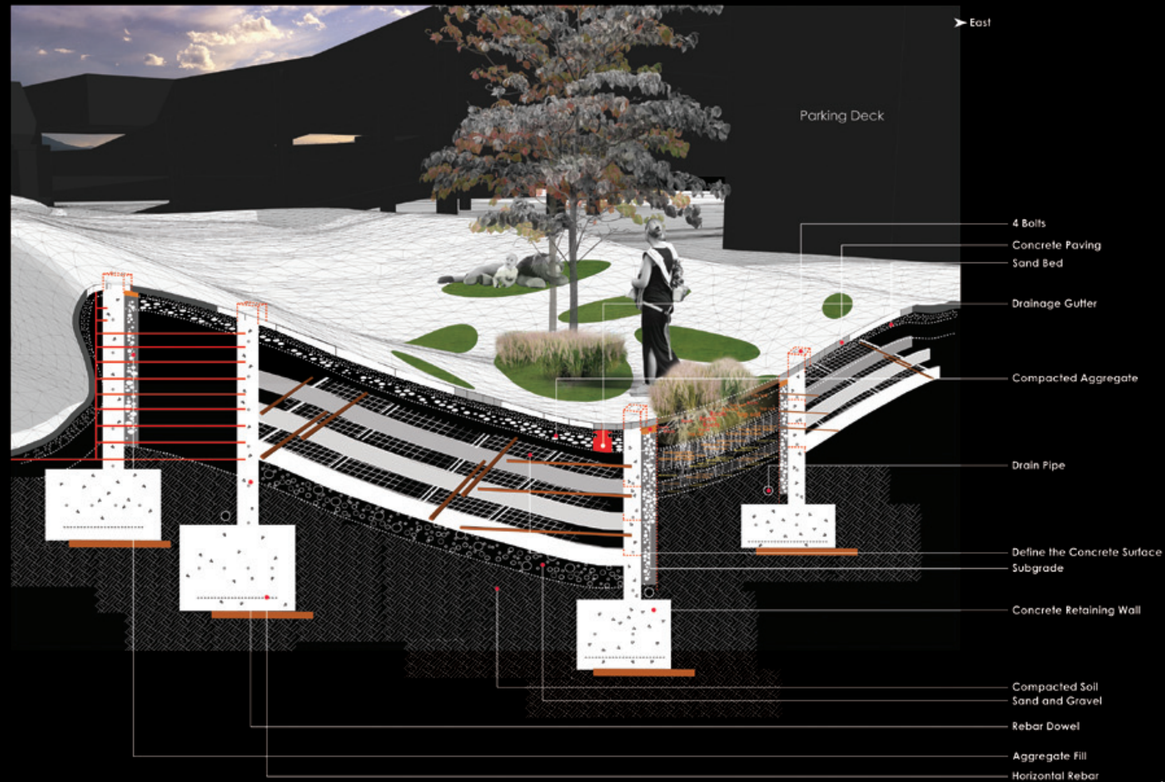


Fountain Detail

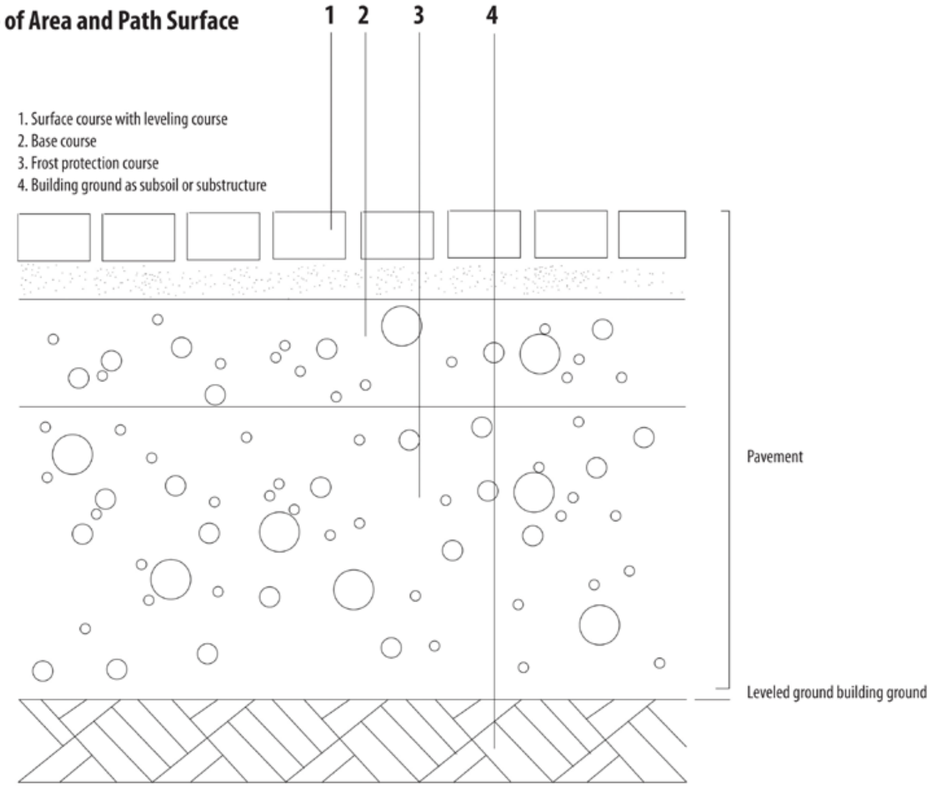


Sitting Detail

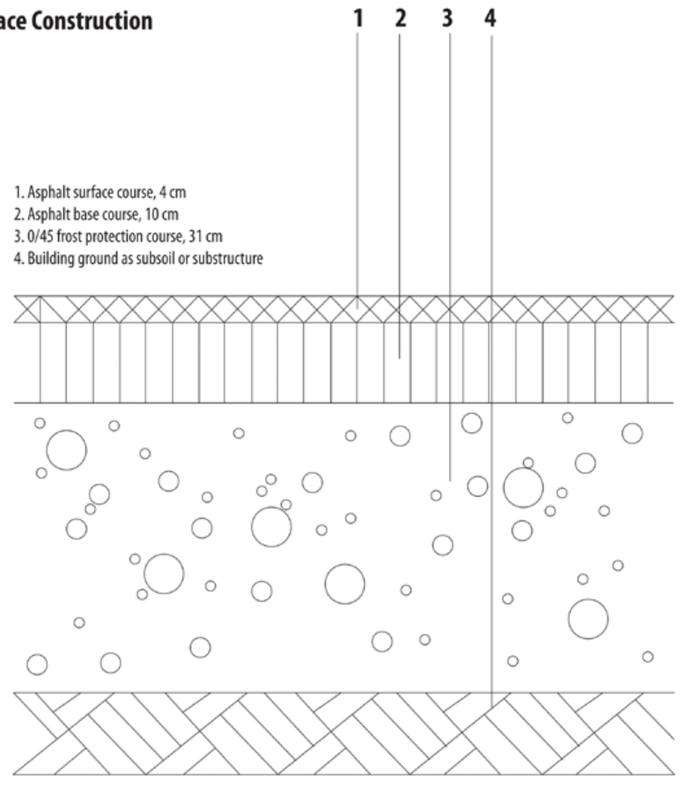




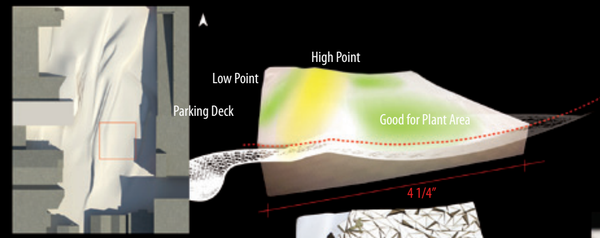
Structure of Area and Path Surface

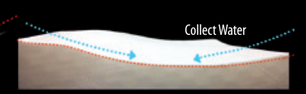


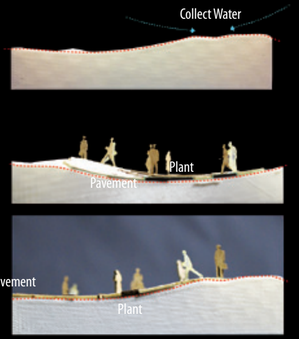
Standard Asphalt Surface Construction

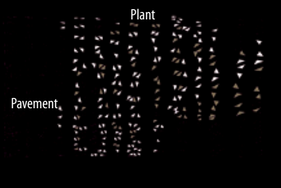


[PAVEMENT OPTIONS] SCALE: 16"=4'1=1



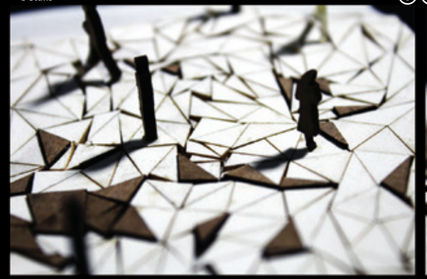




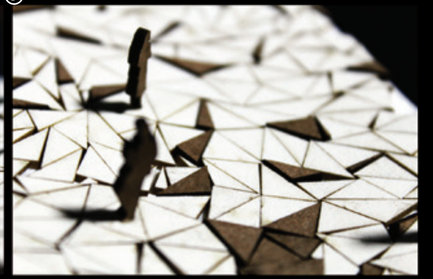


Details

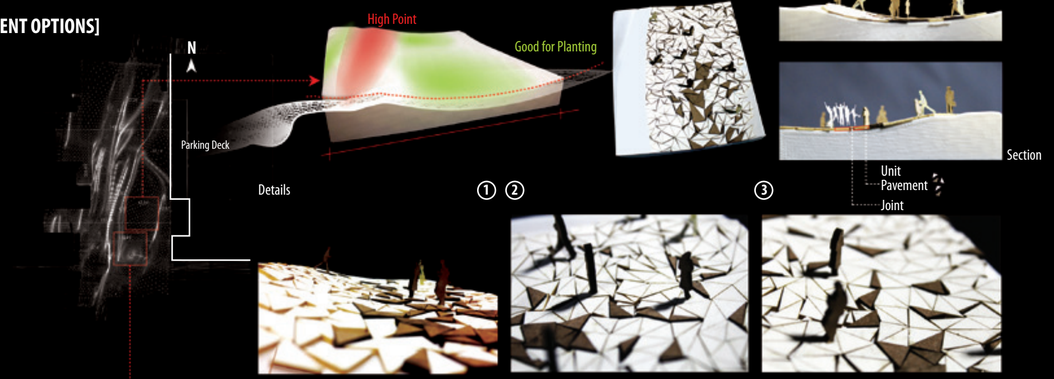
① ②

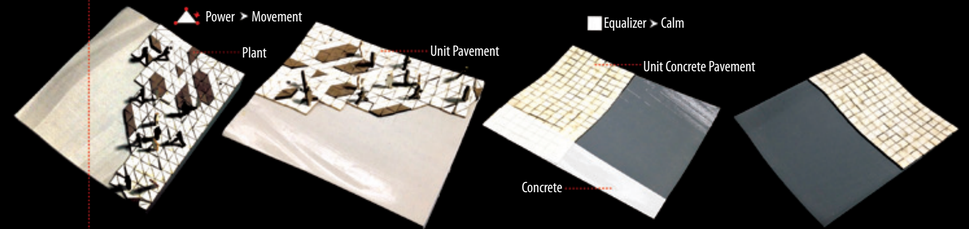


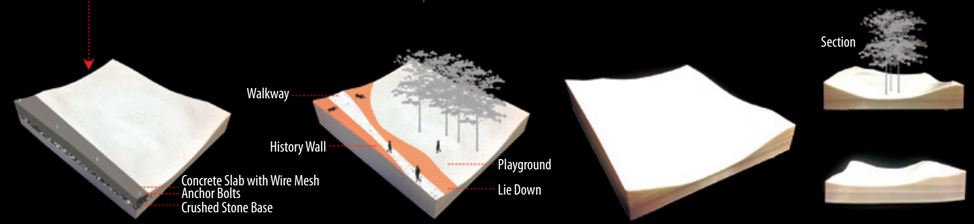
③



[PAVEMENT OPTIONS]







CONCLUSIONS

The research project explores a new way for the degraded community regeneration in downtown Auburn, Alabama. It combines natural drainage system, new moving pathways and restoration of existing significant urban fabrics to achieve the recovery of the downtown neighborhood area.

Adding new moving pathway system in the existing overlooked green open space in the neighborhood can bring nature back to the highly degraded down town area which has been far away from nature for a long time. New pathways will lead people into the natural lands which are also part of their living habitat. The new pathways system also work with the existing streets to connect the neighborhood and its surroundings better so that a more convenient and comfortable moving environment for walking and biking are provided. This concept helps people to get rid of automobiles and have a healthier way of life.

The new natural drainage system is also important for the growth of this space because it can help the growing urban area to control flooding and use ecological effect to enrich the site. Setting up rain gardens on both main street and in the back green open spaces not only provide a way to collect, infiltrate and distribute stormwater but also increase the biodiversity on the site. Using stormwater system to decorate the existing urban fabric gives residents a chance to be educated and have a sense of community.

Furthermore, the project is trying to provide a complete way and concept to regenerate the neighborhood, there is still space for some sparkling detail ideas of design happening on this site. Overall, the regeneration of the neighborhood will always be a popular issue for urban designers and landscape architects to explore more. This project is stepping in the middle of the whole movement, which need more thoughts and works to be testified to help with the existing and future neighborhoods regeneration.

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