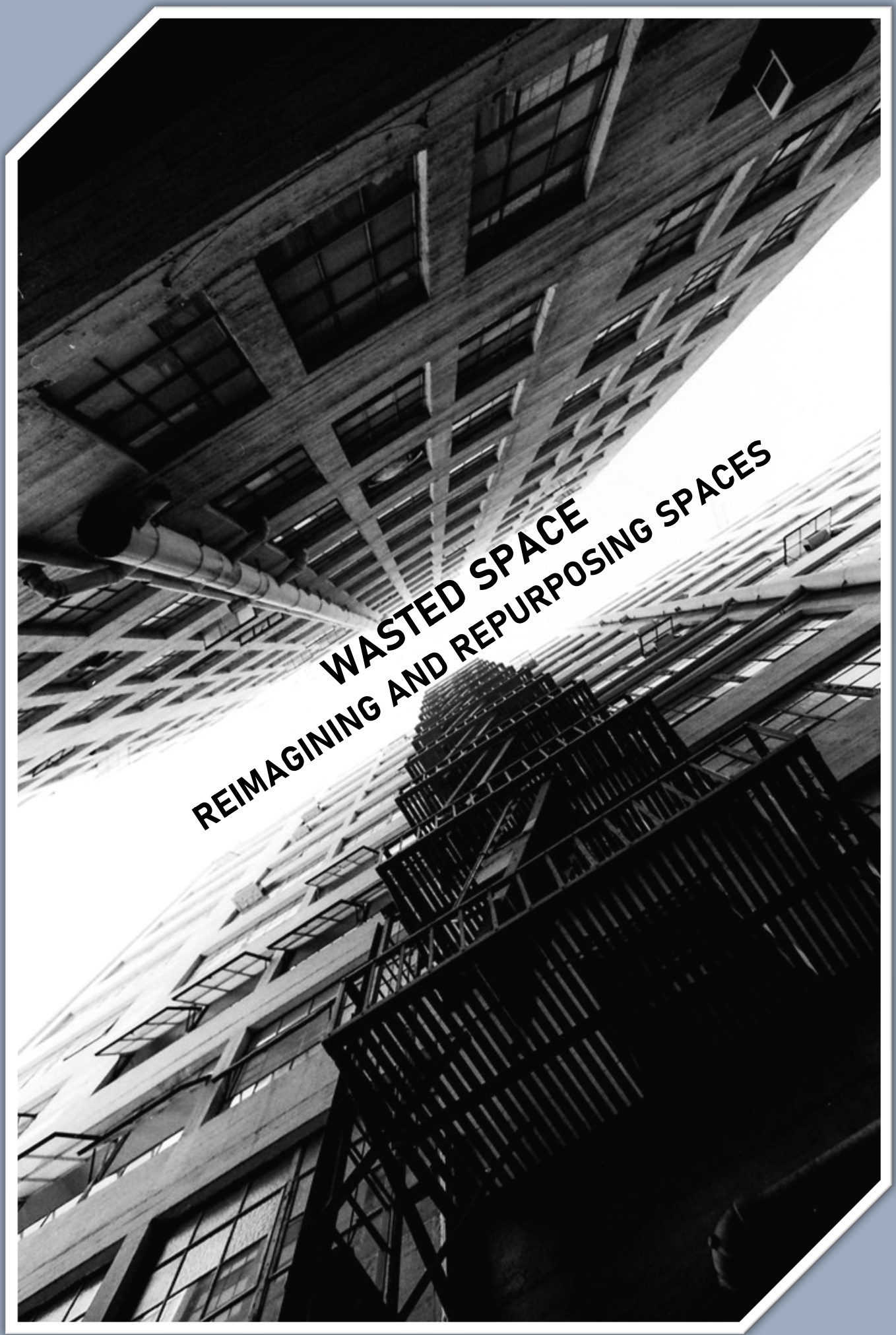

WASTED SPACE
REIMAGINING AND REPURPOSING SPACES

WASTED SPACE:
REIMAGINING AND REPURPOSING SPACES

A Design Thesis Submitted to the
Department of Architecture
North Dakota State University

By
Alixandra Hermanson

In Partial Fulfillment of the Requirements
for the Degree of
Master of Architecture

_____

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Jennifer Brandel, AIA

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Thesis Committee Chair
Dr. Ganapathy Mahalingam

May 2021

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THESIS ABSTRACT

Cities throughout the world have developed urban landscapes sprawling with buildings of various uses, green spaces linking neighborhoods and networks of transportation systems. Some areas within these types of cities have unused spaces that may be used for the community's benefit, which are considered wasted spaces. These would be locations under freeways, empty lots, unused rooftops and even land that was once used for another purpose but has now been abandoned or deemed unsafe. We may change these spaces to be community meeting areas for events, recreation or even learning centers with a mix of urban green space and multi-use buildings. Reusing these types of spaces with the intent of creating a new usable and meaningful urban program for the community it resides in may revamp what cities include within their city planning. With conducting case study research and simulating this new urban programming, this thesis may answer the question as to how we as architects may incorporate every space within a city to better serve its community, no matter the location.

THESIS ABSTRACT

THESIS NARRATIVE

Unifying Idea

With the increasing population of larger cities comes the problem of low availability of open land for use within communities. The question that arises from this is how may we as architects offer spaces for communities such as this to use when there is not enough space to do so? Reaching outside the normal scope for what is considered usable spaces is what cities such as this are needing to begin taking into consideration when planning their urban layouts. On top of this, having a connecting space for the community to interact in is important and opening our minds as architects to spaces that are out of the norm is important to make these types of recreational and learning spaces possible.

Activities Addressing the Idea

When addressing this issue, coming up with boundaries for what type of areas may be used for community use without overstretching the limits of what may be acceptable is important. Case study research will help to determine what these limits are through examples that work and where the limits have been met or exceeded. Another part of the issue that may be addressed is how will we ensure that these spaces are designed with the communities needs in mind? This will be met by researching further into what the community the site is in is lacking and what elements would be important for furthering the connection and education for the city to use.

With this information, I will have picked a suitable site for the thesis project from my knowledge of past examples and work on creating a layout which incorporates elements that the community may benefit from while giving ease of

transportation throughout the site for visitors. Form of the buildings will also be important to create a fluid design with a hierarchy of spaces for the client and users of the site to use. In the end, my goal is to be able to prove that cities may expand their idea of usable space for the communities' benefit.

Importance of the Idea

This issue is important to me because larger cities that I have visited or lived in the last couple years seem to be filled with many buildings for businesses, commercial or residential usage with very few spaces for public recreational use. They also seem to be concrete cities with very little green space, apart from the outside plazas that business buildings may have which do not feel very inviting in my opinion. There has also been this issue of fleeting spaces that may be used and finding where there are potential overlooked areas due to their location or past usage intrigues me.

My findings from researching and exploring the limits of usable land for the use of the community will hopefully impact how I as a professional see and use spaces within city design and will encourage other architects to think out of the box regarding usable space. Bringing communities together, no matter the location, is important for the well-being and creating connections between the community and the city.

PROJECT TYPOLOGY

The projects typology is an urban meeting space taking over an unused space within a city's boundaries. This will consist of recreational facilities, event spaces and exhibition spaces connected by pathways giving its users opportunities for many different modes of transportation. Users will be able to interact with these spaces in many ways, including but not limited to participating in events, visiting recreational centers, and even enjoying the new landscape at their own leisure. I have chosen this typology because the future of cities with set boundaries is coming to a standstill in providing new and meaningful places to their communities while also deeming spaces that may be used for this purpose as unusable due to restrictions set by the city. These areas have the potential to be so much more than it is now and may positively impact the area it resides in.

CASE STUDIES

1. Project Under the Gardiner Expressway | *Toronto, ON*

2. Gas Works Park | *Seattle, WA*

3. Lidingo Bridge Village | *Stockholm, SE*

4. Wuhan Yangtze Riverfront Park | *Wuhan, CN*

1 Project Under the Gardiner Expressway

FIGURES 1-4

TYPOLOGY- Public Space and Visitor Center

LOCATION- Toronto, Ontario

ARCHITECT- Ken Greenberg and Public Work

CLIENT- Waterfront Toronto STATUS- Phase 1 Summer 2018

Summary

The Project Under the Gardiner Expressway is made up of multifunctional space involving public space, the Fort York Visitor Center and a pathway connecting the spaces throughout this 10-acre area of land. It was intended to reclaim unused space under the Gardiner Expressway and to connect the seven local neighborhoods of the waterfront and visitor destination spots. Currently, phase one has been completed in Summer of 2018 with intent to continue the following phases in the next couple of years.

The site is centered around the supportive concrete columns, which creates civic rooms that may be used in unison or separately for different events. Entry onto the site may be accessed from a 1.75km trail which leads through each of these civic rooms and towards the Fort Hood Visitor Center. At the end is an Amphitheater for shows which also doubles for seating during larger events. Through surveying the community, they were able to make an informed decision on how a space such as this would the best to serve the community along with the types of events they would like to see. That would include markets, displays of public art, festivals, and many other types of public events.

Project Elements

55 civic rooms that may work in unison or separately for events | 2380 m² Visitor Center | washrooms | off-street route

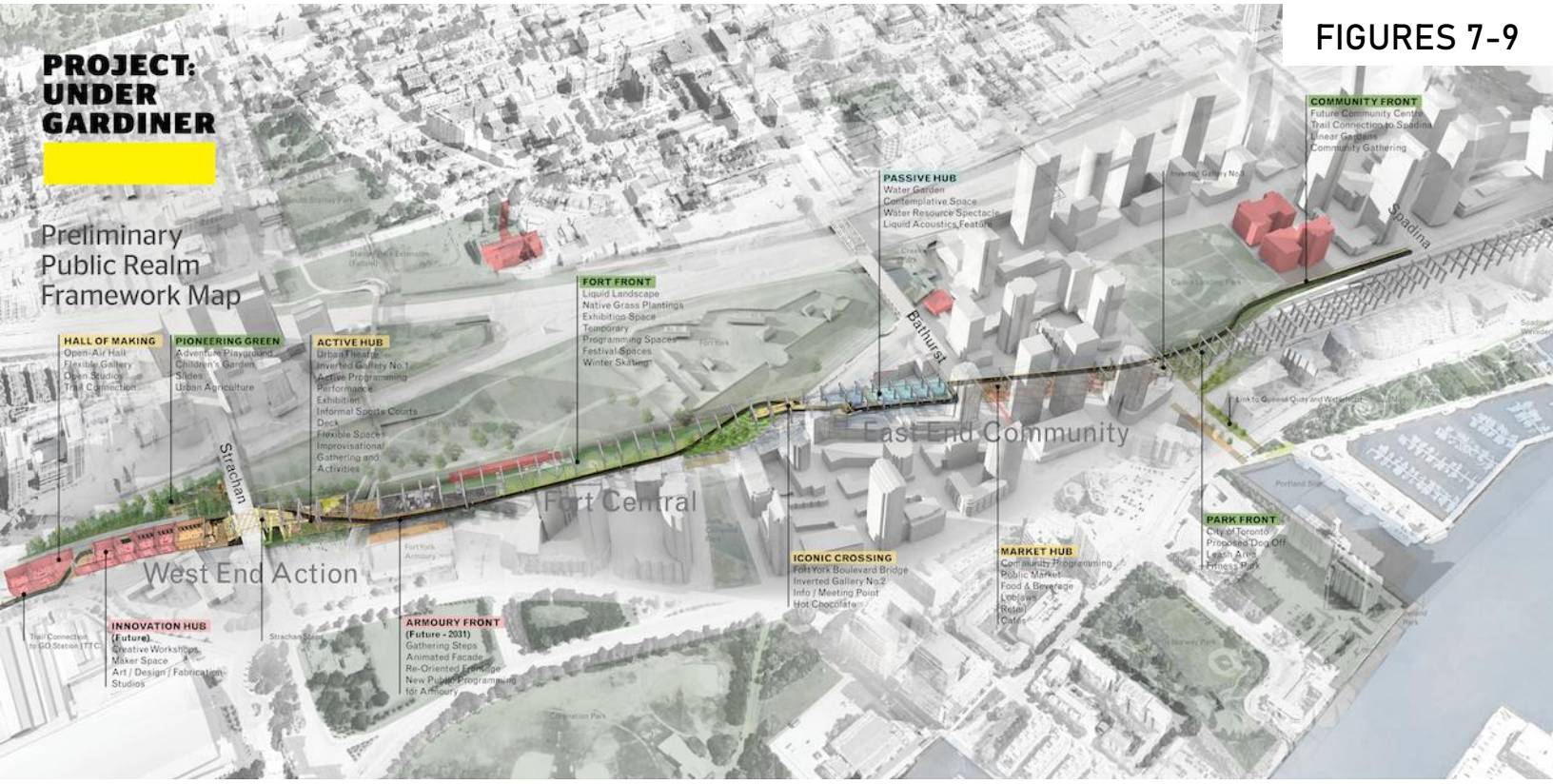
Case Study Commonalities

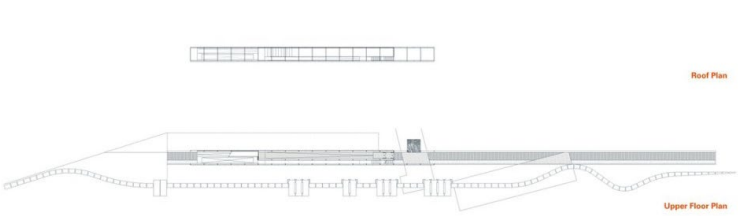
This project utilizes space that was not being used other than being the underside to the expressway above. It is considered a vital artery for connections throughout the city that may be a great area for year-round activities because of the protection from elements by the infrastructure above. Waterfront Toronto saw the potential that this 10-acre site could hold for the citizens of Toronto through its programming and use of the existing conditions.

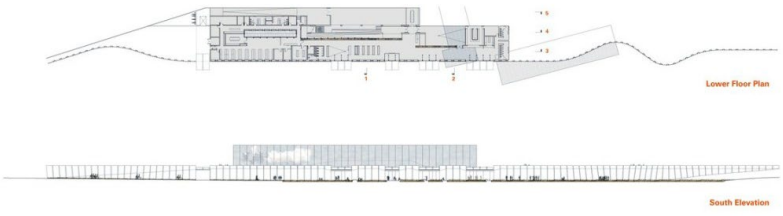
Another aspect that this project shows it using is the existing elements for programming of its new use. In this example, it uses the columns holding up the expressway to create possibilities for different sized spaces, depending on the size of the event or events being held. The expressway also canopies over the site, which protects it from the elements, so shade, rain or snowfall is not as much of a problem compared to an unsheltered site. The designers of the site when creating the programming for the site also let the current layout influence the flow that would create the final layout while reflecting the historic shoreline through its pathways.

This all ties in with this thesis proposal because it shows how one may take an under-utilized space and through collaboration with residents with influence of the existing site, one may transform a space into something useful for the city.

FIGURES 5-6


PROJECT:
UNDER
GARDINER
Preliminary
Public Realm
Framework Map
HALL OF MAKING
Open-Air Hall
Flexible Gallery
Open Studios
Trail Connection
PIONEERING GREEN
Adventure Playground
Children's Garden
Slides
Urban Agriculture
ACTIVE HUB
Urban Theatre
Inverted Gallery No.1
Active Programming
Performance
Exhibition
Informal Sports Courts
Deck
Flexible Spaces
Improvisational
Gathering and
Activities
FORT FRONT
Liquid Landscape
Native Grass Plantings
Exhibition Space
Temporary
Programming Spaces
Festival Spaces
Winter Skating
PASSIVE HUB
Water Garden
Contemplative Space
Water Resource Spectacle
Liquid Acoustics Feature
COMMUNITY FRONT
Future Community Centre
Trail Connection to Spadina
Linear Gardens
Community Gathering
Spadina
Bathurst
Strachan
West End Action
Fort Central
East End Community
INNOVATION HUB
(Future)
Creative Workshops
Maker Space
Art / Design / Fabrication
Studios
ARMOURY FRONT
(Future - 2031)
Gathering Steps
Animated Facade
Re-Oriented Frontage
New Public Programming
for Armoury
ICONIC CROSSING
Fort York Boulevard Bridge
Inverted Gallery No.2
Info / Meeting Point
Hot Chocolate
MARKET HUB
Community Programming
Public Market
Food & Beverage
Lobbies
Retail
Cafés
PARK FRONT
City of Toronto
Proposed Dog Off
Leash Area
Fitness Park


Roof Plan
Upper Floor Plan


Lower Floor Plan
South Elevation


Garrison Common
Fort York
Strachan Avenue
Strachan
Amphitheatre
Fort York
Visitor Centre
Boardwalk
Skating Trail
The Armoury
Fort York Boulevard
Fleet Street
The
Bentway
June
Callwood

2 Gas Works Park

FIGURES 10-12

TYPOLOGY- Public Park

LOCATION- Seattle, WA

ARCHITECT- Richard Haag and Jefferies-Norton Corp.

CLIENT- City of Seattle STATUS- Opening of Park in 1975

Summary

The Gas Works Park is a 19.1-acre park where Seattle Gas Light Company gasification plant was located between 1906-1956. While the plant was in use, the soil and groundwater were contaminated and the goal of this repurposing of the site included “cleaning and greening”. They were able to achieve the cleaning part of this by removing and capping wastes which were causing the pollution. After this was done, they took and repurposed the old foundations to turn a part of the land into an earth mound while preserving portions of the plant to be made into usable spaces. The spaces that were created includes the smoke arrestor hood ruins being painted and used as a play structure for children, the boiler house serving as a picnic shelter, the pump house being used as a play barn, the unloading area for coal being used as a concrete platform and the concrete train trestles being used as part of the park’s entrance.

Using the plant to influence the design was important to the architect. He wanted to preserve as much of the historic pieces of the previously used plant as possible while reflecting what used to exist there through the esthetic of the new elements of the site. The site is now a thriving recreational site and teaches visitors about the history of utilities and gas manufacturing for the city of Seattle.

Program Elements

Earth Mound | North Lawn | Towers | Prow | Picnic Lawn and Shelter | Play Barn | South Lawn | Pathway from Entrance

Case Study Commonalities

Within this case study, it takes a once deemed unused space and transforms it into a location that may be used by the community for recreational purposes. It shows how one may take a polluted site and work towards cleaning it to make it a usable area. The strategies that were used to achieve this is something to take note of if any pick of a site has a similar problem.

The other commonality of this site is repurposing existing elements to take part within the new design. With this, they let the existing site influence the layout of the park and found ways to be able to restore these existing elements to educate its visitors. They were also able to take parts that were not usable, such as the rubble of foundation, and work it into building up the landscape for another use. Had they not done this, they would have had to haul in truckloads of earth, unnecessarily costing more of the cities budget.

All this ties in with this thesis proposal because it shows how as an architect you may use an area that is deemed unusable because of its previous use through creative solutions to solve the issue. It also shows how one may preserve the existing elements of a site to be used within design to create spaces for the community to use.

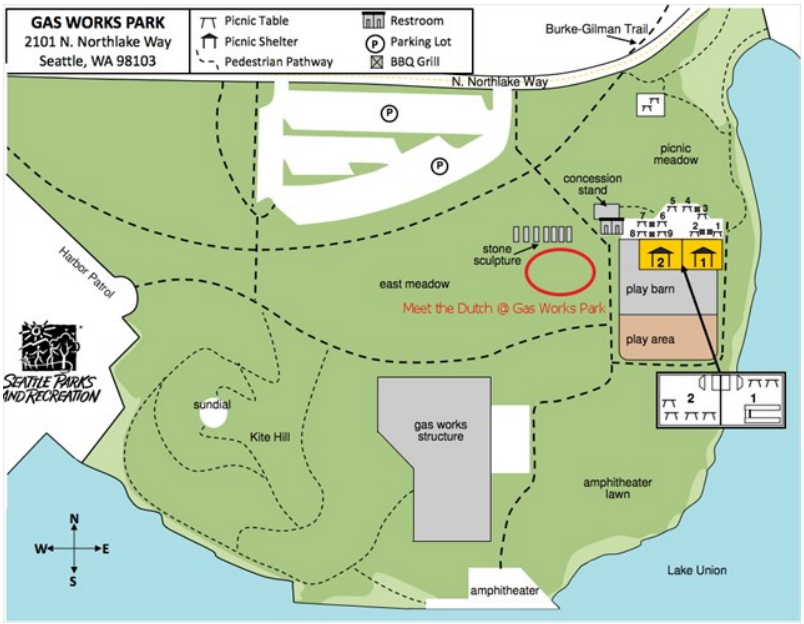


FIGURE 13

GAS WORKS PARK – CHILDREN'S PLAY AREA RENOVATION

AN INTEGRATED SOLUTION: INSIDE AND OUTSIDE THE PLAYBARN

A 2008 PARKS AND GREEN SPACES LEVY PROJECT

FRIENDS OF GAS WORKS PARK PLAY AREA RENOVATION COMMITTEE -WWW.FOGWP.ORG-

THE PLAY AREA INTEGRATED ELEMENTS:

Inside the Play Barn & Outside the Play Barn

1. Soft seat swings on stanchions

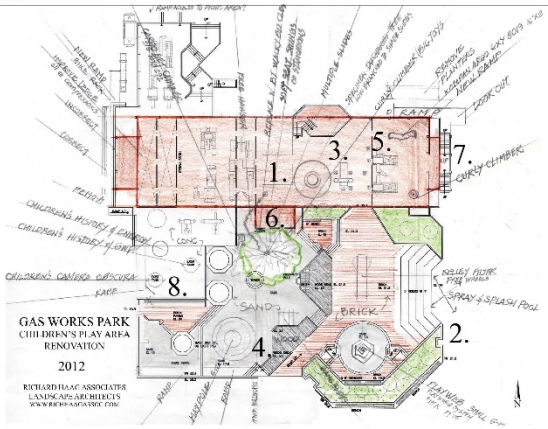
2. Spray and Splash Pool

3. 'Endless Monkey Bar' to complement original historic machinery.

4. Modern play equipment

5. 'Snake' on fall-protected flooring

6. Multiple slides to connect indoor and outdoor Play Areas



SPECIAL FEATURES

7. **Solar Panels** to set green standards for Solar Energy Collection: collaboration with Wallingford Solar Initiative -WSI

8. **Camera Obscura** - Children's Light and Optics Display in smaller tower

OTHER MAJOR OBJECTIVES INCLUDE: Daylight dark areas inside the Play Barn; Mural to incorporate history, art, and education; Bring Play Area up to current ADA and safety standards for accessibility.

The Play Area Renovation is an on-going project.

3 Lidingo Bridge Village

FIGURES 16-18

TYPOLOGY- Housing and Linear Park

LOCATION- Stockholm, Sweden

ARCHITECT- Urban Nouveau

CLIENT- City of Stockholm STATUS- Petition to Build Before Bridge Demo

Summary

This project was created from the minds of Urban Nouveau studio with the plan of saving the Gamla Liningobron bridge from being torn down after construction of a new replacement bridge is complete in 2022. Repurposing the old bridge into a linear park and housing was the solution to saving and repurposing the bridge for the community's benefit. The existing bridge deck would become a park for pedestrians while creating a safe pathway for commuters by foot or bike to cross the river between Stockholm and the island of Lidingo. The arched steel trusses would create and hold the spaces for 50 new apartments, consisting of west facing double-height living spaces with glazed facades on each side.

With this, it would resolve infrastructural, technical, environmental, and economical requirements. It would help to create new spaces for living and travel between the locations and would preserve a historical part of the city without wasting materials or money the community had put into the original project of the bridge when it was constructed in the 1920's. The reason for why the bridge was to be demolished is because it fell into a state of disrepair throughout the years that the city decided was too high of a cost to repair, with demolition being the best solution. Plans for the project would include using sales of the apartments to fund the restoration of the existing bridge, creating solutions to the tram and cycle lanes.

Program Elements

Linear Park | Apartment Housing | Pathway Connecting Land

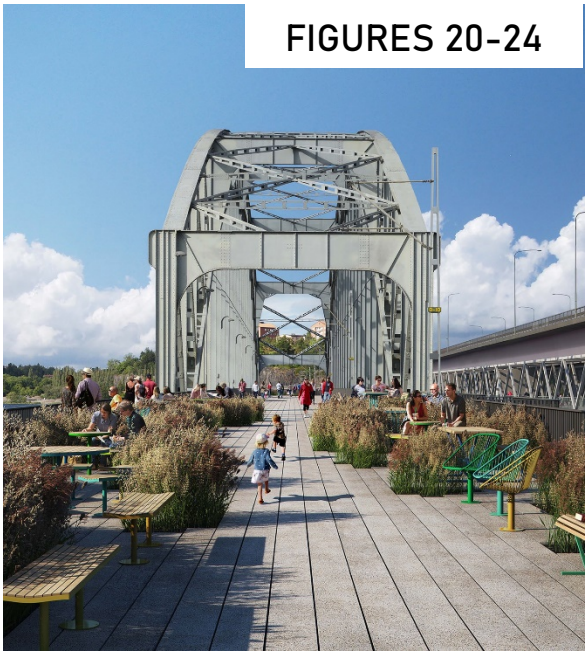
Case Study Commonalities

This case study tests the limits of usability of space for public use. They have taken the concept of a bridge falling into disrepair and solved it by consulting with outside entities, such as architects and engineers who specify in bridge architecture, risk and fire consultants for safety of the structure if it were repurposed and environmental consultants for what type of impact this project would create. With all of this, they had all determined that it would be a worth-while venture to help preserve a part of the city that ultimately would not need to be demolished had price not been an issue. The design studio had even found a solution to this issue of funding for the project and have a sound product that will hopefully catch the attention of the community.

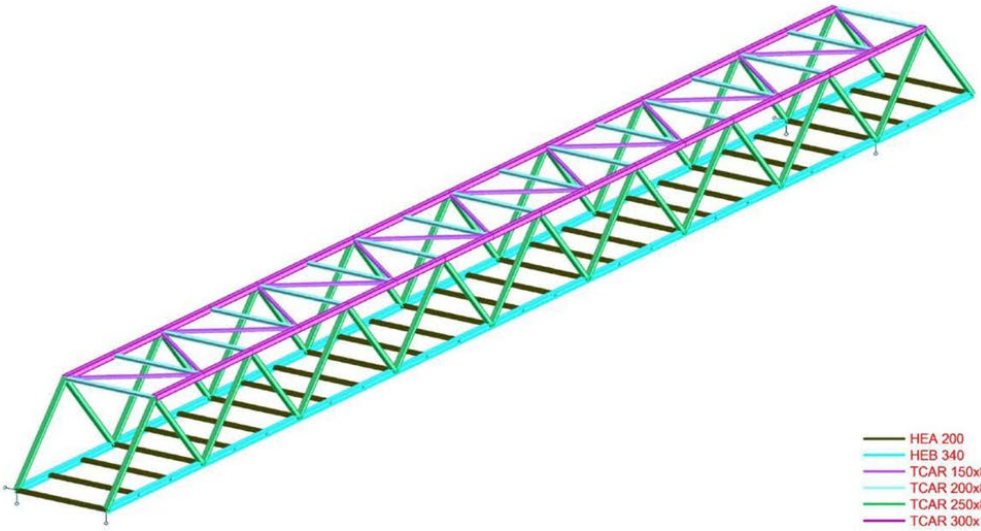
Creating easily accessible spaces between different locations is also important in what a project such as this should feature. With public and private spaces, this issue was addressed through the linear layout and reuse of the existing platforms with touches of green space and seating for those intending to stay on site longer.

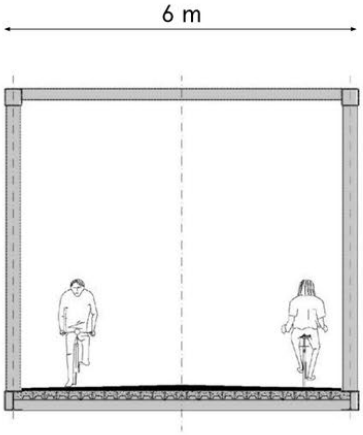
All this ties in with this thesis proposal because it shows how a space that was going to be destroyed may be reborn to serve a new purpose for the community's benefit. It takes and shows how through creativity and collaboration, one may solve issues that had not been fully addressed before and transform it into a well thought through project.

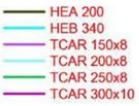
FIGURE 19

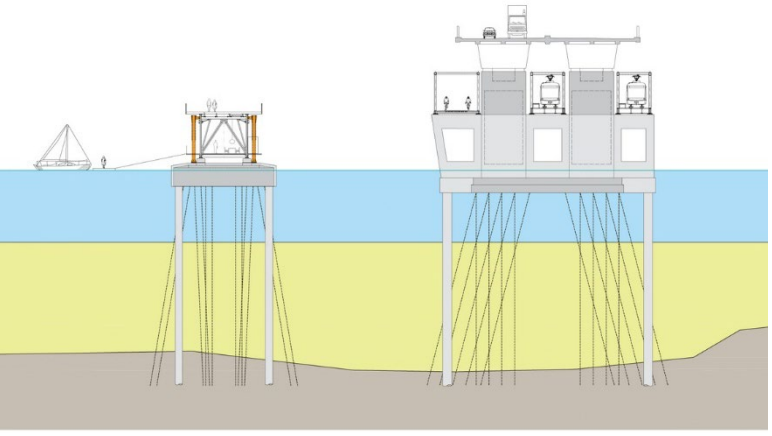


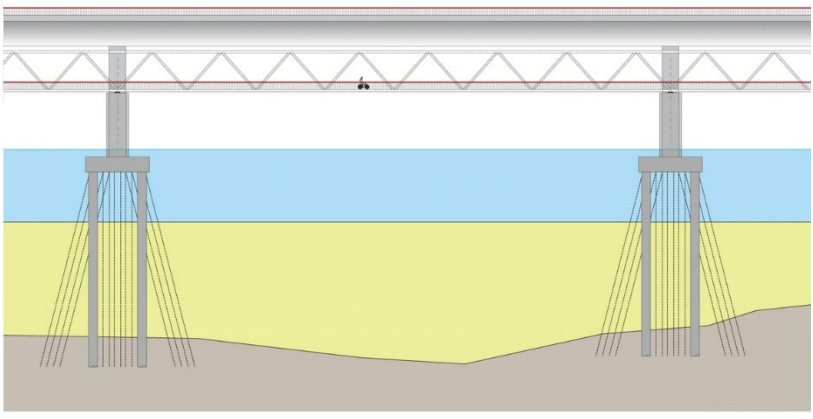
FIGURES 20-24



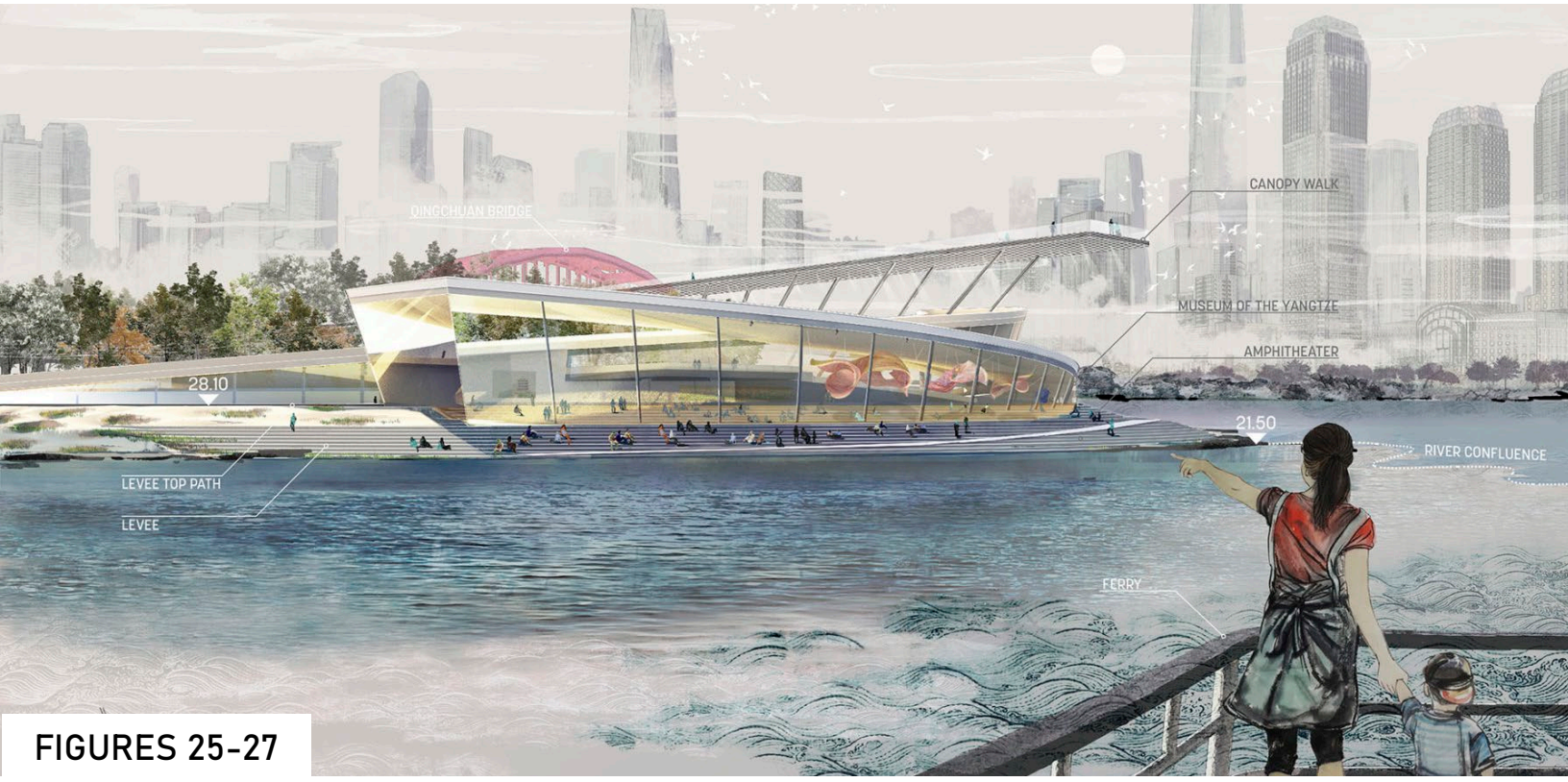








4 Wuhan Yangtze Riverfront Park



FIGURES 25-27

TYPOLOGY- Recreational Park with Museum

LOCATION- Wuhan, China

ARCHITECT- Sasaki

CLIENT- Wuhan Land and Planning Bureau STATUS- 2018

Summary

Yangtze river creates fertile land for the city of Wuhan, but yearly floods take away land for public use, which is at high demand. By creating a new style of river culture, Sasaki has found a way to harness the changing environment of the riverfront to the benefit of the community. Their plan first starts with creating secondary streams that wind through the park and creates corridors for kayaking while being home to aquatic wildlife that is experiencing a lessened amount of biodiversity due to the ecosystem of the mudflats reducing due to sediment fluxing negatively.

Reuse of existing elements is important to this project through using the railyards as circulation spaces and barges connecting to this pathway which create dynamic spaces along the riverfront. The different use on these would be as floating plazas, restaurants, galleries, and community gardens. The architects also wanted to include a museum that teaches visitors about the waterfront while not taking away from the skyline, so they had created a space that gives a panorama to the waterfront while flowing with the existing skyline of the city. With inclusion of public comments on the design, they were able to take the ideas and visions of participants into consideration and create a landscape that the community was dreaming of having. The end goal of this project was creating a socially inclusive and ecologically meaningful waterfront that takes the philosophical identity of the river into consideration with regards to the design.

Programming Elements

Recreational Fields | Floating Promenades | Railyard Pathways | Museum of the Yangtze

Case Study Commonalities

With this project, it takes into consideration the existing environments that are constantly changing and has it influence their program for the design. With the changing of the waterfront river levels comes the challenge of figuring out how to use the space without having an element that is going to be flooded part of the year. They had solved this by working with the changing levels of the water with the barges being floating spaces for use by the community. They had also taken small aspects of the existing landscape and created small moments that showcase the changing landscapes of the riverfront. One feature that reuses existing elements is the industrial heritage spots that are flooded when the waterfront rises. The architects had designed interactive lights that light up when the water begins to rise, informing the visitors of the constant changes on the site.

This ties in with this thesis proposal by showing how an architect may think more in depth about the site and preserving the original purpose of the site, which is a home for varying wildlife for this case. It shows how you may take challenges such as the changing waterfront and make it work in your advantage for design decisions.

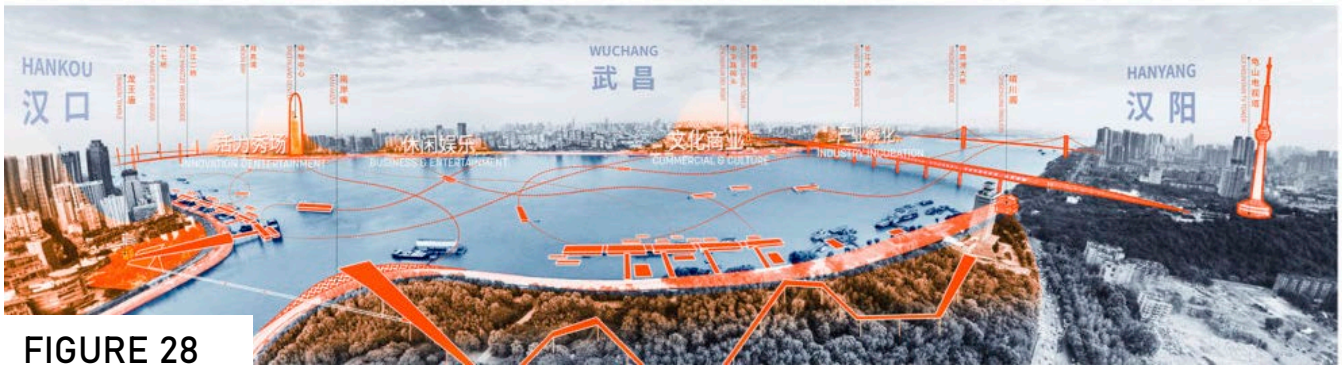
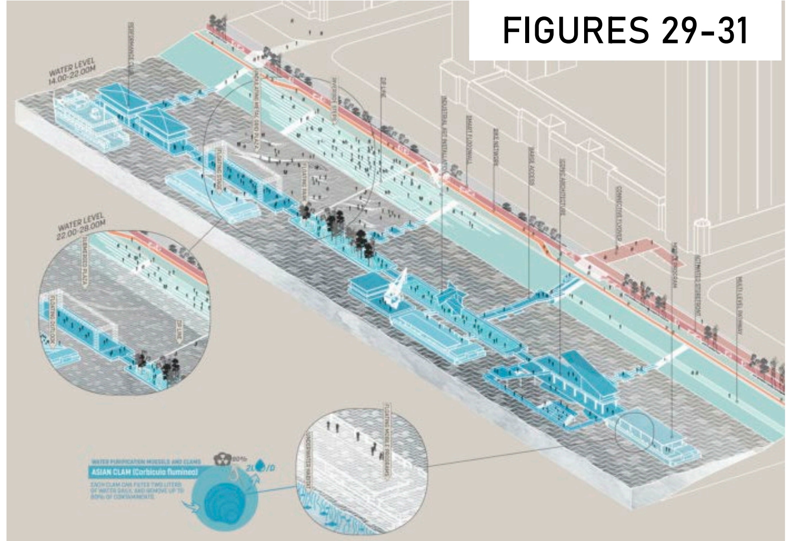
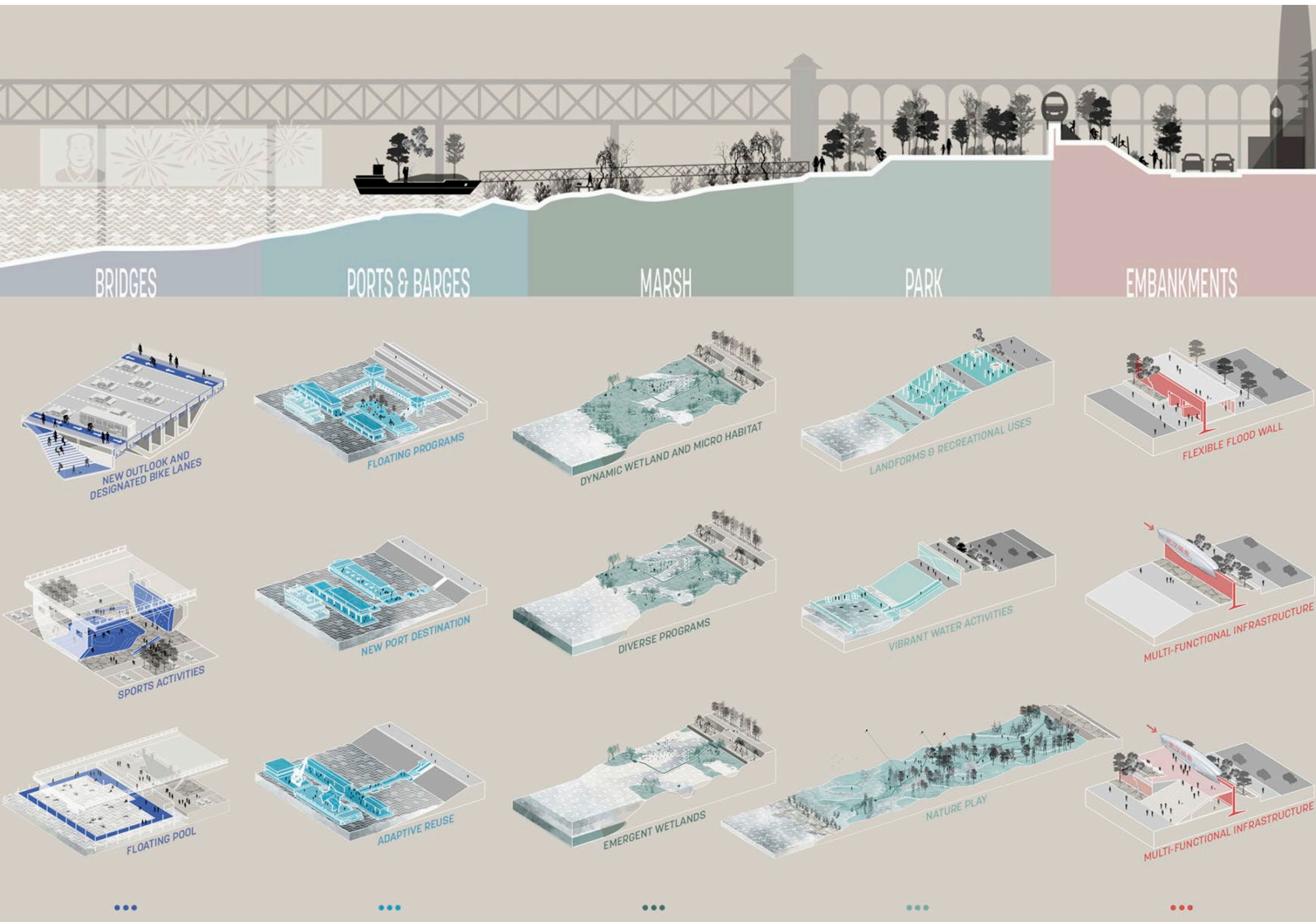


FIGURE 28

FIGURES 29-31





MAJOR PROJECT ELEMENTS

1. Recreational/Educational Facility: This area may be used for community and possibly used for small independent groups to rent out for a closed event.

2. Event/Exhibition Space: Outdoor spaces for the community to interact with or hold larger events. This may be a mix of indoor and outdoor spaces that may open to one another if needed.

3. Transportation Pathways: This will link all locations on site to one another. Along with that, not all visitors to this location would be those intending to stay for a long period of time, so having pathways that will lead passerby's to important locations along the way is important.

4. Greenspace: Having spaces with seating and greenery such as this is important for the community to be able to relax in and it will improve its visitor's health and well-being. With this, there will be a higher environmental quality to its neighborhood.

5. Other Elements: This may include offices for the client to use in order to manage the site better, rest room areas for visitors to use to ensure they will not have to go off-site or even vendor spots for food or items to be sold during events.

USER/CLIENT DESCRIPTION

Context

The users would be anyone in the city who takes part in any aspect of the community, whether it be involvement in city events, people passing through on their way to work or even the random tourist trying to experience the city.

1. Neighborhoods & Communities: During the daytime this would include local schools, businesses during their lunch breaks or even young families and elderly going for a stroll. In the afternoons and evenings, this would be focused more towards anyone on their free time such as families, couples or even individuals independently visiting for recreation.
2. Artists: With the exhibition spaces and learning centers, artists would be participating by showcasing their own items or teaching groups.
3. Commuters: This would be anyone whose route towards their destination passes through the site. Having pathways that lead to important locations such as bus stops or intersections will be easily accessed throughout the site.
4. Tourists: With events being held by the community, any visitor looking for things to do during their trip will be drawn to the site.
5. City Government: This may be the main client of the site since most outdoor recreational sites are maintained by government entities.
6. Recreational & Facility Employees: This would include those who help maintain the site whether it be cleaning the facilities or running a lobby area for the recreational and learning center.

SITE INFORMATION

The location for the Thesis Project will be in Atlanta, Georgia. This city was picked because after researching, this location was one of the top cities with a lack of land available for development or use. Because of the number of residents residing here, housing and businesses have been taking over available land due to the high need to have work and living for these residents within the city. The area has also been experiencing a loss of green space due to its growth in the last decade and is a low amount in comparison to other cities.

Finding a spot downtown in this city was another focus point when choosing a site. Having a location in this area would provide connections between important landmarks through the city while being centralized for use of all the surrounding neighborhoods. At this site in Atlanta, it would be taking over parking lots that have been poorly maintained and branch out to the surrounding green spaces with walking paths for access to the landmarks surrounding the interstates. It would also give the city a destination for citizens to hold events and learn more about the city they reside in. Some of the connections that would be made on site would be between the South and North parts of the city including the Georgia State Capitol, Mercedes-Benz Stadium, and the Center Parc Credit Union Stadium.

FIGURE 32

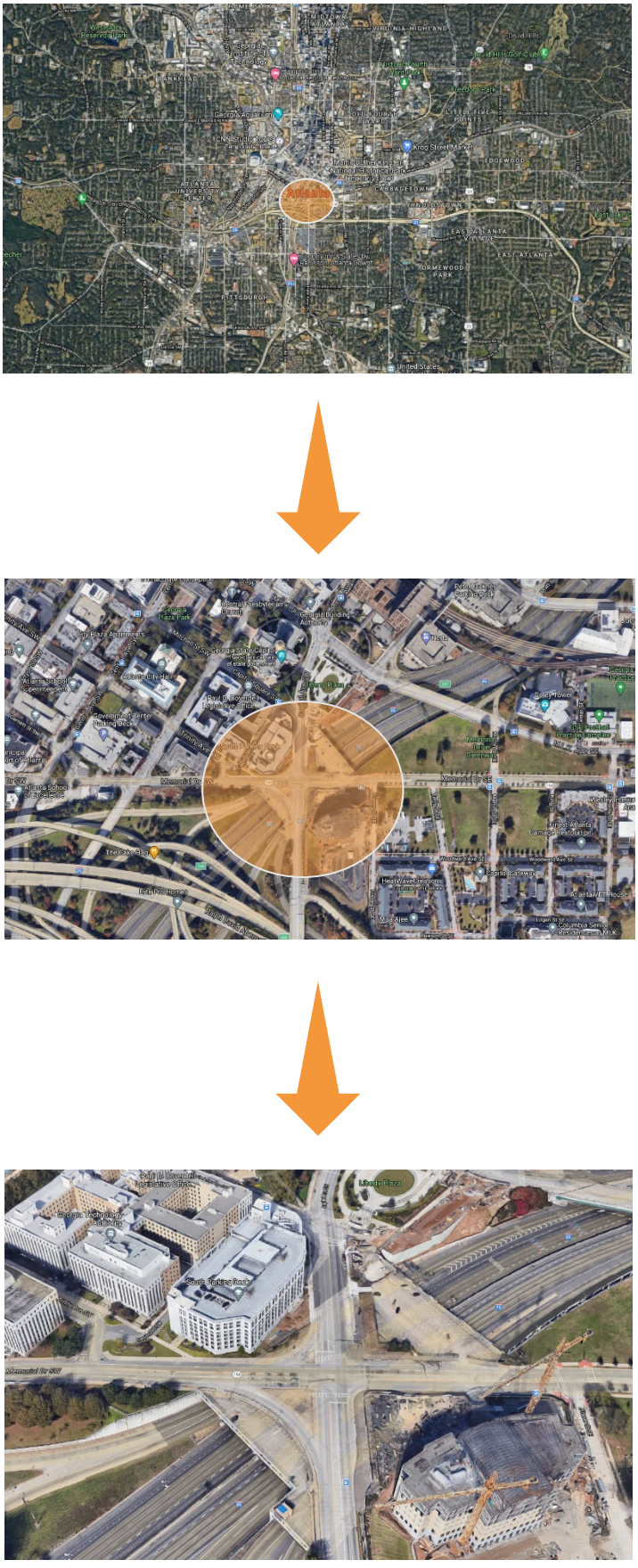


FIGURE 33

PROJECT EMPHASIS

Identify the limits of usable spaces.

This includes looking at areas where may be big design challenges due to its previous use or the condition of the existing elements on site.

Make a community gathering space outside the normal scope of usable areas.

Being able to use the surrounding elements of the site is important for many reasons. The main reason is for reducing waste of materials that may serve a new purpose to the site and potentially teach visitors about its previous use.

Create a meaningful space serving the needs of the community.

Being able to involve community members is important to find what they feel their neighborhood is lacking. That may be educational centers for free use, meeting spaces for cultural events or even recreational space for leisure and relaxation.

Develop a new way of thinking for urban designers.

As seen in some of the case studies, sites within a city may be taken for granted due to its location, the condition of the existing elements or from not knowing what the future of the site may hold. Opening minds to the possibilities is important for the future of these constantly changing urban landscapes.

PROJECT GOALS

1. Learn how to use spaces to their full potential. Finding ways to reuse existing elements is an important goal for myself in order to preserve the history of a site.

2. Alter what Urban Planning within cities may deem as usable space. Experimenting with the limits of a project will be important to find the answer to this.

3. Create a better design process for myself to use on future projects. Being able to find a method will further myself professionally in creating schedules.

4. Learn how I may bring communities together through my design. Collaboration with the community the site is located will be important for the final design.

5. Make new methods of research for myself that may influence my design. Organization and classifying information will be important for my research methods to positively change.

6. Create a thorough project worth displaying or discussing in the future. This will be important for future interviews or conventions that I may attend.

7. Learn how to render for my project and to use in the future in a professional setting. Design is an important part of architecture and being able to clearly convey and idea is important, especially through renderings.

PLANS FOR PROCEEDING

RESEARCH DIRECTION

Through research, I will find precedents in projects that maximize the usage of spaces along with the organization, characteristics and strategies used within the design and construction. Finding what is needed as a community link will also be important for site context along with how design has affected this community. The end goal will be finding how owners and architects may work together to maximize the space a project occupies while being mindful of what the community is needing.

DESIGN METHODOLOGY

Theoretical Premise

Research premise topic to answer questions and create solutions relating to the questions

Test solution

Make design opinion

Conclude through design

DOCUMENTATION OF THE DESIGN PROCESS

Document Compilation

Design Investigation - Hand Sketching and Modeling
Software Investigation - AutoCAD, Revit, Rhinoceros 5
Representation - Illustrator, Photoshop, InDesign

Design Preservation

Create and investigate representing drawings and models
Feedback from Advisor(s)
Document research material
Backup files weekly to external hard drive
Update Thesis book weekly

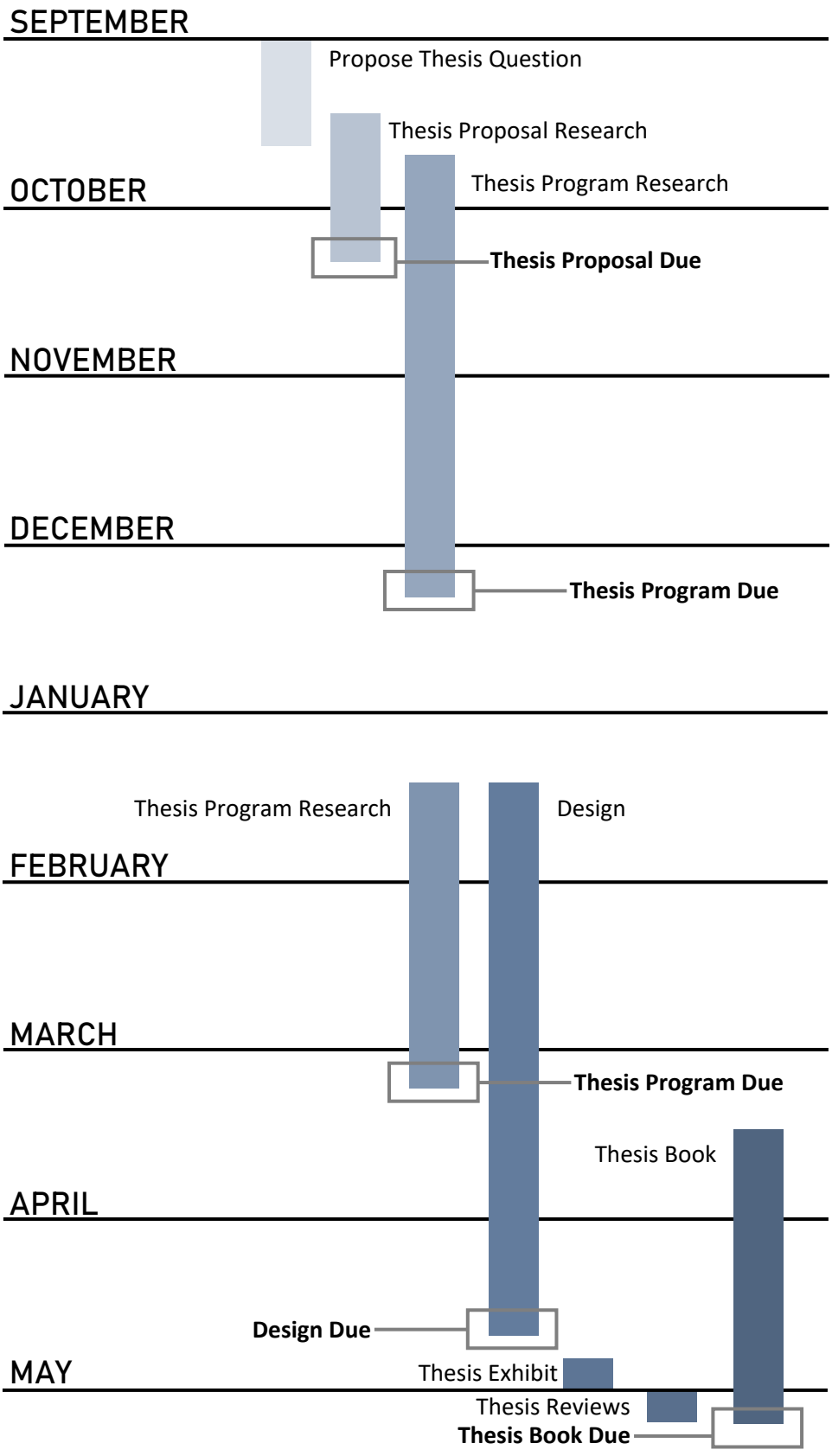
Content Publication

Final content material recorded and credited in final thesis book
Available in the NDSU Repository or Hardcover book format

Presentation Intentions

Power Point Presentation going through final design
Presentation boards with final design
Final Model

SCHEDULE


SEPTEMBER
Propose Thesis Question
Thesis Proposal Research
OCTOBER
Thesis Program Research
Thesis Proposal Due
NOVEMBER
DECEMBER
Thesis Program Due
JANUARY
Thesis Program Research
Design
FEBRUARY
MARCH
Thesis Program Due
Thesis Book
APRIL
Design Due
MAY
Thesis Exhibit
Thesis Reviews
Thesis Book Due

Research Results

Throughout the research process, gathering qualitative data and conducting correlational research was important to draw a conclusion to methods and a program to use for identifying and repurposing unused space in an urban setting.

From this research, there were many books and articles that were analyzed with one book and two articles being best fitted for the projects theoretical premise. The first is a book by Roger Trancik named *Finding Lost Space: Theories of Urban Design* which helps the reader understand what lost space is, why it occurs, and approaches designers may take in the future to integrate these types of spaces back into the urban center. The second literature review is an article by Yuhan Shao and Binyi Liu named *Local Identity Regeneration of Unused Urban Spaces*. This develops a methodology to identify unused spaces through their functionality and physical use while also determining what people may view as unused space based off the local identity of an area. By the end, this analysis of unused space helps to create quality spaces that take the communities idea of place into consideration. The last article reviewed is by Soe Won Hwang and Seog Jeong Lee named *Unused, Underused, and Misused: An Examination of Theories on Urban Void Spaces*. In this article, it defines terms that are used throughout many projects to help the reader classify what type of wasted space it is and how to reclassify the many terms related to urban voids for consistency. They then discuss the importance of social and ecological assessment along with the topic of financial responsibility of a place such as this to revitalize urban voids.

Together, these three literature reviews define what wasted space is, how we as designers should make use of the areas with sustainable and flexible approaches, and how we may design for the future to ensure these spaces are not created or forgotten.

Defining Wasted Space

To determine if an area is in need of repurposing due to being unused, we first need to define what wasted space is to recognize the potential areas within cities that need help. Through research, this definition of wasted space was found through examples of case studies, articles, and literature which helps to show the broad range of what may be encompassed within the term. The conclusion of what this would be is a space which has lost its local identity, functionality, or physical usage to various causes. Most examples are placed in urban centers that have experienced a major increase or decrease in population along with negative effects of adoptions of certain urban policies. Examples of this would be zoning of land, incorporating large roadways and interstates into the city layout, and even design choices through the modern movement influencing building and site designs. After analyzing the definition, you may then explore potential areas within the urban center to help identify the spaces that need attention.

The first area that may be viewed in the urban center that has a lack of community usage would be land with buildings that disregard its relation to its neighbors or users. With the creation of the modern movement, there was a large disconnect on such land due to the large, towering buildings which no longer gave walls to create the urban rooms that are seen in traditional urban layouts that gave connections throughout the city and clearly defined pathways. On these types of sites, you will see wasted space between the buildings such as alleyways, open rooftops, and even open oddly shaped corners of lots that the designers could not find a use for their buildings program.

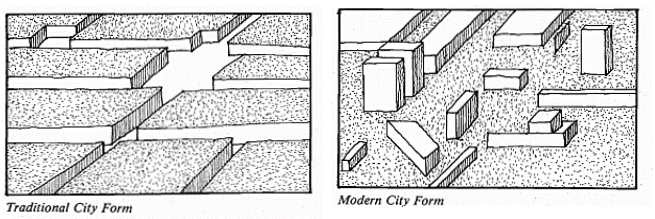


FIGURE 34

FIGURE 35

You may then investigate buildings that have been abandoned or forgotten due to the identity of the area or the zoning regulations affecting the classification of spaces within different areas a of a city, forcing businesses or residents out of said spaces. An example of this may be seen in many industrial buildings due to being abandoned to move their businesses outside the city, which in turn created unused railways or railyards that had once brought materials into the city which are no longer needed because of the movement of these industrial areas. You also see spaces like apartments or storefront shops that are no longer inhabited by residents or businesses due to the negative identity the area may give.

Looking into spaces that are deemed unusable is next. This encompasses areas that are contaminated, near busy roadways, or experience conditions that are hard to manage throughout the year. Examples of this are waterfronts that experience yearly flooding, spaces under or above interstates, or land that was once used for another purpose but due to the typology of the space before, pollution of the land has caused it to be unusable. Many of these examples were seen in the case studies examined and require creative solutions to solve these conditions.

There are many other types of areas that may be found within urban centers that are defined as wasted spaces, so analyzing the space in context to if it fits the definition outlined is important to be able to classify it as such and be able to find solutions that will repurpose the area for better usage.

Ideas for Wasted Space

Redesigning spaces that are considered wasted may be a hassle depending on its size or location, but through research there have been many examples of projects that were able to tackle these challenges and use the areas in many ways. One source that I found very helpful to outline what may happen within different spaces such as this is from the book *From Fallow* by Jill Desimini. Many case studies were conducted which were categorized into what the new purpose of the space does and evaluated the amount of time, cost, labor, and maintenance required for each project. This shows the diversity of usage options for the future of a site to be purposeful.

The different options on what should be done in a space is dependent on what the area is lacking. Examples outlined would be needing to find space for excess water, producing energy, cultivating plants, luring animals, growing crops, bringing people, embracing people in communities, an event space, storage, or creating a new property for commercial or residential use. They each encompass many options as to how you may achieve these, which is listed in the table below. One site may encompass many of these examples depending on sizing and the needs of the community. It may also suit only one of the options which is why analysis is important determine what fits best.

Usage Options	Examples
Space for Excess Water	Water Square, Stormwater Park, Lake, Beach, Swimming Pool, Fountain, Aquaculture
Produce Energy	Algae Pool, Biofuel Field, Sequestration Field, Solar Array, Wind Farm
Cultivate Plants	Meadow, Frest, Grove, Labyrinth, Botanical Garden, Sunken Garden
Lure Animals	Dog Park, Petting Zoo, Butterfly Garden, Pasture, Apiary, Bat Tower, Wildlife Corridor
Grow Crops	Farm, Compost Facility, Greenhouse, Nursery, Orchard, Vineyard, Community Garden
Bring People	Music Garden, Art Park, Graffiti Gallery, Observation Tower, Open Library, Food Truck, Picnic Ground
Embrace People	Homeless Encampment, Refuge Housing, Homestead, Soup Kitchen, Firefighter Training
Event Space	Skate Park, Bike Share, BMX Course, Sports Field, Playground, Exercise Loop, Trail
Storage	Recycling Center, Waste Storage, Tire Farm
Forming Property	Housing, Business

FIGURE 36

Planning the Space

When designers begin to think of a program for wasted space, it is key to take certain steps to help recognize spaces within the site that are needing redesign and how its surroundings should influence the design.

Historical research of the site is the first thing that needs to be done to determine the history of the urban patterns of the area, which will influence the user connections in the final product. Analyzing the sites current usage is also important with this step to determine if its function should remain to keep the identity of the site or if it is needing to change to alter the existing identity to help bring people to the site.

Next would be analyzing the site and its surroundings. This may be done by conducting 3D analysis of the relationship between the urban space and buildings, which its results will influence approaches or changes that should be implemented on site. Section cut analysis will also help to understand the relationship between users and the existing urban area, which will help determine areas in a space that is needing redesign. Through these analyses, the designer may strengthen relationships between the user and the site while also creating a fabric of spaces that will be beneficial to the community.

The last step before programming the site is to analyze how to relate elements surrounding the site to give continuity. Keeping consistency throughout the urban core is important to help strengthen the sense of place for users while also being aesthetically pleasing using similar materials and patterns seen with existing buildings. Spaces which usually fail to complement its surroundings are heavily scrutinized so ensuring that this becomes a part of the program is important.

These steps all together will then create a strong foundation for design in order to relate to the users of the site and the needs of the area.

Literature Review

Title: Finding Lost Space: Theories of Urban Design

Author: Roger Trancik

The reason why this book was chose for review is because it addresses many questions about wasted spaces such as what it is, why these exist, and approaches we may take in order to reuse these spaces and prevent them from being created for the future.

For a quick synopsis of the book, Roger Trancik covers the idea of lost space and how past decisions within urban design have created these instances within cities. He also defines what is classified as lost space and where these types of spaces typically reside. After talking in length about the architects and design styles that have contributed towards this problem, solutions are explored by discussing historical precedents of urban spatial design theories and case studies detailing the positives and negatives of their design approaches. In the end, Trancik addresses the question of how we may regain a public realm that is firmly shaped, coherently linked, and a humanly meaningful urban space. The following literature review will discuss these topics outlined throughout the book and how it may influence the future of Urban Design.

What is lost space?

In the 1950's began a large movement of people out of the downtown area of cities into suburban neighborhoods, creating a large disconnect between the users and the city. Large roadways were then created attempting reconnection of the suburbs to the urban core, creating more chances for lost spaces along the way. These areas we call lost space would then be

defined as the spaces that are no longer used when this reformation of the urban core began. Types of spaces that were abandoned were “waterfronts, train yards, vacated military sites, and industrial complexes” along with the “unstructured landscape at the base of high-rise towers or the unused sunken plaza away from the flow of pedestrian activity” due to the design methods that architects had taken (Trancik 3). There are many more areas that may be defined as lost space within a city which have no or little contribution to the users which may be changed by learning from the past mistakes that have led to this and designing the building based on the urban connections instead of the other way around.

What is the cause for lost spaces within cities?

Trancik states that there are five causes to these lost spaces, ranging through many different areas of life being the reason. The first area would be an increased independence of the automobile. This created more need for highways, parking lots and roadways through cities. Large open areas between buildings with complex road patterns was the result, ridding urban centers of the multipurpose spaces they once had.

The second reason is the modern movement architects started adopting within their designs. This movement was focused on tall floating buildings that were separated from one another with little design done for the spaces between and little consideration for human dimensions. Being able to have urban life such as physical connections influence design is important and seen in historical city layouts where pathways carve through the city and create urban meeting spaces for pedestrian use. Readoption of this concept may reclaim these lost spaces and give them a purpose once again.

The third reason is zoning and urban renewal. Trancik states that there was good intent behind doing this seen through cities slogans of “health, safety, and welfare”, but it created separation through the city like what was seen in the 1950’s with the movement of people into the suburbs for living. Variety was nearly obsolete in urban centers with little connection between the different districts in the city.

The fourth reason is privatization of public space. Collective spaces were turned to private with owners showcasing their buildings without historical context or consideration of the public realm. The city is then seen as a quilt of private interests separate from the public. In order to be able to solve this, “in any redesign of urban space the conflict between public good and private gain must be resolved” (Trancik 17)

The fifth and last reason is changing land use. With the relocation of many spaces within an urban center such as industrial, residential, commercial and transportation came these areas of lost space. This includes waterfronts, warehouses and even housing spaces that are now empty lots. Trancik proposes that spaces such as these serve as temporary spaces for use such as “urban gardens, commercial horticulture, or neighborhood playgrounds” to bring the urban center back the important connections it needs (Trancik 17).

What are positive design steps to solve the problem?

In the beginning of the book, Trancik states that “professionals who influence the urban environment, architects, urban planners, and landscape architect have a major responsibility to meet the challenge of redesigning lost spaces” (Trancik 1). He outlines ways we

as designers may rid urban centers of these lost spaces. The first would be by studying the place by looking at historic urban patterns that the area we are designing for has experienced. Second would be conducting spatial analysis on the city through figure ground drawings, visualizing three-dimensional relationships through the city, and many other methods that give context to the urban form. The third would be identifying lost space and restructuring to give use to these areas. The fourth and final step is through design intervention by "maintaining the continuity of the street wall, respecting the silhouette of buildings and landscape, prevent building masses that are out of scale, match or complement materials between buildings, respect existing rhythms of facades and spatial elements, and enhance patterns of public space usage" (Trancik 229). These design strategies appear to be beneficial to the success of reducing lost space within urban centers and would be important to use when doing site analysis and design for any project.

Conclusion:

Taking into consideration the history of urban centers is important to understand what caused these types of spaces and taking into consideration the connections that buildings are supposed give to cities is important to give use to every space possible for its community. Using the methods that Trancik outlined for designers to use is important for a closer connection to users and the city along with reducing the amount of wasted space.

Literature Review

Title: Local Identity Regeneration of Unused Urban Spaces

Author: Yuhan Shao and Binyi Liu

Within this journal article, it outlines the definition of unused space within an urban setting and how local identity influences societal view of the space. With determining these two aspects of a space, a method of practice may be defined while also creating quality spaces that are unique yet connected.

Connection of unused space and local identity

Unused urban space is defined as an undeveloped area that is currently serving no function to the environment it resides in and has not experienced any change over time. The article describes how to classify and reduce the amount of unused space and how there needs to be a fine balance between its physical and functional levels. The imbalance of these two factors is shown to create unused space in two different ways. One is by giving function to the space, there lays opportunity for unused space physically. In the other, when physical space is used throughout, there is less function that the area has. Being able to find that balance is important to keep the site from experiencing loss in one of these categories.

Local identity is another important factor that can impact if an urban space is viewed as unused. When discussing local identity, there are four aspects that determine what a space is identified as. These aspects would be perspectives from a local person's point of view such as physical, social, sensory and memory. All these impacts if a space is seen as positive or negative and can be the downfall of how a space performs for its community.

To identify if a space is unused and how it is perceived, we must combine the two factors of a space and the

perspectives of local identity together and see how these affect one another. The ways these connect is by the physical building and space affecting how the physical and sensory local identity is perceived, then by the environmental functions affecting the social local identity, and over time the memory of the space and these local identities influences the future view of the space. With this information, we can determine how a space is identified locally and if it is truly an unused space.

How this translates into methodology for site analysis

A case study that was shown discussed qualitative research by interviewing 30 participants to review photos that were taken around an unused space at the human focal view. They were then asked to mark down with stickers the local identity factors with positives or negatives next to it to form a local identity for the site. Another thing participants were asked was to identify unused spaces whether they be empty or just non-functional. With the combination of these two, unused spaces were able to be defined with reasons as to why they may not have succeeded in the past and lead to what it is today. Maps were then made of these areas and were able to further define any patterns of disconnect through the city and address what could be done to improve these areas for the future.

Conclusion:

This article defined two important factors of what makes a space unusable and how that interacts with the public views of spaces within cities. Implementing this methodology into any project is important to determine how what is existing may influence your design.

Literature Review

Title: Unused, underused, and misused: an examination of theories on urban void spaces

Author: Soe Won Hwang and Soeg Jeong Lee

In this article, it discusses urban voids, the terms that fall within this category to help find projects discussing the topic and uses to help rebuild these spaces. Being able to know the different terms used to represent urban voids is important to create a better understanding of the topic and reclassify them into one that will help future researchers find examples and create a foundation to sustainable ideas for cities.

What are urban voids?

Urban environments are seeing an increase in urban voids around the world, not only due to growing cities but also shrinking ones. These cities are needing to rethink their development strategies used to be able to redevelop their urban areas environmentally and socially. Since urban voids are usually dispersed throughout a city, being able to define what falls into the category of urban void is important for cities to recognize these spaces. In the article, the term urban void encompasses spaces that may be unused, underused, or misused with examples being vacant lost, empty buildings, and brownfields. These areas scale varies from smaller spaces such as a "buildings structure, to a parcel of land or large-scale sites in a neighborhood" (Hwang and Lee).

Terms that fit within urban voids

The understanding of terms associated with urban voids is needed to distinguish how a space fits into this term, along with the typologies that fall into these categories and their solutions to help program these spaces for the

FIGURE 37

Various Terms on Urban Voids		Description	Reclassification	
1	Vacant building/lot/land	Currently unused building or land	A	Vacant
2	Terrain vague Abandoned structure/site Dead zone	Abandoned building, property, or unused or unproductive spaces	B	Abandoned
3	Derelict space Wasteland	Abandoned desolate spaces		
4	Terra incognita	Abandoned unknown land		
5	Brownfields Drosscape	Contaminated sites or generally developed sites (contrary to greenfields)	C	Brownfields
6	TOADS*	Temporarily obsolete abandoned derelict sites		
7	Urban void Fortuitous voids	Spectrum of spontaneous unused, underused, or misused space or accidentally resulting space	D	Urban void (a narrower meaning)
8	Lost space	Disconnected spaces that provide no positive contribution	E	Leftover spaces (residual and neglected spaces)
9	Leftover spaces In-between spaces Gap-space	Interstitial space and in-between space among infrastructure		
10	Indeterminate spaces Ambivalent landscapes	Unused, neglected non-mainstream space		
11	SLOAP**	Space left over after planning		
12	Over-planned public space	Underused mainstream space		

future. The article explores the subject of urban void within different books and case studies and came up with a comprehensive table of terms, shown in the figure above. With this, we may reclassify these previous terms for a consistent term for the future.

Reasons for urban voids

Cities have many factors that cause the urban voids we defined, with urban changes, problems within the planning system, a weak estate market, and political and economic situations being the reason. Examples of this may be seen through history due to the increase and decrease or urban centers. The first historical example is set in the 1980's when highways were cutting into urban centers and zoning separated spaces within a city. The disconnect gave cities many vacant buildings through abandoned property such as residential, retail, office, and industrial spaces. The next historical precedent was in the 1990's with the rise of vacant lots. These came to be in cities for reasons such as contamination from previous usage, abandonment similar to the previous example, spaces disliked by the community, misuse or sizing, or open lots that developers leave unused and forgotten until it is needed for their next projects benefit.

The planning process was largely faulted in the article, which went into further detail as to why this is. There are policies that cities adopt into their urban planning, which

gave only one use to a site. This hurts projects because there may be unused space that a developer has but due to the limitations of the policies in place, there is not much flexibility in what the space may become. This creates more of a hassle for the developer to find a use and is ultimately pushed to the side since no solution is usually found. Another reason outlined is due to developers not incorporating such spaces into their initial process, leaving accidental disconnect to the area, thus using the space as an increase to their real estate interest.

Solutions

With cities that are experiencing increases in density, using urban voids may help create connections through the urban center. These spaces may help attract residents back into the city after zoning classifications are lightened to include more than one usage along with creative solutions being used on site. These may include social and cultural solutions that encourage community involvement. For cities experiencing shrinking through population decrease, these spaces may be used towards sustainability practices such as “urban farming, enriching the biotype, retaining rainwater, or placing equipment for alternative energy production” (Hwang and Lee). These will benefit the communities they reside in environmentally and may lure residents back to the urban center due to the benefits of the approaches.

Conclusion

The definition and terms that are encompassed within the general topic of urban void is important to understand as a designer in order to define what a site would be classified as to give a solution to the problems

it may have experienced to give which give it the name of an urban void. With this, you may program the site to draw users back and give a new identity to the space. Using these solutions, you may also redesign the urban program to naturally solve the ending of creation of these spaces for the future.

Project Justification

My Master's Thesis Project tackles the problem of wasted spaces within cities and how we may convert these into areas for the local community's use. There are many cities throughout the world that are experiencing low availability of undeveloped space along with buildings creating more wasted space through their design choices which disregard existing pathways and lack functional space for users. By the end of this project, a method or program will be established that may be used in future projects.

Importance Academically and Professionally

The project I have defined is important to me because I feel designating usable spaces within larger cities specifically for public use is important. I have visited many larger cities that are lacking these functional spaces, but this past year came across a project in Toronto, Ontario named Project Under the Gardiner Expressway that took a new look at what we could use as public space in a city. I am wanting to create my own program to provide cities with these spaces and a new way of thinking for urban designers as to what is deemed as usable within a city. This may be transferred not only to cities that are experiencing a lack in available space to build upon, but smaller cities that are wanting to make the best usage out of any space within their city.

This project is also important in this stage of my professional development. Through my research, I am finding new methods to analyzing sites along with how to design the site to include the existing functions it may have and having it inform the design instead of the other way around. I will be able to take this information I have learned to my future professional positions and integrate it into designs.

Economic Potential

This project is justifiable economically by creating a working program that will outline a financial plan which will involve the city government to create usable space for their usage while also creating usable urban space for those living within the city. All money put into the project would be publicly funded, thus meaning any money made from it would be put back into funding for future projects that will serve the community. Another way this project will benefit economically will be by outlining a program that other projects may use, whether they be publicly or privately funded, and use any return for their benefit. This would be met in the private realm by maximizing spaces on site and creating more interaction between the existing function and its new function.

Environmental Potential

The potential environmental impacts from the project would be maximizing how a space is used by building upon already used spaces. This will help reduce the amount of unused space within a city while also creating more green space for public use. It will also be as net zero as possible, making use of technologies that will generate power on-site instead of having to drawing energy from off-site. The other factor that will impact environmentally would be using materials that have been reused or recycled and sourcing them locally to reduce the carbon footprint of the building materials used on site.

Context Socially and Culturally

The project is important to be implemented in its social and cultural context because it emphasizes use for the

public, so ensuring that it is in a space that is easily accessible throughout the city is important while also being flexible in how each of the public spaces may be used throughout the year. The program of the site encourages cultural events and will be designed for easy usage by anyone to connect throughout the different districts of the city. It will also emphasize to enhance the cities' identity in many ways, whether it be through design or through its program.

Site Location

The site location of Atlanta, Georgia was chosen because of the high rate of growth in population throughout the city along with the low availability of unused space and green space for public use. The location within the city is centered around the downtown area but is missing a connection to each of the districts. Designing on this site will show how a site like this may be maximized to its potential for public usage while creating important connections throughout the city. It will also show how existing pathways will influence the design and enhance the area for better usage.

Historical, Social and Cultural Context

Historical Context

This project relies heavily on historical context through historical precedents in urban design. This is shown through theories that have been used in the past and still hold valid today. The first would be the figure-ground theory, which is defined as manipulating relationships between the figure, being buildings solid mass, and the ground, which are open voids. This creates a fabric of spaces, which would be urban patterns and gives a hierarchy to spaces. This theory is shown through history by having the exterior urban areas carve out these “rooms” which are defined by the exteriors of surrounding buildings. Another theory giving historical context is the linkage theory which is made up of lines connecting each other to define connections throughout a city. This is shown in history using circulation diagrams to give order to spaces using these connections to influence the program of spaces. The last theory which gives historical context to the project is the place theory. This connects human context to the project through incorporating new designs with existing conditions. Material usage, design layouts, functionality of location, and many more social and cultural aspects are directly related to the place theory. How this all directly relates to my project is by defining the functionality of a space and showing how to give identity to spaces that were once unused or misused.

Social Context

Urban spaces are dependent on social context since it creates a sense of place, or local identity to its users. It is seen in many case studies that with the functionality of the spaces being defined in the projects, it gives an identity of a meeting space for users with benefits to the

local community through the events that may be held there or the relationship of the site to its surroundings. It is also seen in historical precedents that spaces such as this give connections to different districts in a city which may have once been disconnected urban centers since the adoption of zoning codes, which have created distance between different types of spaces such as residential spaces being further distanced into suburbs from businesses within the urban center. These examples of social context relate to this project by defining how to create a sense of place while being a social connection for different districts of a city to the urban center. With the increase in population of 20.6% in the past ten years, being able to create these connections so people may have a place to link them to the urban center.

Cultural Context

With the diversity of large cities comes the need for spaces which may serve to teach communities about different cultures and serve to hold events that help give expression to the culture through artwork, music, theatre, or many other ways. This is shown in many of the case studies through integration of events in their program of spaces and through providing educational facilities that are open to the public. Being able to define what is missing in cultural context of a city is also important to determine what needs to be within a site programing for an urban meetings space.

Atlanta, Georgia

FIGURE 38

Demographics

FIGURE 39

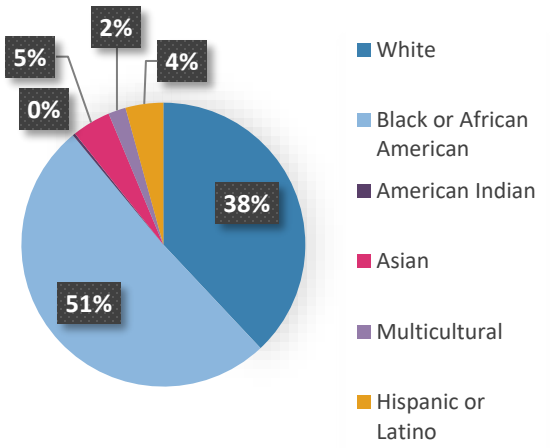
Atlanta, Georgia

Population: 506,811 people increase since 2010)

Land Area: 133.15 square

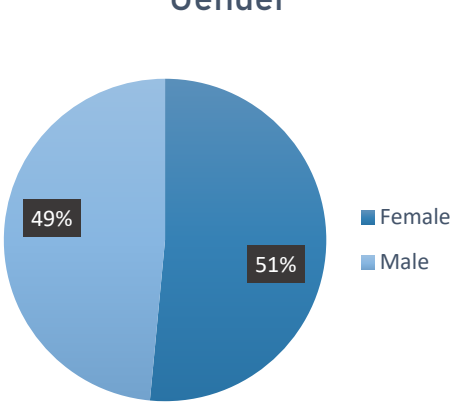
Population/Square Mile: 3,154.3 people

Poverty Rate: 20.8%



Households

- 206,229 Households
- Persons per household:
- 2.19 people
- Language other than English: 9.3%
- Income per household: $59,948



FIGURES 40-41

Climate Information

Atlanta, Georgia has a temperate humid subtropical climate and experiences hot summers and cold winters. The average temperature would be 61.5 degrees with the annual low temperature being 53 degrees and the annual high temperature being 70 degrees. The best time to visit would be in the spring or autumn when weather conditions are best. These seasons experience less rainfall or heat, making it less muggy and more comfortable. The Atlanta area is also home to tropical storms and experiences severe thunderstorms and lightning.

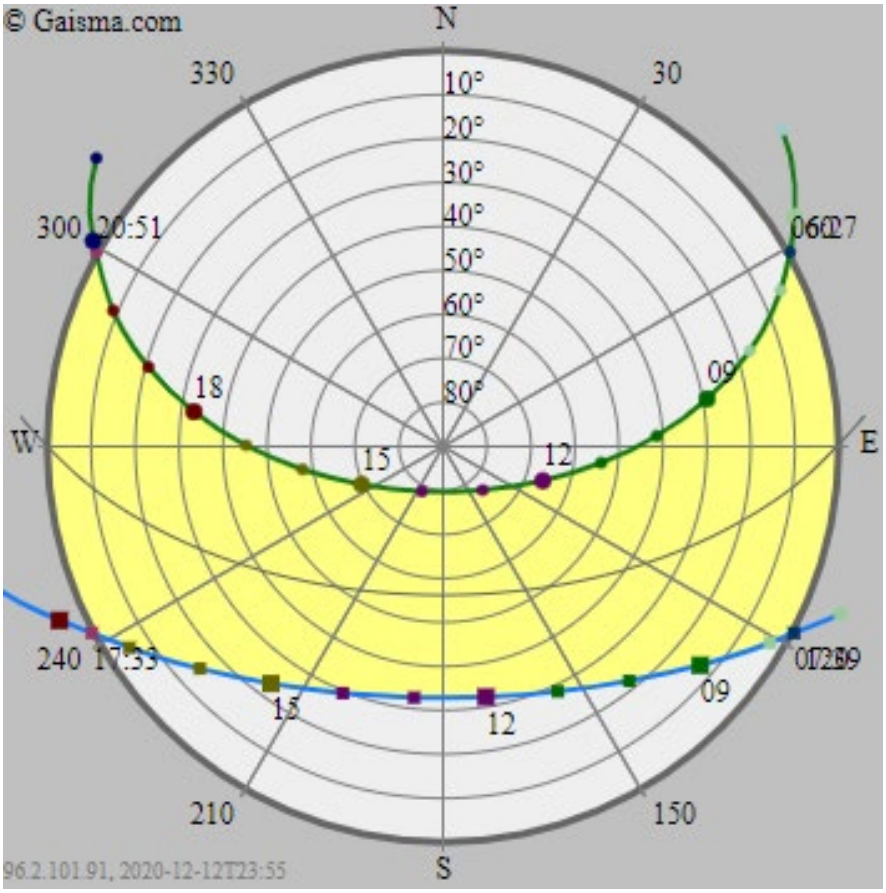
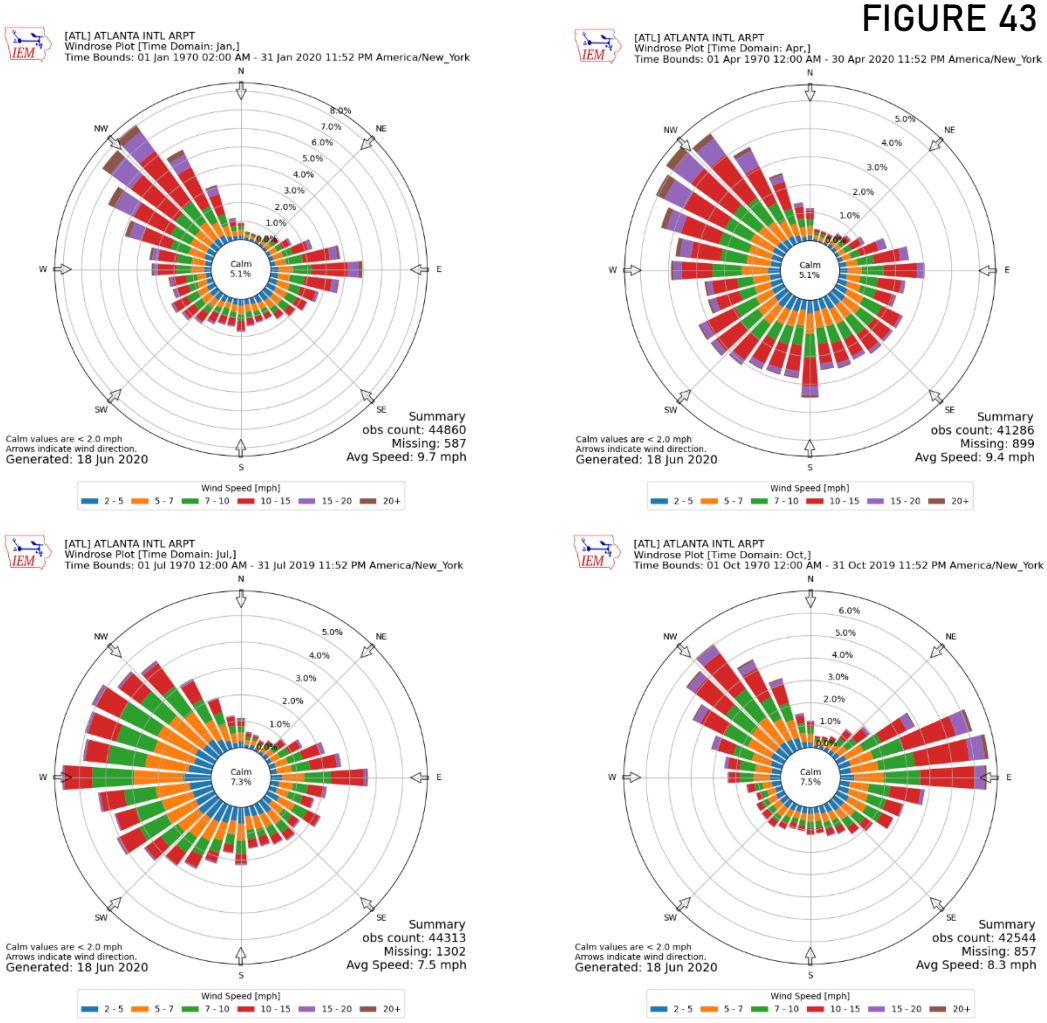


FIGURE 42

FIGURE 43



Average Temperature: 61.5°

Annual Low Temperature: 53°

Annual High Temperature: 70°

Average Hours Sunshine: 2,821 hours

Average Rainfall: 47.12 inches

Average Snowfall: 2'7"

Average Humidity: 67.9%

Average Wind Speed: 8.7 MPH

Site Information and Zoning

The site chose for the Thesis Project is located in downtown Atlanta. The proposed site consists of three zoning classifications which would be MRC-3-C, SPI-1, and SPI-22. The first zone of MRC-3-C is classified as mixed residential and commercial. The other two zones are classified as special public interest district with SPI-1 being the central core and SPI-22 being memorial drive and Oakland cemetery.

In diagram 2, there are three parts that make up the required setback from street to the front of a building. Section A is the street furniture and tree planting zone which for all these zoning classifications requires a minimum of 5'. Section B is the sidewalk clear zone which requires a minimum of 10'. Section C is the supplemental Zone which requires a minimum of 5' and a maximum of 25'. All three of these measurements make up the setback, which the minimum for would be 20'.

The minimum buildings open space requirement is 15% of the floor area or 80% of the lot area. The minimum sidewalk-level floor to ceiling height is 12' with a minimum building height of 36'. The max FAR is 4 to 1 meaning four stories may cover the lot with floors five to twelve covering half the lot size and continuing with as many floors as necessary.

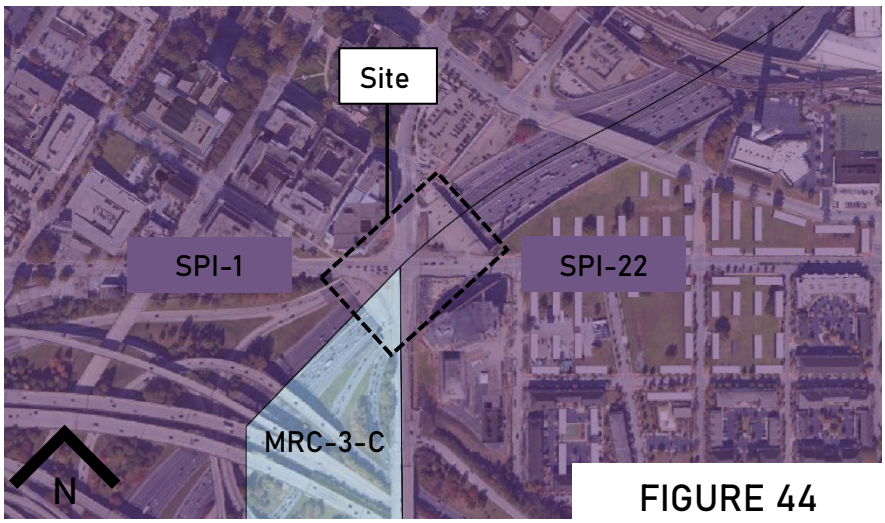


FIGURE 44

FIGURE 45

DIAGRAM 2: Streetscape Requirements

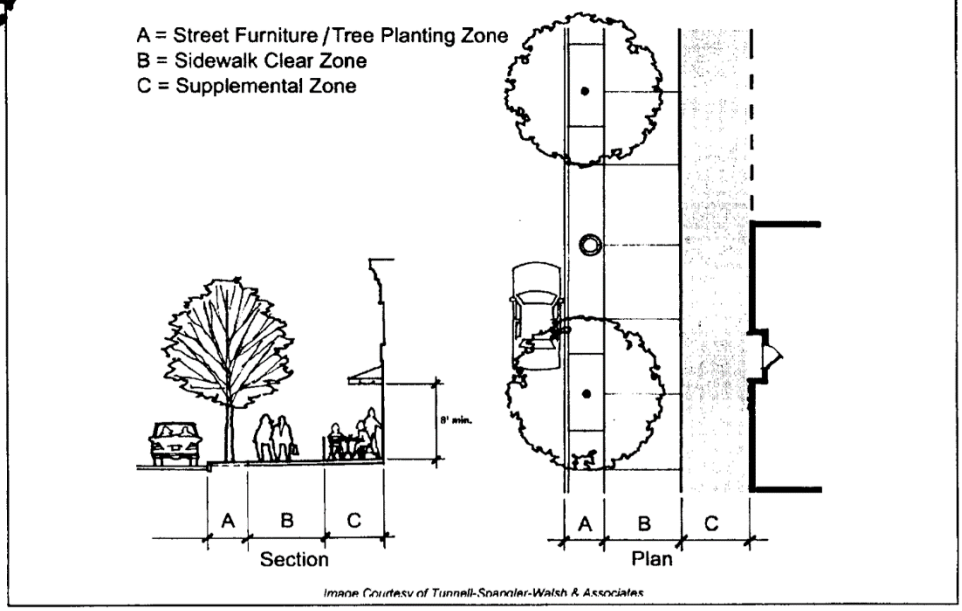


Image Courtesy of Tunnell-Spangler-Walsh & Associates

DIAGRAM 3: Sidewalk-Level Active-Use Requirements

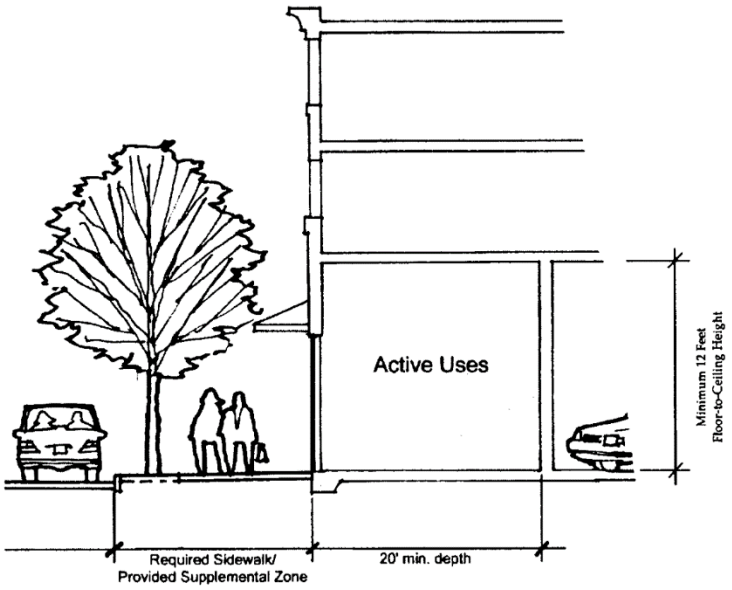


Image Courtesy of Tunnell-Spangler-Walsh & Associates

Topography and Soil

The soil for the city of Atlanta is classified as loamy. This is a mixture of clay, silt, and sand. This mixture has even volume of sand, which provides drainage and aeration, and silt, which helps clay and sand mix easier. What this means for building on the land is that the ground will not shift, expand, or shrink drastically and will be able to accommodate water on site very well. The only downside to this classification of soil is that there may be materials that are undecomposed in the ground that may affect construction.

Most of the site is very level since most of it is a covering over the interstate, but around the edges of roadway that goes each direction, there is a gradual slope to give even sloping of topography for the roadway. The elevation of the portion of the site covering the interstate is at 1000 feet above sea level with the roadways going each direction tapering from the lowest elevation of 970 feet above sea level and the highest at 1040 feet above sea level. This should not affect the site as much because most of the sloping areas will be used as outdoor public spaces and the building being on the leveled area of the site.

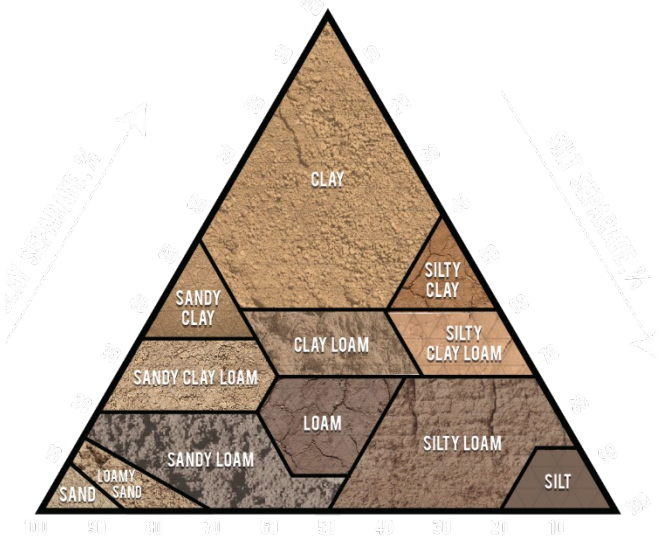
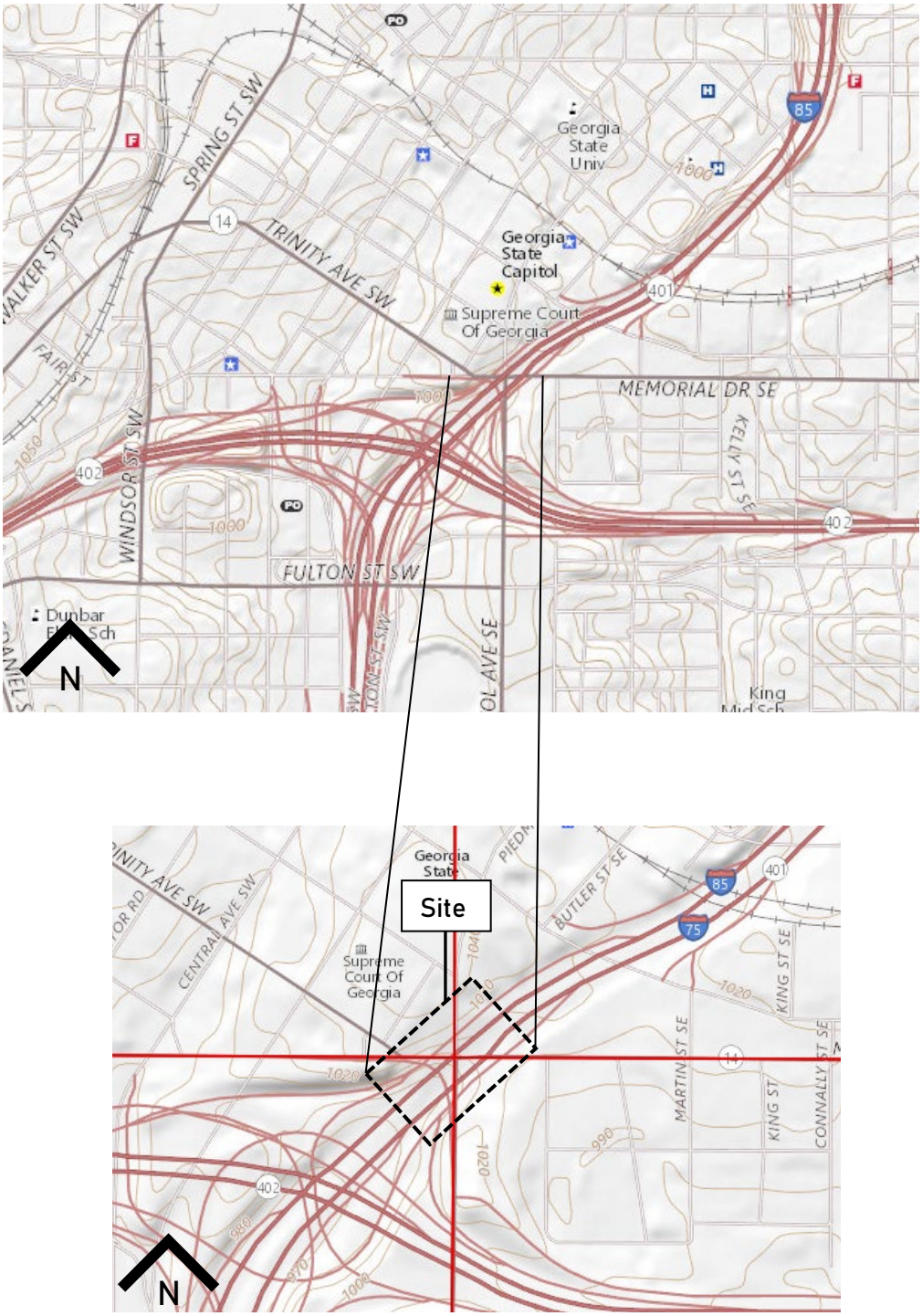


FIGURE 46

FIGURE 47

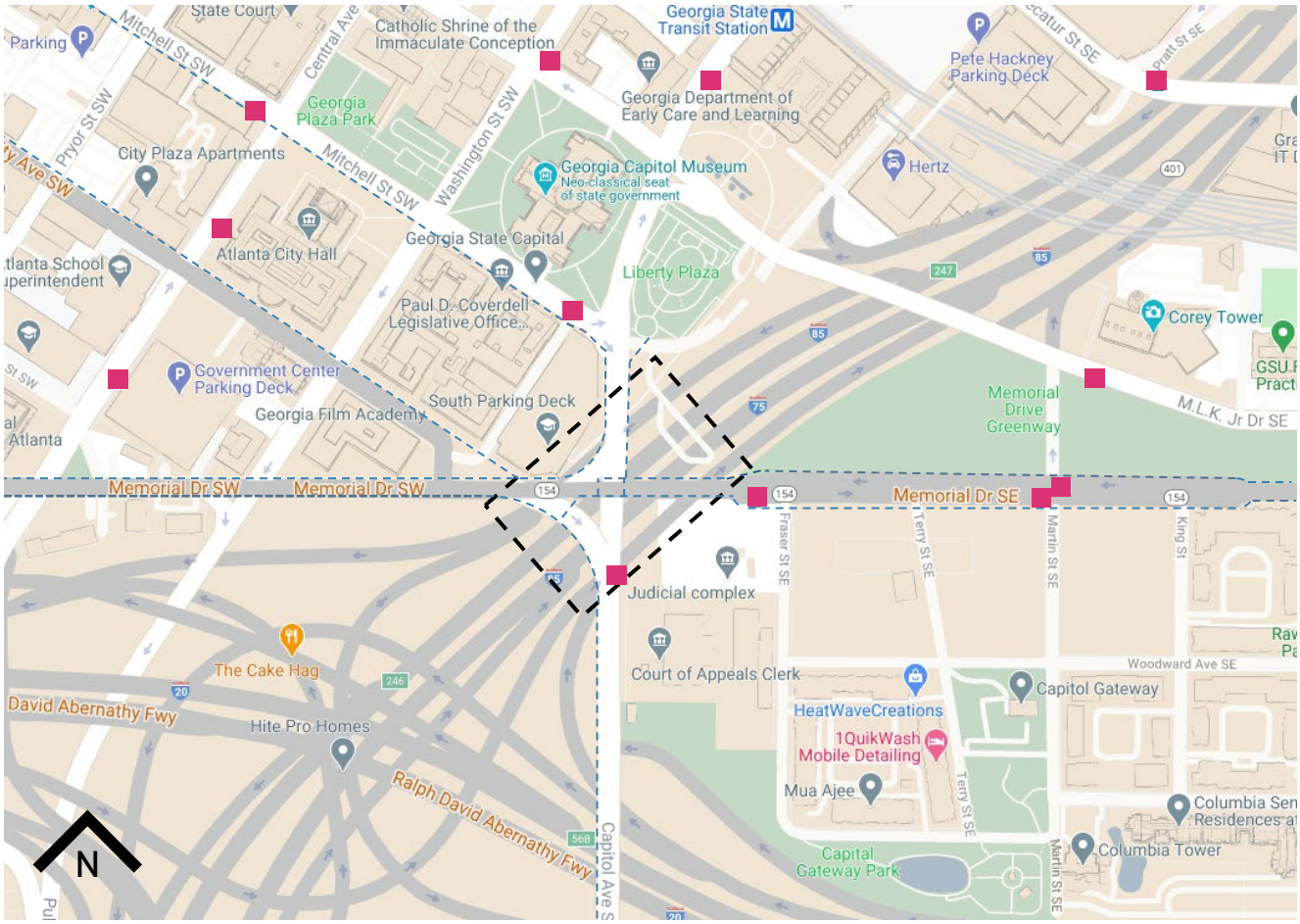

Georgia State Univ
Georgia State Capitol
Supreme Court Of Georgia
SPRING ST SW
TRINITY AVE SW
WALKER ST SW
FAIR ST
WINDSOR ST SW
FULTON ST SW
MEMORIAL DR SE
KELLY ST SE
King
Site
CENTRAL AVE SW
BUTLER ST SE
KING ST SE
MARTIN ST SE
KING ST
CONNALLY ST SE
N

Circulation and Traffic

Within the downtown area of Atlanta, Georgia are many sidewalks and roadways making its way through the city. There are zoning requirements on setbacks for pedestrian walkways in this area of the city that the project is based, which offers space for trees, pedestrian walkway, and space to be used for the buildings use. On the site map, there are pedestrian pathways marked in blue dotted lines leading from the site to the surrounding area. They are mostly used for commuters parking and taking local transit to go to their destination, but not many people have been using the parking on site since there are newer lots for parking with one being to the northwest of the site only a few feet away. Connected to these pathways are many bus stops that may be utilized by the public. This would be a positive for the site since LEED criteria sees this as a huge benefit since it helps reduce pollution and land development effects from automobile use. This will ensure that visitors to the site may use local transit when going to this destination, meaning there will not have to be additional parking on site.

The location of the site is above a major highway system with local roadways intersecting above the highway. The proposed site is situated where the local roadways meet and may expand to either direction utilizing any open space that has not been used which will then expand pathways further for those trying to connect to the different locations in downtown Atlanta. The two roads that are on site would be Memorial Drive SE running east to west and Capitol Avenue SE running north to south. To the south of the site is an exit from the highway onto a local street, which experiences heavy traffic usually during work commute hours. There is a large amount of traffic on these local streets intersecting the site during the day with very little traffic in the evening.

FIGURE 48



Highways

Local Roadways

Pedestrian Pathways

Bus Stops

Site Area

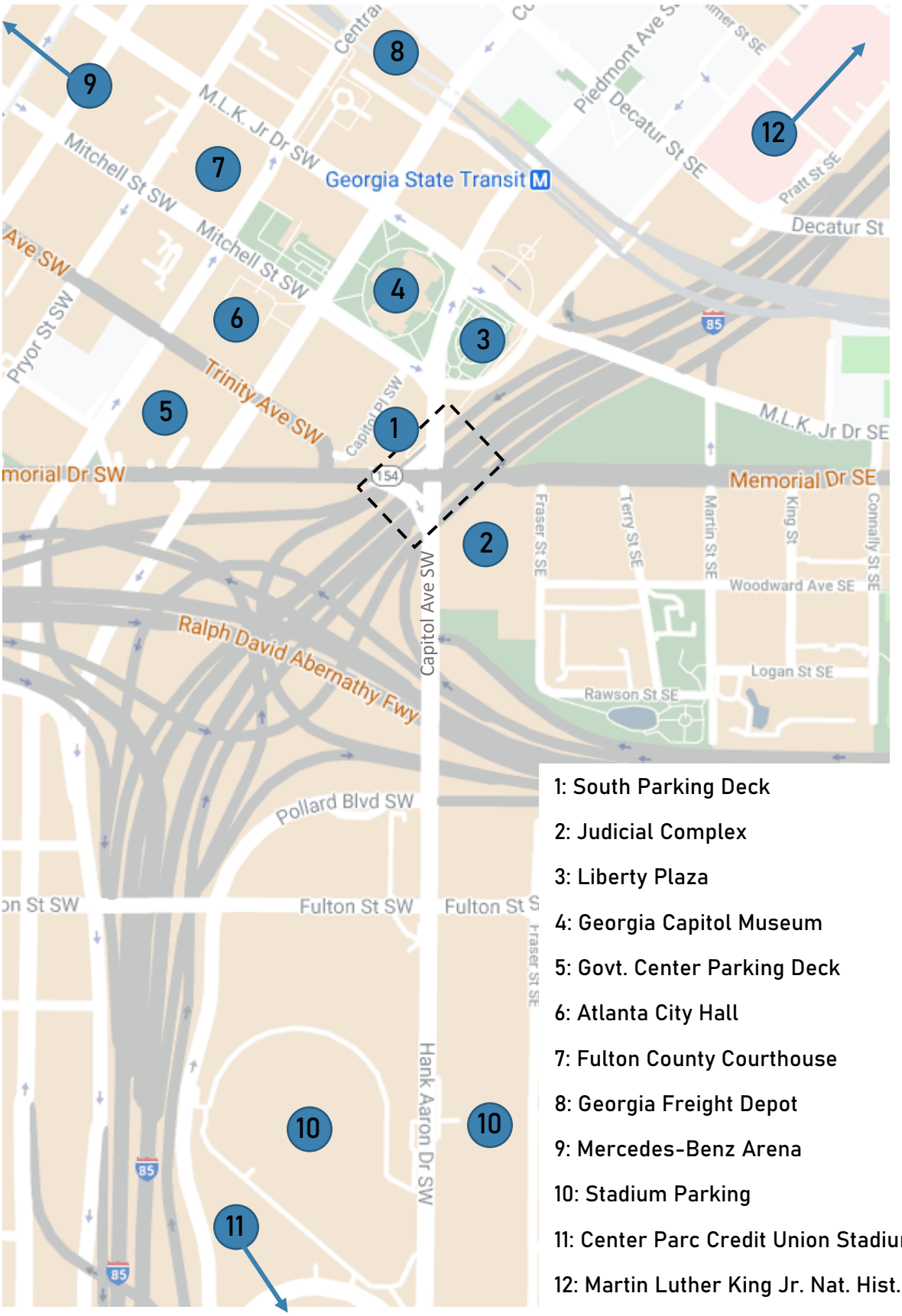
Context

Underneath the site is a large highway that connect to the local roadways that intersect the site. To the southwest of the site is where highway 20 and highway 85 intersect with many on and off ramps to the corresponding lanes. To the northeast of the site in light grey is a transit line that runs in a diagonal direction going from southeast to northwest. This links to a freight depot, which is the end of the line just north of the site.

For the landmarks marked on the map, there are many different government buildings, parking structures, local event facilities, and important landmarks to the city of Atlanta. The first and fifth marks on the map are parking structures that serve for the downtown area and have been supplemental enough to take over the need of parking spaces from the open parking space on site. This means that the parking lot does not experience many cars parking which removes the purpose of the parking lot. To the south of the site is a baseball stadium with two parking lots that are generally empty other than when there are events. To the north of the site are government buildings which consists of City Hall, a Capitol Museum, and the State Courthouse. There are also many other businesses to the north of the site, consisting of restaurants, libraries, sports facilities and event spaces. To the northwest of the site is the Mercedes-Benz Stadium which hosts football games and other events, and to the northeast is the Martin Luther King Jr. National Historical Park which is the resting place of Martin Luther King Jr.

To the east of the site is residential neighborhoods. Most of the areas surrounding downtown Atlanta consists of houses and apartments, which are densely packed with some yard space for residents to use.

FIGURE 49



1: South Parking Deck

2: Judicial Complex

3: Liberty Plaza

4: Georgia Capitol Museum

5: Govt. Center Parking Deck

6: Atlanta City Hall

7: Fulton County Courthouse

8: Georgia Freight Depot

9: Mercedes-Benz Arena

10: Stadium Parking

11: Center Parc Credit Union Stadium

12: Martin Luther King Jr. Nat. Hist. Park

Views

On site is mostly views of roadways intersecting, but there are some important buildings that will influence the design next to the site and along the pathways leading to potential expansions of the site.

To the north, you can see on the left of the photo the large parking structure which serves for the parking in this area. There are pedestrian walkways to cross the street over to the open parking space that will make up the functional space of the site, which is currently not being used as much because of the adjacent parking structure. Further down the road you can see apartment towers, the Capitol Museum and other structures that make up downtown Atlanta.

To the east, there was a Judicial building that from research seems to be mostly complete with construction and open for people, with only parts of the interior remaining to be finished. You can again see the open parking lot and the highway running beneath the site. There is some green space further down the road that leads to residential neighborhoods that may be used as expansion for the site.

To the south, you can see the exterior of the Federal building complete, with almost no buildings in the distance behind. This would be because the right of the picture is where the meeting of the two highways is, which take up a good portion land.

To the west, there is the other open parking lot, which again does not see many cars parking there. This parking lot is a little different from the one directly across from it because it has a turning lane running through, curving part of the lot and creating an island for the pedestrian walkway. There is more of downtown Atlanta in the distance, with the parking structure right across the street. Down the street there is some opportunity for green space to be used for expansion of the site.

Site Photos in order of North, East, South, and West.

FIGURE 50

Performance Criteria

Environmental Performance

The site will be as net-zero as possible, utilizing technologies that help to achieve this. That will provide towards lighting for outdoor spaces through the day, give energy for equipment used during events, and powering any buildings during its hours of operation. The LEED building rating system will also be used to help the site be as sustainable as possible, which is important for a public facility. This will be met by choosing materials that have a low carbon footprint, a long-life expectancy of the material before it is needing to be replaced and are easily recyclable for when the time comes to replace the materials.

Psychological Impact

This project will implement the psychological impact that the site will have to users in many ways. First, analysis of the existing site usage and patterns for typical pathways used by pedestrians will influence the design. Creating spaces based off this is important to not hinder the functionality of the site while also keeping some of the area's identity as a connection throughout the city. Another way psychological impact will be integrated is by complementing and somewhat matching the aesthetic existing throughout the city. This is important to make a new space become a part of the city and make it feel like it is meant to be there instead of separate from its surroundings. The last part is by making the site a sensory experience. This is important to have a user interact with the site and create a new local identity of it, which will impact the amount of usage the site will see in the future.

Space Allocation

There were certain spaces that were used consistently in the case studies conducted, so for future design these were used on the interaction matrix and interaction net. Most of the spaces have adjacency but the outdoor and indoor elements are mostly separate other than the restrooms, supply spaces and reception area. A pathway is connected throughout the site to give ease of access to users and link local connections to the site. With the space allocation percentages, those were also drawn from the case studies, but also takes into consideration the size of the site that this project will take place at. The outdoor space makes up most of the site because of its program and purpose, with the building taking up less than a quarter of the area total. There will be some disconnect between areas because of the roadways existing on the proposed area but will also be an important influence as to how the site will be designed.

Spaces	Percent Allocation
Gallery Space	5.0%
Offices	5.0%
Classrooms	5.0%
Reception	3.0%
Restrooms	1.0%
Custodian	0.5%
Mechanical	1.5%
Supply Storage	0.5%
Bike Storage	1.0%
Food Stall	7.5%
Open Studio	7.5%
Public Market	10.0%
Outdoor Event Space	15.0%
Playground	7.5%
Gardens	20.0%
Pathway	10.0%
Total	100.0%

FIGURE 51

Space Interaction Matrix

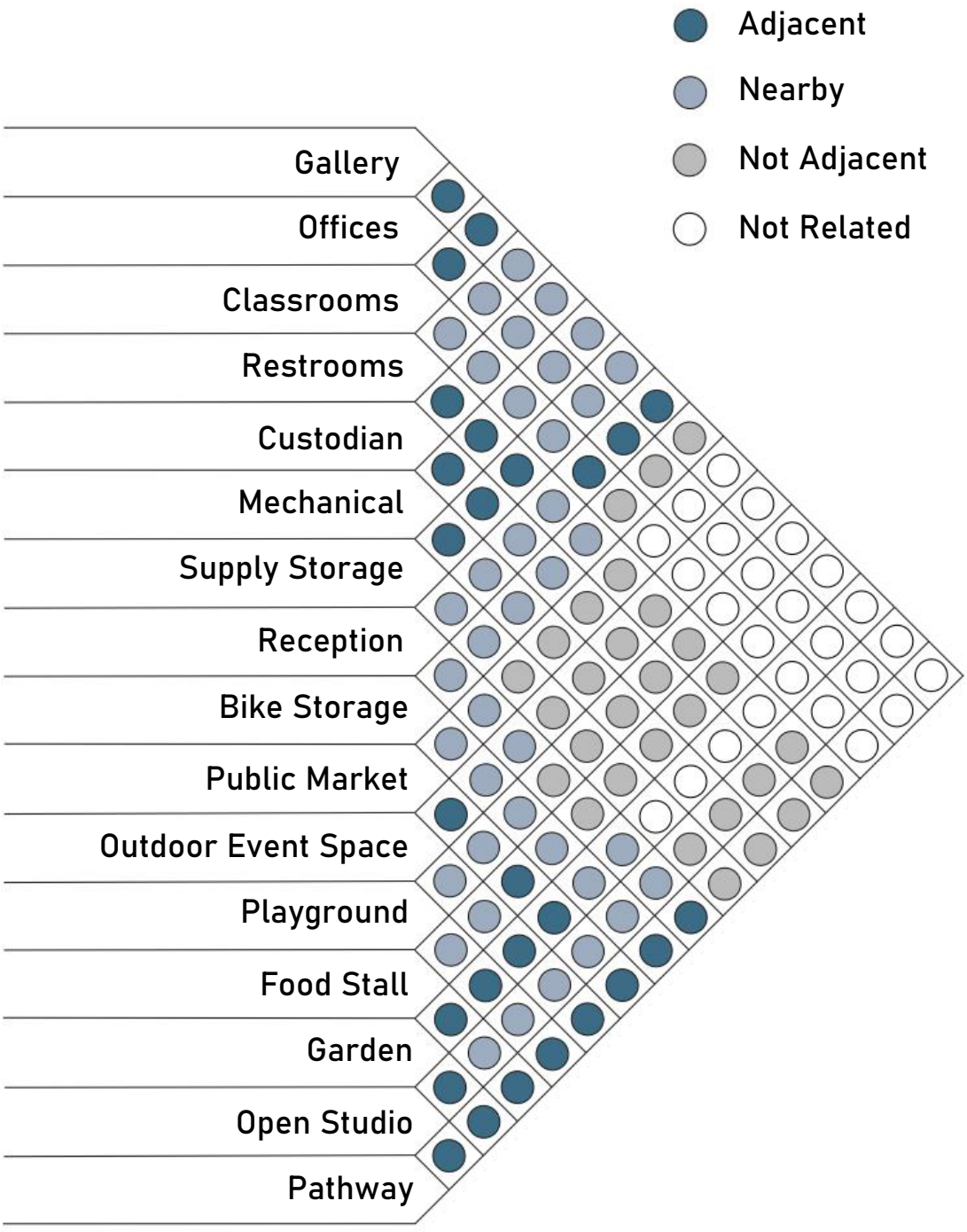


FIGURE 52

Space Diagram

1: Gallery
2: Offices
3: Classrooms
4: Reception
5: Restrooms
6: Custodian
7: Mechanical
8: Supply Storage
9: Bike Storage
10: Food Stall
11: Open Studio
12: Public Market
13: Outdoor Event Space
14: Playground
15: Gardens
Pathway

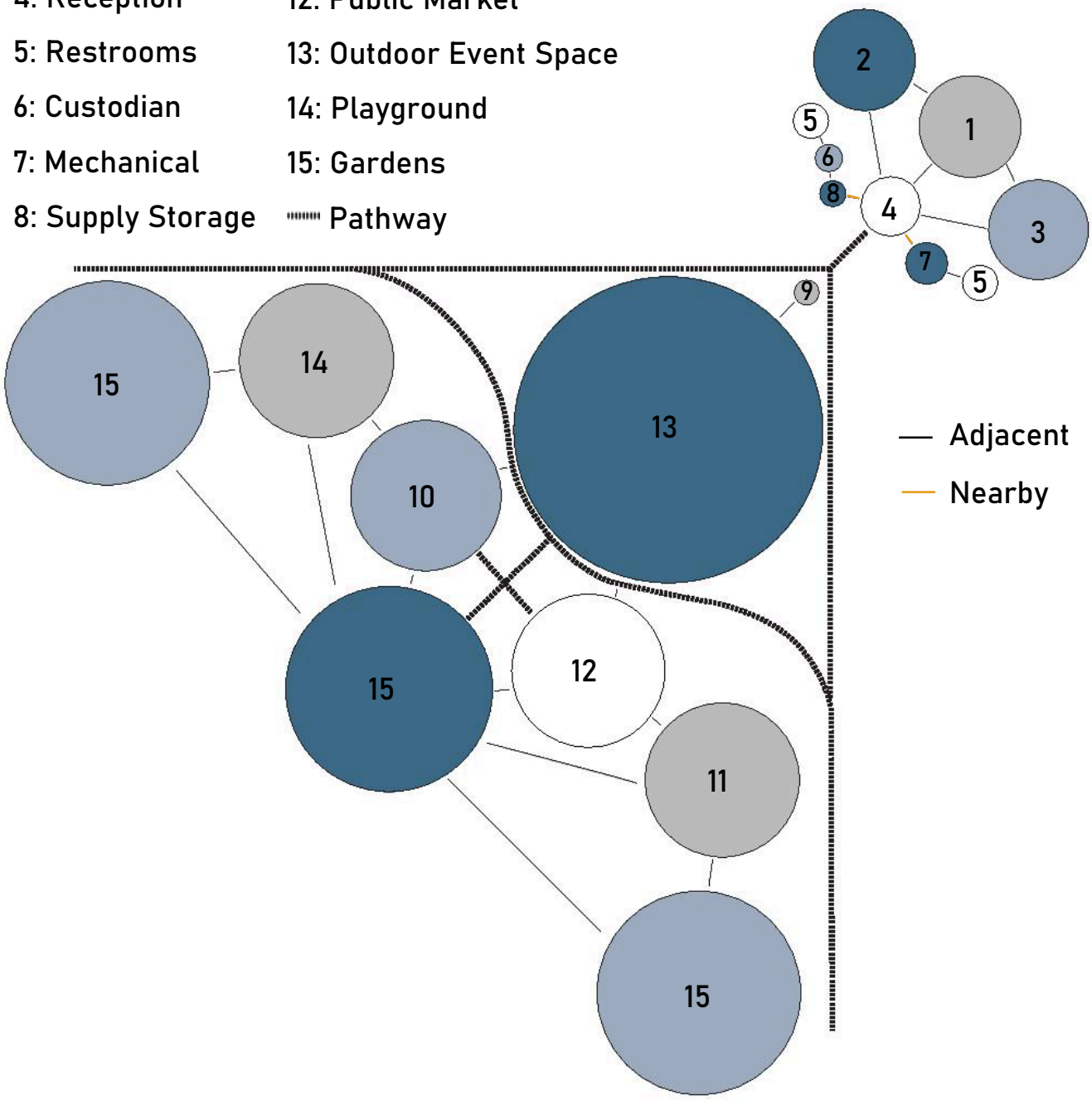
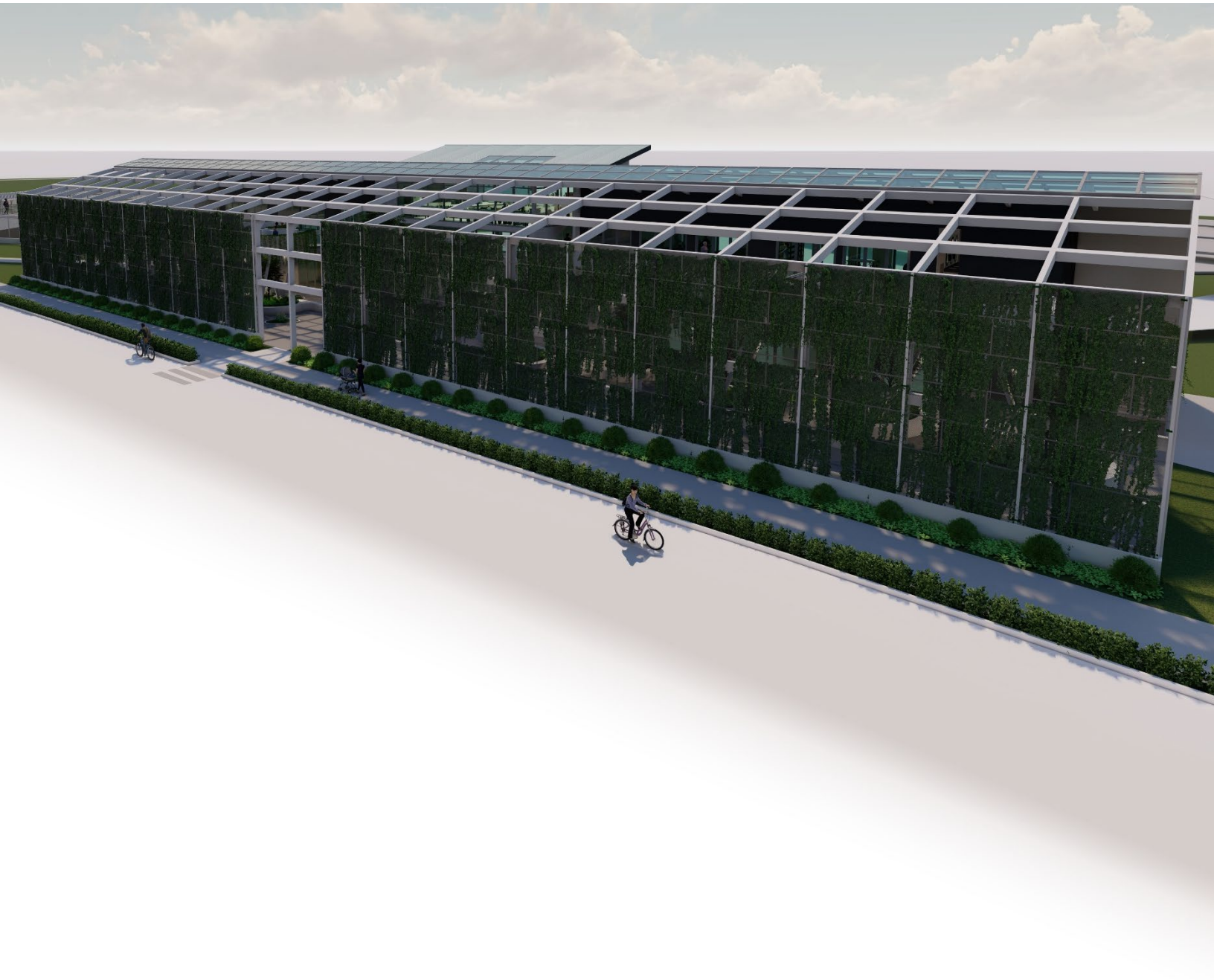


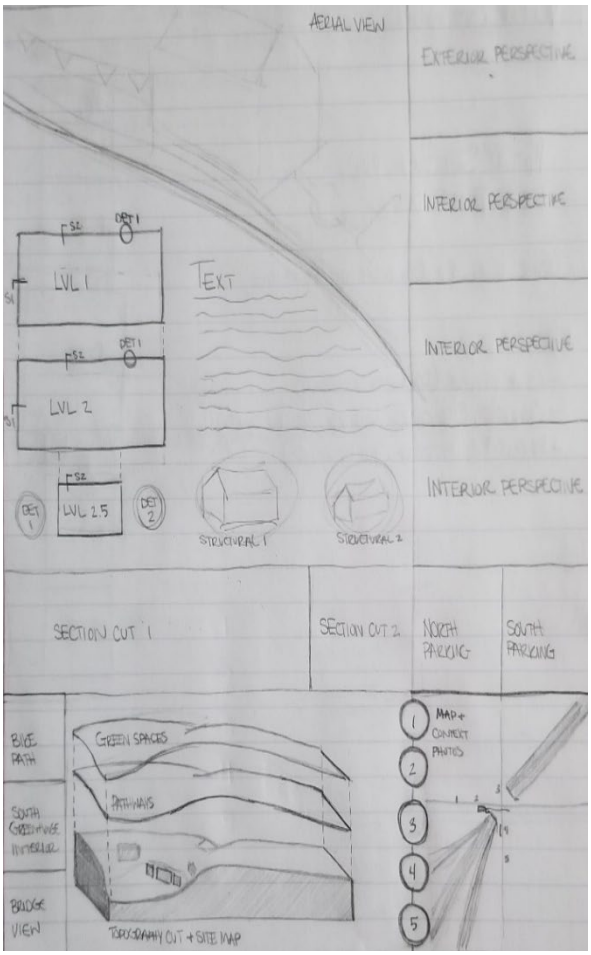
FIGURE 53

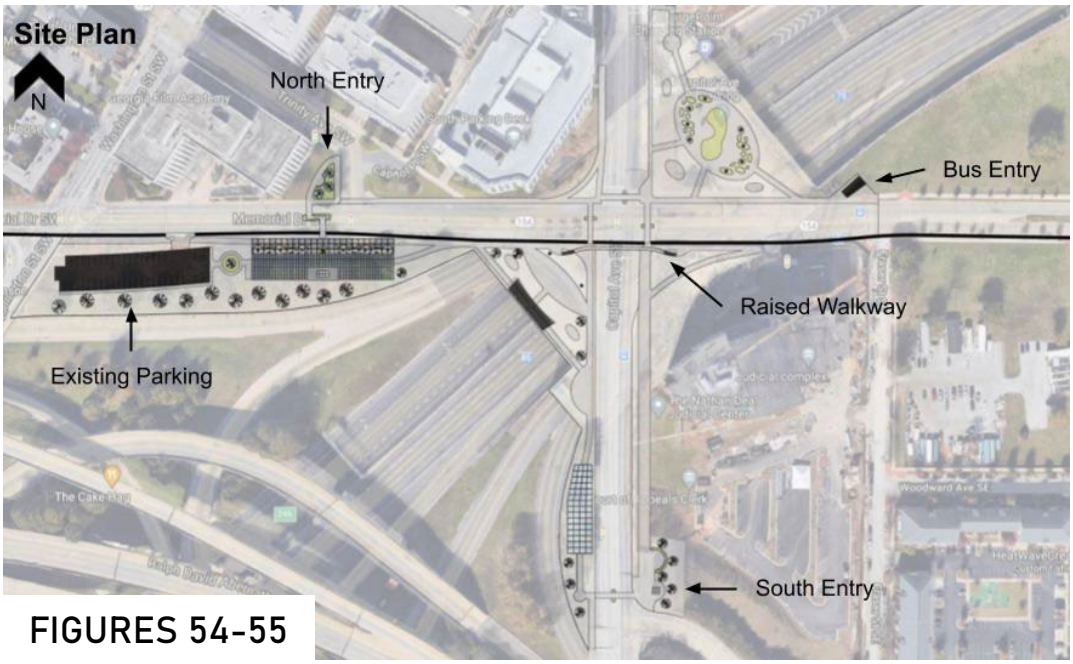
DESIGN SOLUTION



PROCESS WORK

In the Fall 2020 semester, I was able to find information to influence my design through research and site analysis. Because of this, my process work during the Spring 2021 semester was dedicated to designing and implementing project goals. The major elements of the design solution that is shown is the changes done to the existing parking lots and unused spaces along the freeway. The biggest step after design was laying out the boards for presentations, which was started after giving midterm presentations.





FIGURES 54-55

PROJECT SOLUTION

FIGURE 56

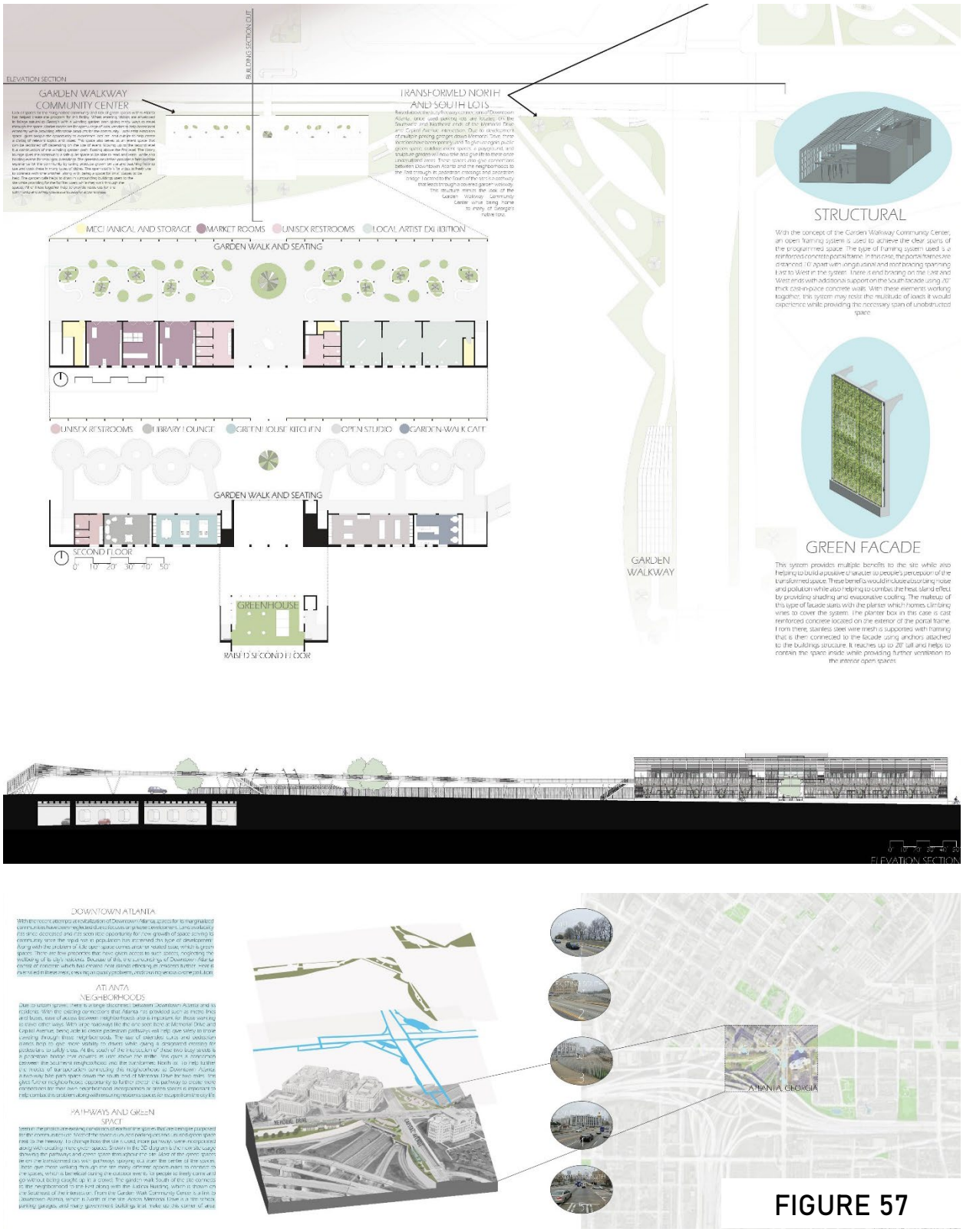


FIGURE 57

Final Boards

RESPONSE TO SITE

Due to urban sprawl, there is a large disconnect between Downtown Atlanta and its residents. With the existing connections that Atlanta has provided such as metro lines and buses, ease of access between neighborhoods also is important for those wanting to travel other ways. With large roadways like the one seen here at Memorial Drive and Capitol Avenue, being able to create pedestrian pathways will help give safety to those traveling through these neighborhoods. The use of extended curbs and pedestrian islands help to give more visibility to drivers while giving a designated crossing for pedestrians to safely cross. At the south of the intersection of these two busy streets is a pedestrian bridge that elevates its user above the traffic. This gives a connection between the Southeast neighborhood and the transformed North lot. To help further the modes of transportation connecting this neighborhood to Downtown Atlanta, a two-way bike path spans down the south end of Memorial Drive for two miles. This gives further neighborhoods opportunity to further stretch this pathway to create more connections for their own neighborhood. Along with these connections are the spaces that have been transformed to better serve the community as meeting spaces that incorporate green space to better the physical, mental, and emotional wellbeing of the community.

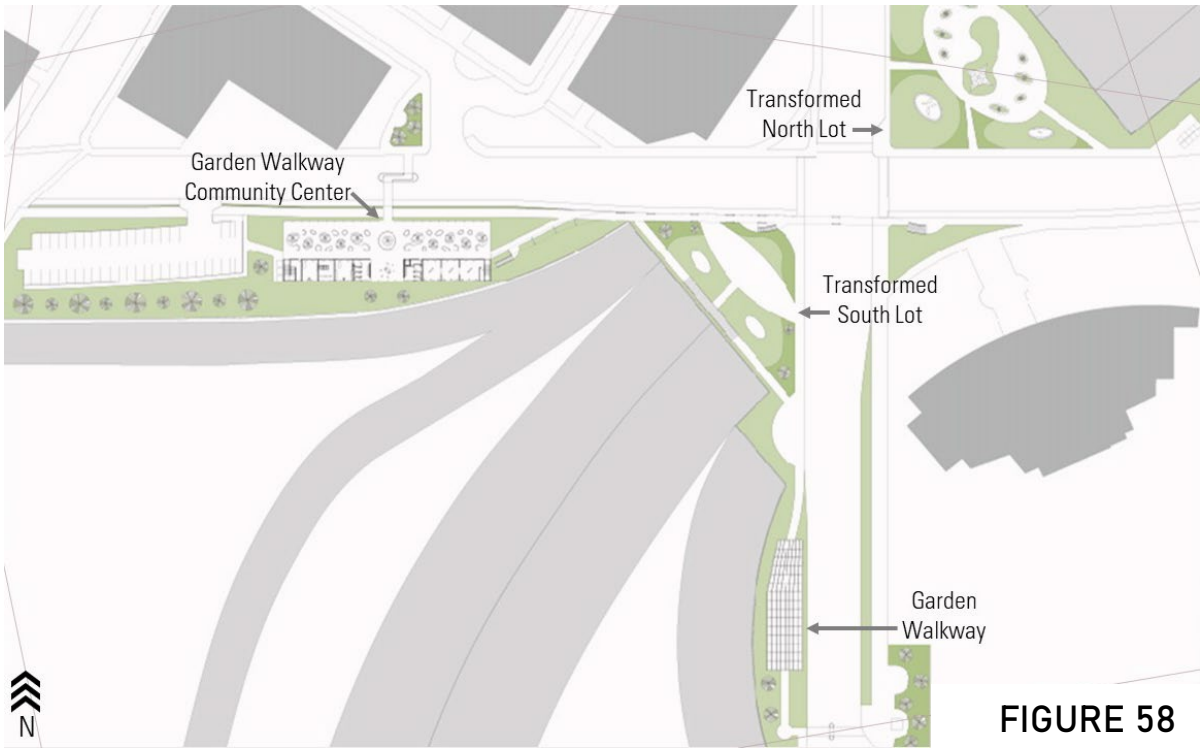


FIGURE 58

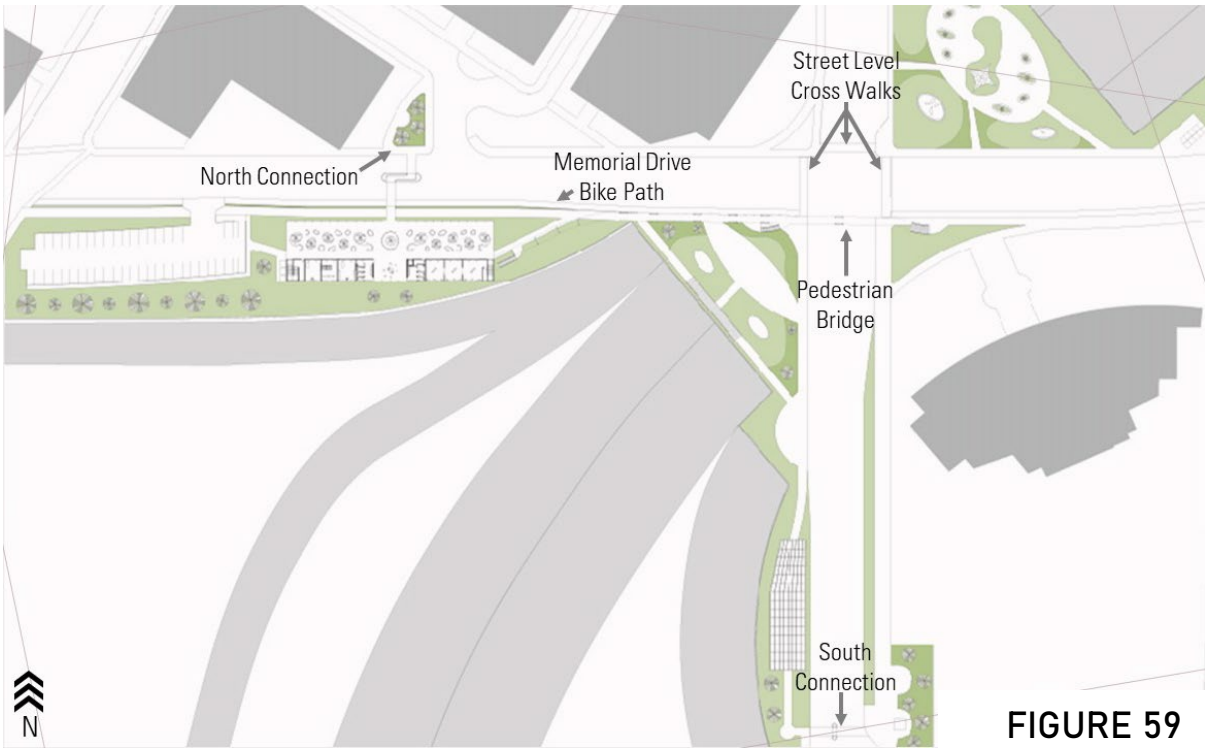


FIGURE 59

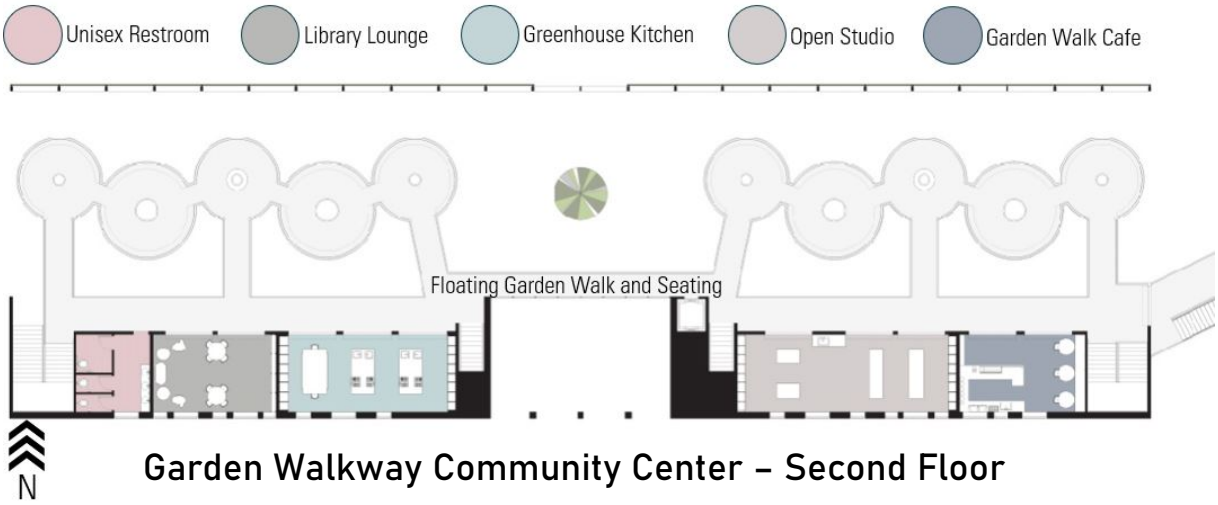
RESPONSE TO THE PRECEDENT RESEARCH AND GOALS/PROJECT EMPHASIS

Garden Walkway Community Center

Lack of spaces for the marginalized community and lack of green spaces within Atlanta has helped create the program for this facility. When entering, visitors are enveloped in foliage natural to Georgia with a winding garden path giving many ways to travel through the space. Market rooms are for open usage of local vendors to help boost local economy while providing affordable products for the community. Local artist exhibition space gives people the opportunity to experience local art and culture to help create a dialog of relevant topics and issues. This space also serves as an event space that can be sectioned off depending on the size of event. Moving up to the second level is a continuation of the winding garden path, floating above the first level. The library lounge gives the community a safe quiet space to be able to read and learn while also holding events for small group readings. The greenhouse kitchen provides a farm to table experience for the community by taking produce grown on site and teaching how to use and cook these in many types of dishes. The open studio is for artists to freely use to connect with one another, along with being a space for small classes to be held. The garden cafe helps to draw in surrounding buildings users to the site while providing for the facilities users while they walk through the spaces. The offset second floor is an urban garden with classes to teach how to grow, care for, and harvest any produce to the community. All these together help to provide resources for the community and to help create a safe space for anyone to use.

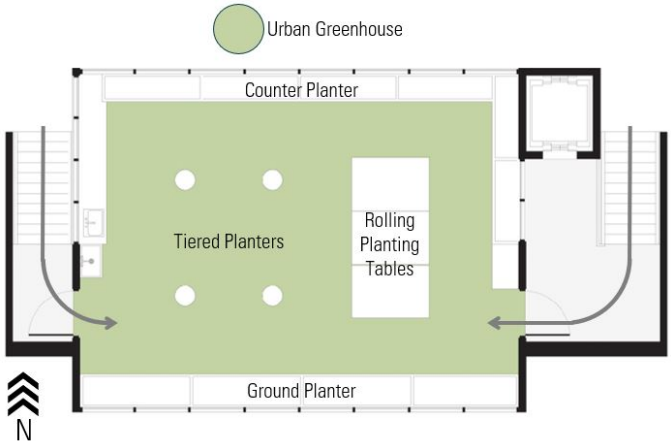
Garden Walkway Community Center – First Floor

FIGURES 60-61



Garden Walkway Community Center – Second Floor

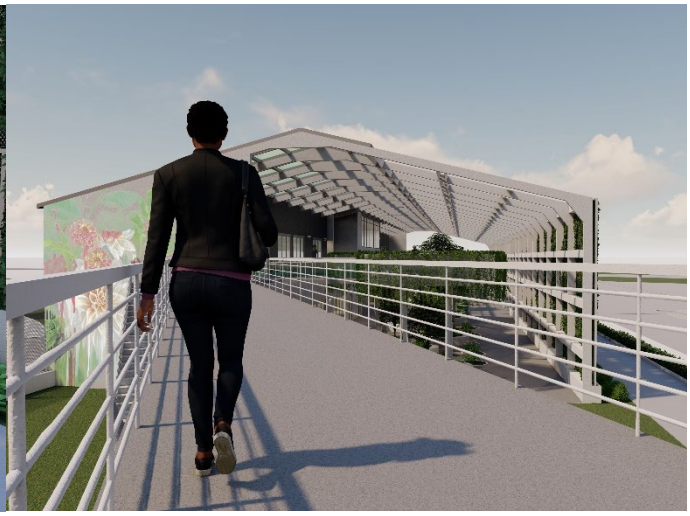
FIGURES 62-63

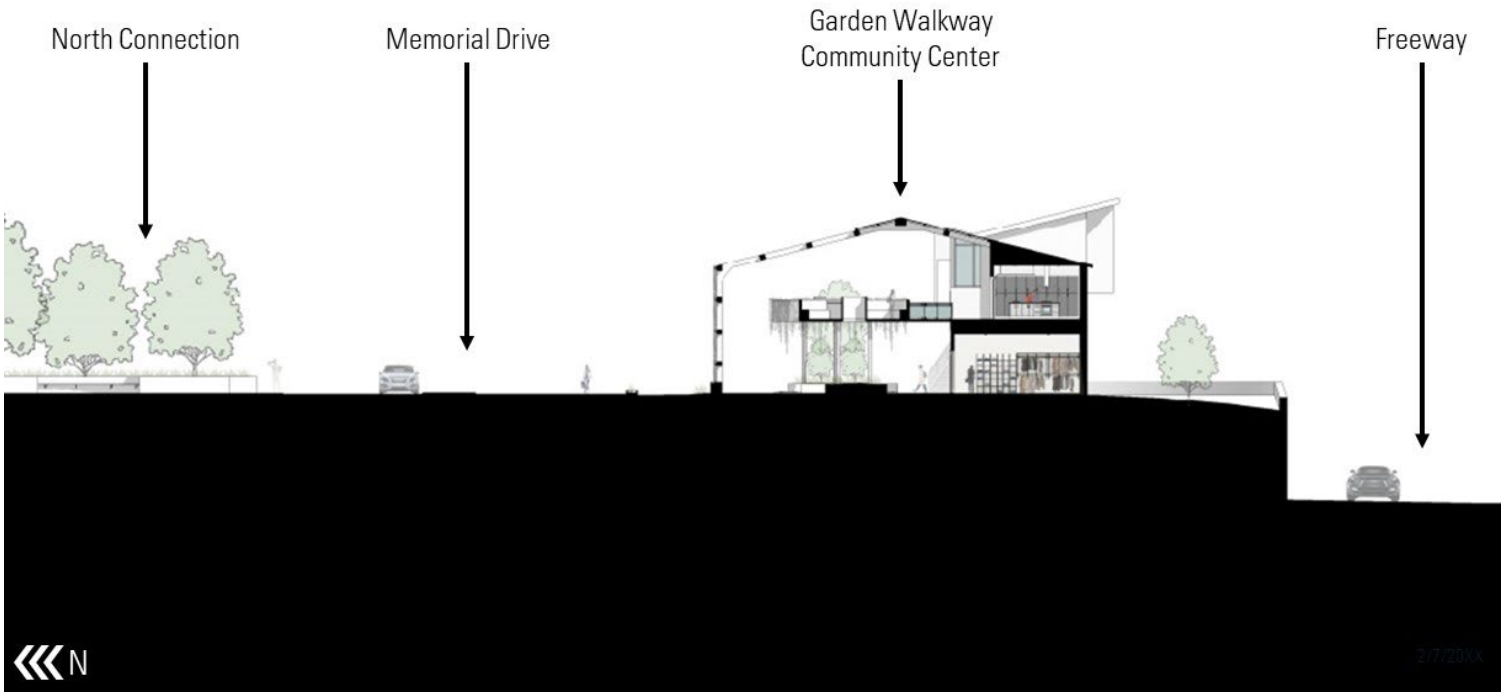


Garden Walkway Community Center – Raised Second Floor

FIGURES 64-65

FIGURES 66-68





Transformed North and South Lots

Raised above the busy freeway connections of Downtown Atlanta, once used parking lots are located on the Southwest and Northeast ends of the Memorial Drive and Capitol Avenue intersection. Due to development of multiple parking garages down Memorial Drive, these locations have been sparsely used. To give use again, public green space, outdoor event spaces, a playground, and sculpture garden will now take and give life to these once underutilized areas. These spaces also give connections between Downtown Atlanta and the neighborhoods to the East through its pedestrian crossings and pedestrian bridge.

Garden Walkway

Located to the South of the sites is a pathway that leads through a covered garden walkway. This structure mimics the look of the Garden Walkway Community Center, which consists of portal framing and glazing surrounding the structure. Inside is home to local flora of Georgia to help bring nature natural to the area into the city. Because of the walls separating the space between the freeway and Capitol Avenue, this space experiences noise reduction, making it a more peaceful experience.

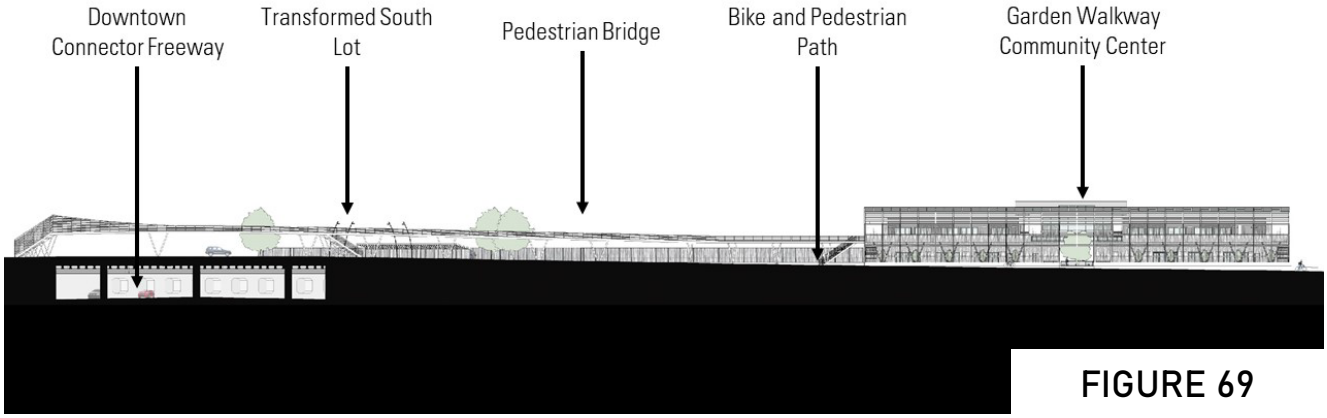


FIGURE 69

FIGURES 70-72

Existing spaces that are reused for this project is unused parking lots and unused green space next to the freeway. To change how the site is used, more pathways were incorporated along with creating more green spaces. Shown in the 3D diagram is the new site usage showing the pathways and green space throughout the site. Most of the green spaces lie on the transformed lots with pathways splaying out from the center of the spaces. These give those walking through the site many different opportunities to connect to the spaces, which is beneficial during the outdoor events for people to freely come and go without being caught up in a crowd. The garden walk South of the site connects to the neighborhood to the East along with the Judicial Building, which is shown on the Southeast of the intersection. From the Garden Walk Community Center is a link to Downtown Atlanta, which is North of the site. Across Memorial Drive is a film school, parking garages, and many government buildings that make up this corner of area.

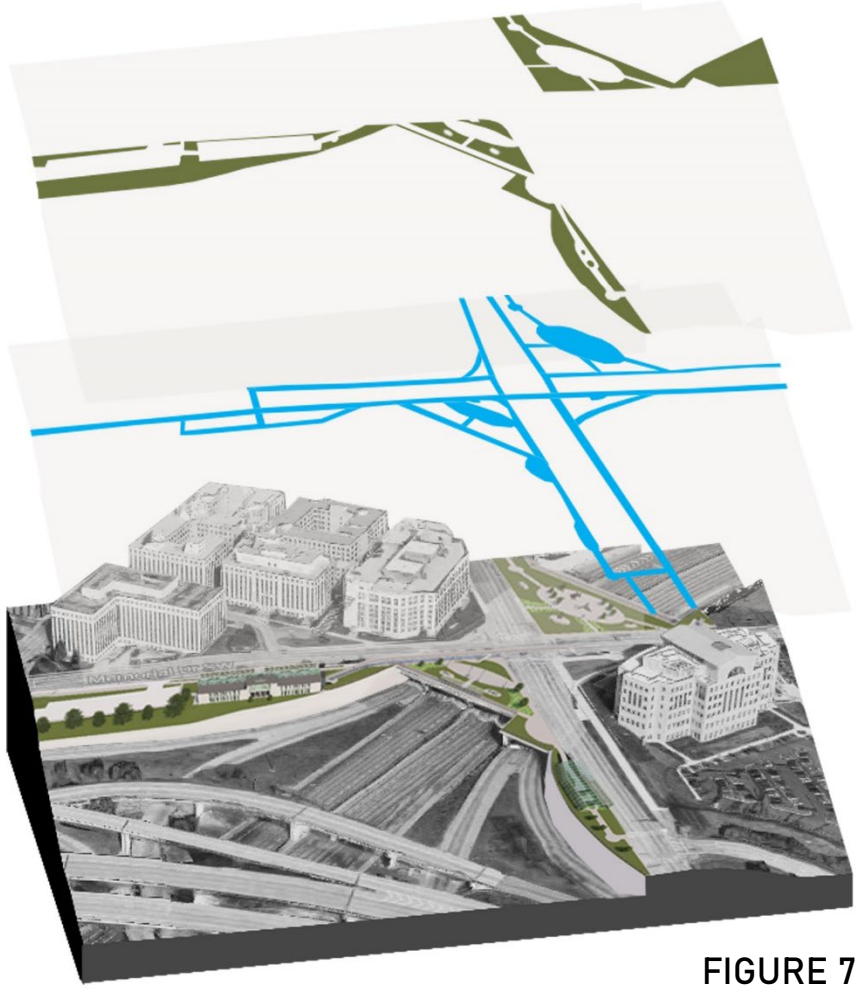
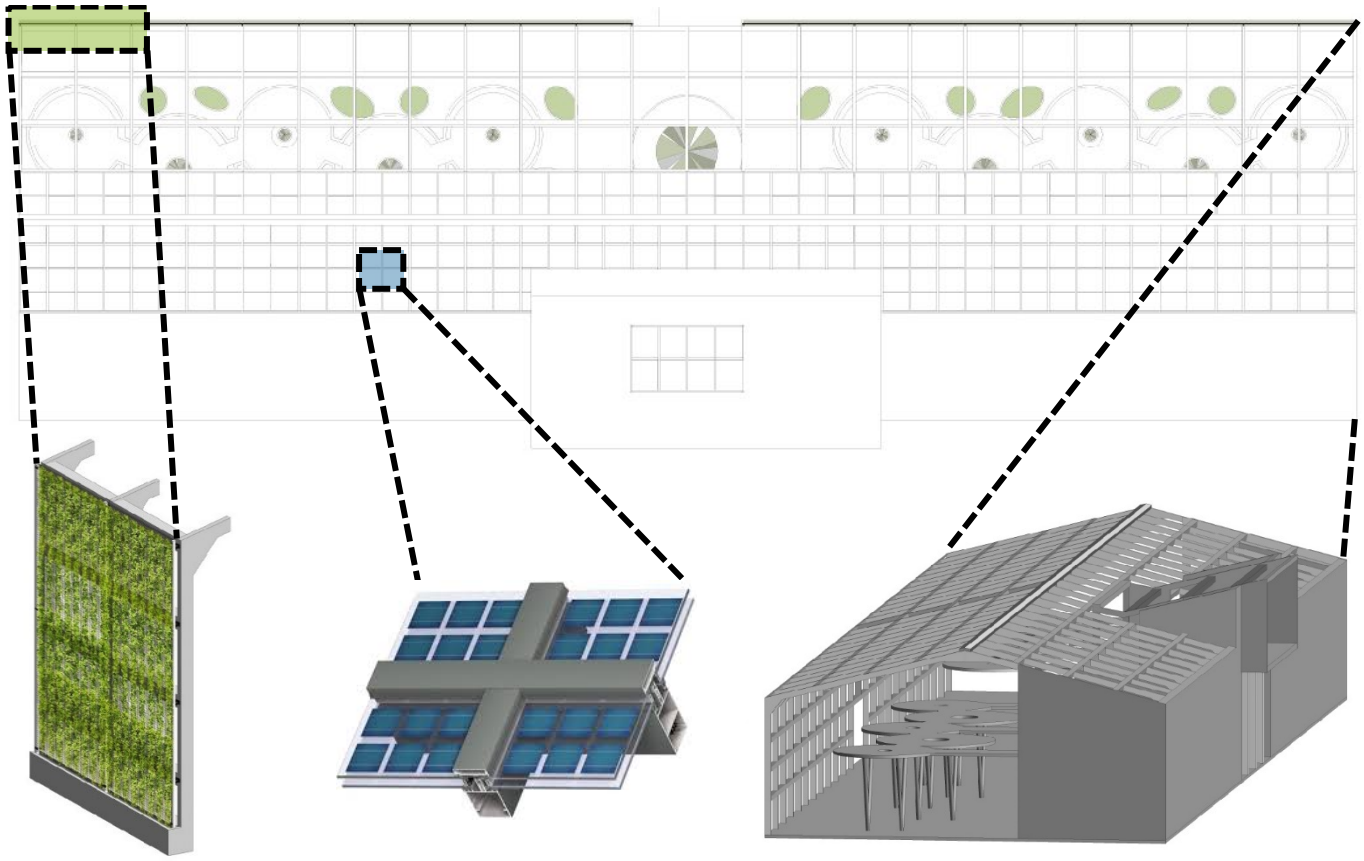


FIGURE 73

FIGURE 74



Building Structure

With the concept of the Garden Walkway Community Center, an open framing system is used to achieve the clear spans of the programmed space. The type of framing system used is a reinforced concrete portal frame. In this case, the portal frames are distanced 10' apart with longitudinal and roof bracing spanning East to West in the system. There is end bracing on the East and West ends with additional support on the South facade using 20" thick cast-in-place concrete walls. With these elements working together, this system may resist the multitude of loads it would experience while providing the necessary span of unobstructed space. This system provides multiple benefits to the site while also helping to build a positive character to people's perception of the transformed space. These benefits would include absorbing noise and pollution while also helping to combat the heat island effect by providing shading and evaporative cooling.

Green Facade

The makeup of this type of facade starts with the planter which homes climbing vines to cover the system. The planter box in this case is cast reinforced concrete located on the exterior of the portal frame. From there, stainless steel wire mesh is supported with framing that is then connected to the facade using anchors attached to the buildings structure. It reaches up to 28' tall and helps to contain the space inside while providing ventilation to the interior open spaces. A benefit to the site with this type of system is that it helps to combat the heat island effect that Atlanta experiences. With the foliage on the surface of the façade, shading is created helping with the process of evaporative cooling. This ultimately helps to reduce the heat that the site will experience.

Transparent Solar Panel

Located on the roof of the structure, this system has many benefits to the site. With its location, the sun's energy can easily be harnessed with these solar panels incorporated into the roof glazing system. This energy is then stored on site and used for any lighting, electrical, or mechanical systems on the site. Along with this system harnessing the energy from the sun, it can partially shade the interior because of the pattern of the solar panel glazing. This helps to keep the interior cool during the warm days that Atlanta experiences while still allowing partial direct sunlight to the plants within the structure. The structure of this system is made up of the transparent solar panel glazing which is then held in by the aluminum framing. A junction box holds all the cables that are required for the solar panels and makes its way back to the mechanical space to be converted into usable energy on site.

WASTED SPACE

REIMAGINING AND REPURPOSING SPACES

Alixandra Hermanson

INTRODUCTION

Through the re-purposing of unused space, a new identity may be created through pedestrian usage influencing building and site design. This project addresses the possibilities of reconsidering the use of marginalized sites to create connection, increase safety, give access to usable green space, provide community platforms, and increase density. By designing with these elements in mind as well as programming opportunities for community members, a once wasted space is given renewed purpose and value.

Thesis Research

WASTED SPACE

WASTED SPACE

Characteristics

- Negative local identity
- Loss of functionality
- Unusable physically

Reason

- Prior zoning codes creating urban sprawl
- Site usage options
- Non-local ownership affecting physical connections

Examples

- Waterfronts
- Train Yards
- Industrial Complexes

5/2021 4

SOLUTIONS

- Create urban connections
- Lighten zoning codes
- Encourage community involvement
- Enhance patterns of public space usage

Site Analysis

ATLANTA, GA

ATLANTA, GA

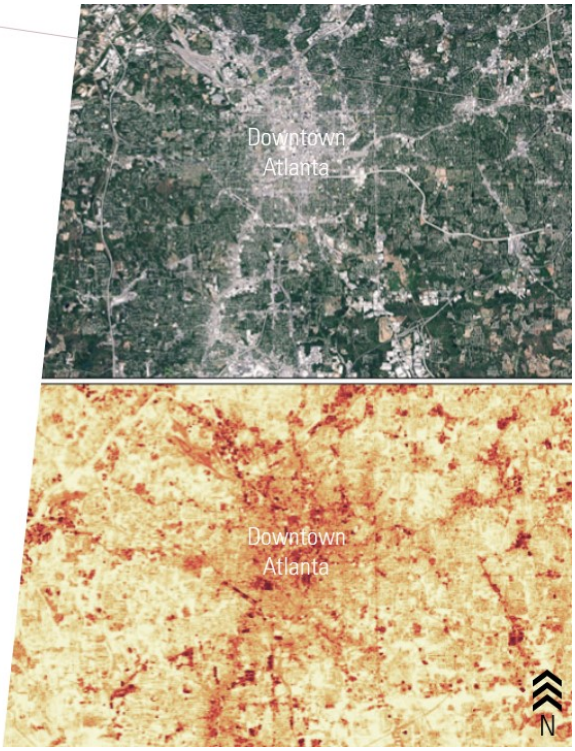
Loss of usable land for development
- 37.7 M acres in GA with 4.6 M acres for urban use

Densely populated 133.15 miles² of city
- 1370 persons per mile²

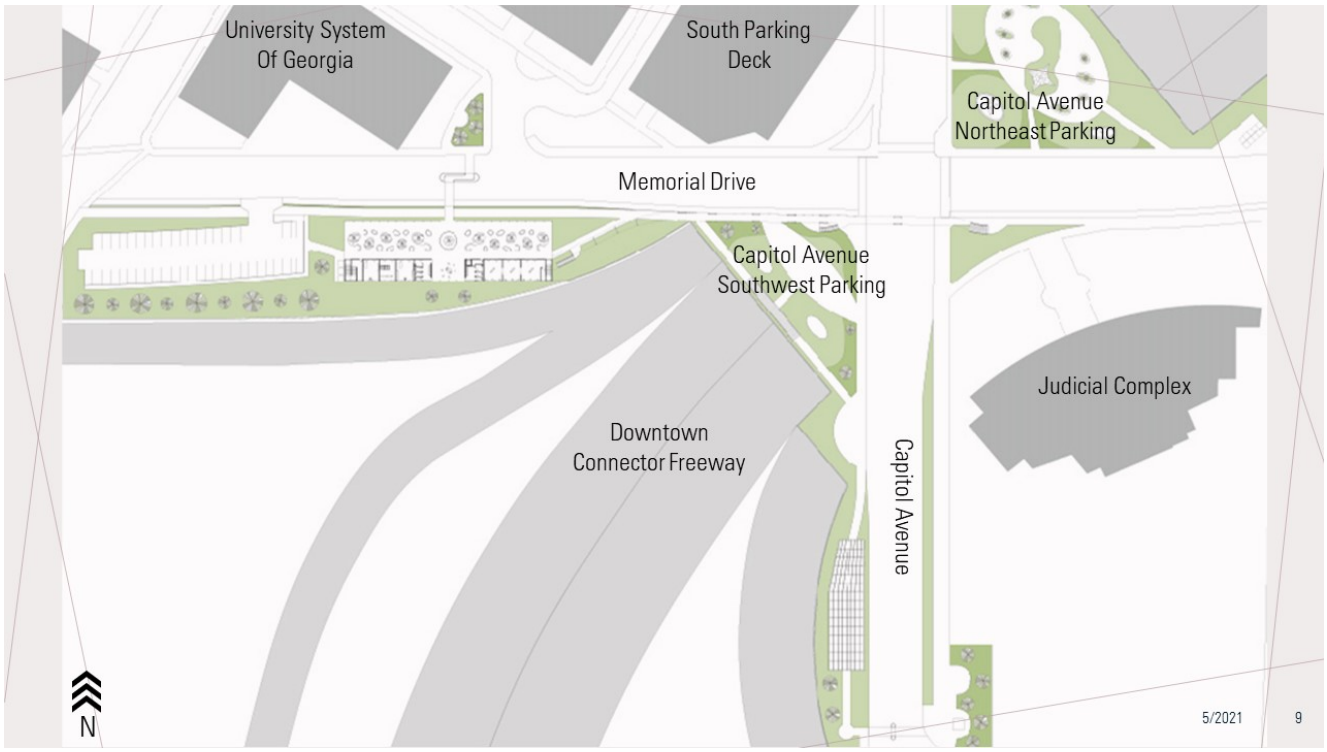
High poverty rate
- 20.8% among residents

Loss of green space to development
- 38% lost in past 30 years

Effects of green space deficiency
- Heat island effect causing ozone pollution
- Air quality issues
- Water quality issues
- Physical, mental, and emotional toll to community



ATLANTA, GA


University System
Of Georgia
South Parking
Deck
Capitol Avenue
Northeast Parking
Memorial Drive
Capitol Avenue
Southwest Parking
Judicial Complex
Downtown
Connector Freeway
Capitol Avenue
N
5/2021
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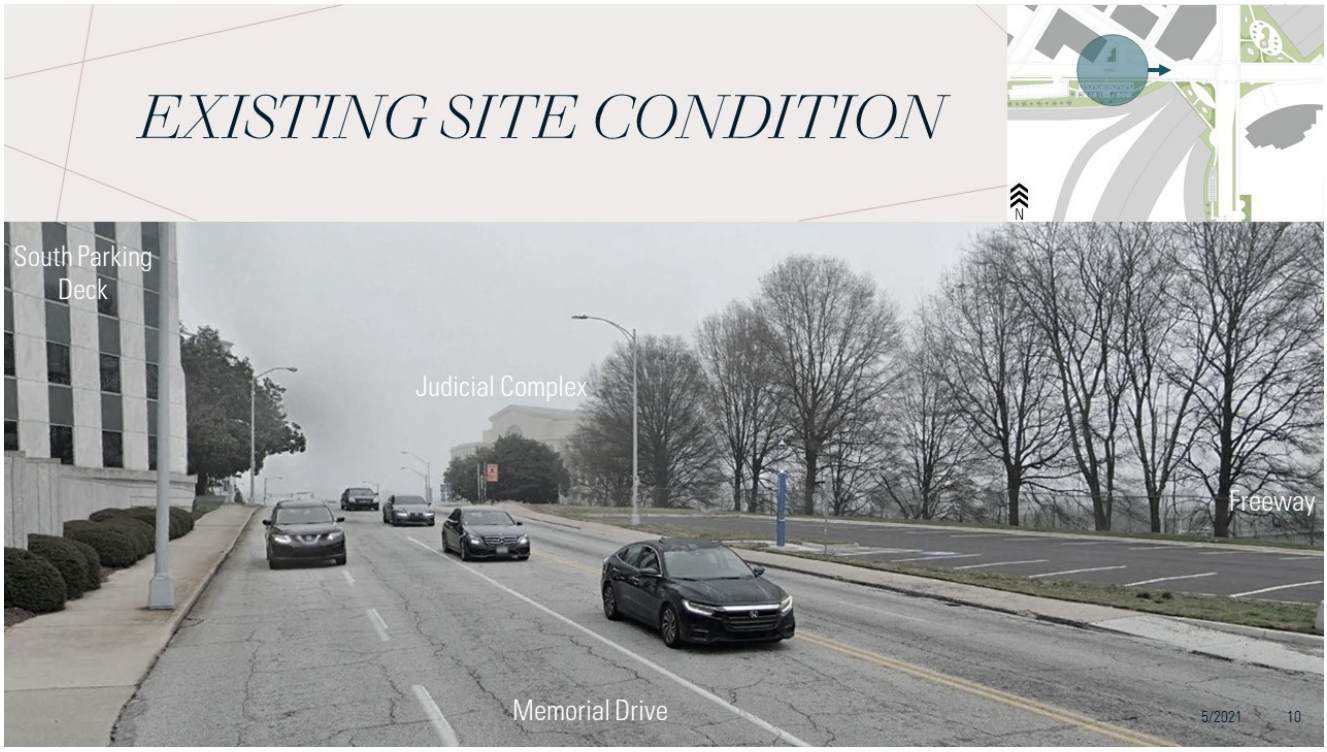
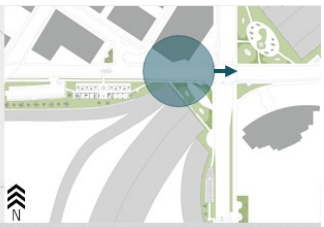

EXISTING SITE CONDITION
N
South Parking
Deck
Judicial Complex
Freeway
Memorial Drive
5/2021
10

EXISTING SITE CONDITION



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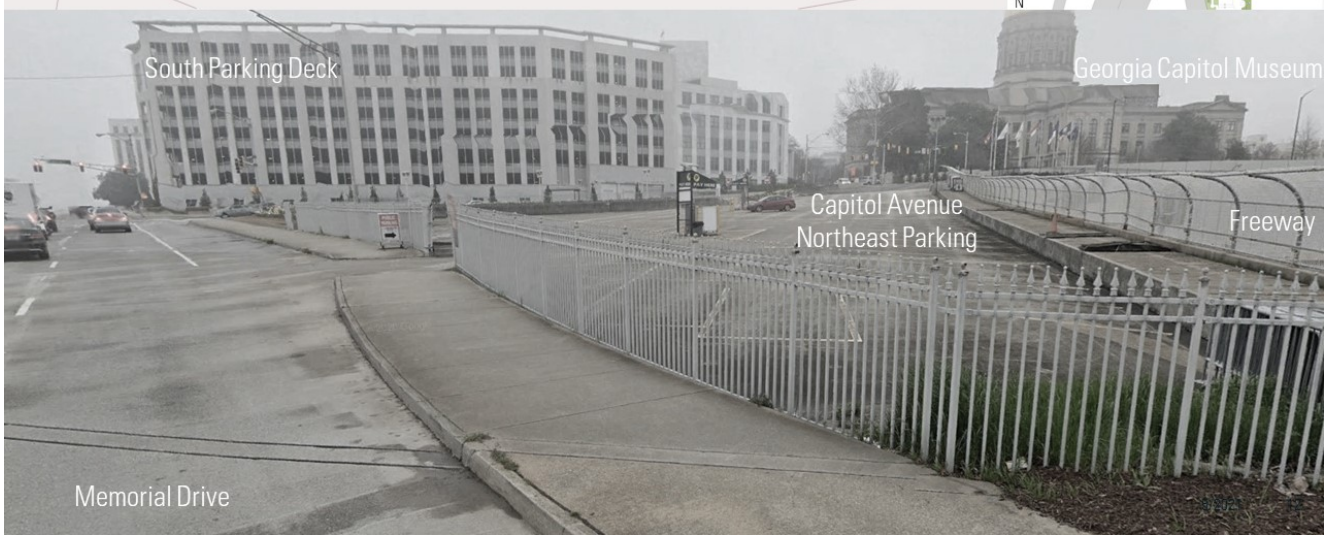
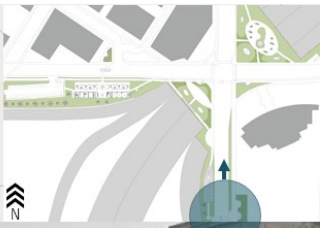
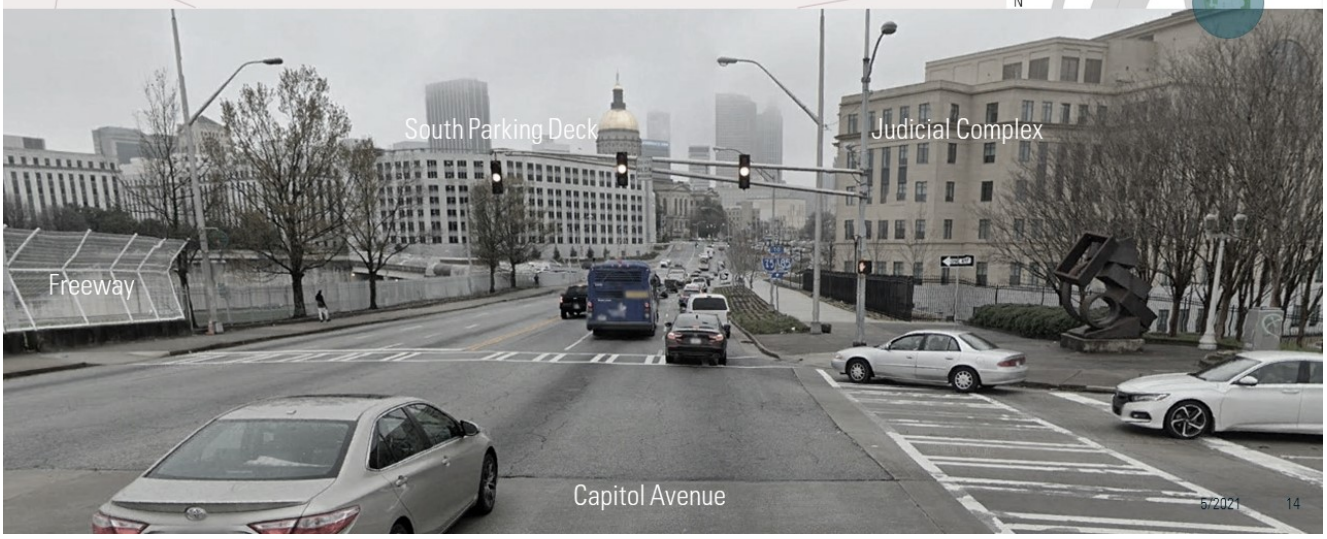
EXISTING SITE CONDITION



EXISTING SITE CONDITION

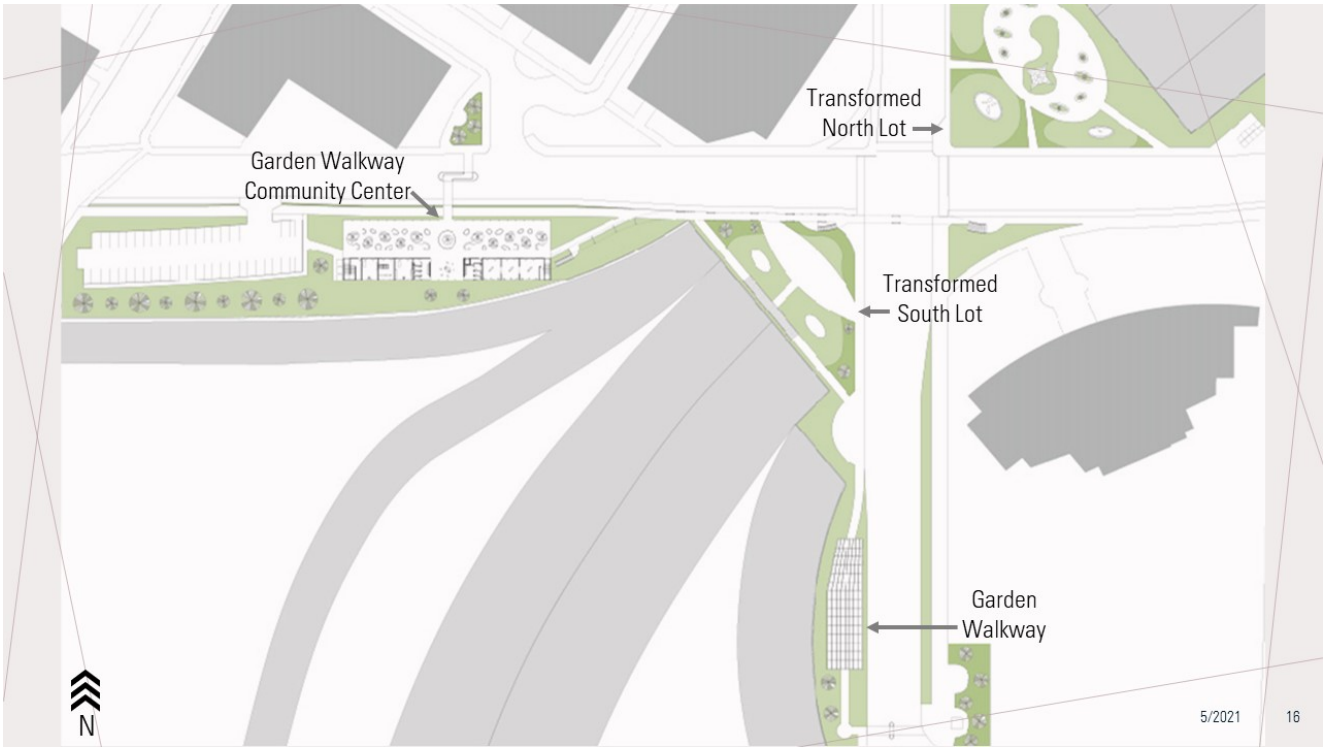
EXISTING SITE CONDITION

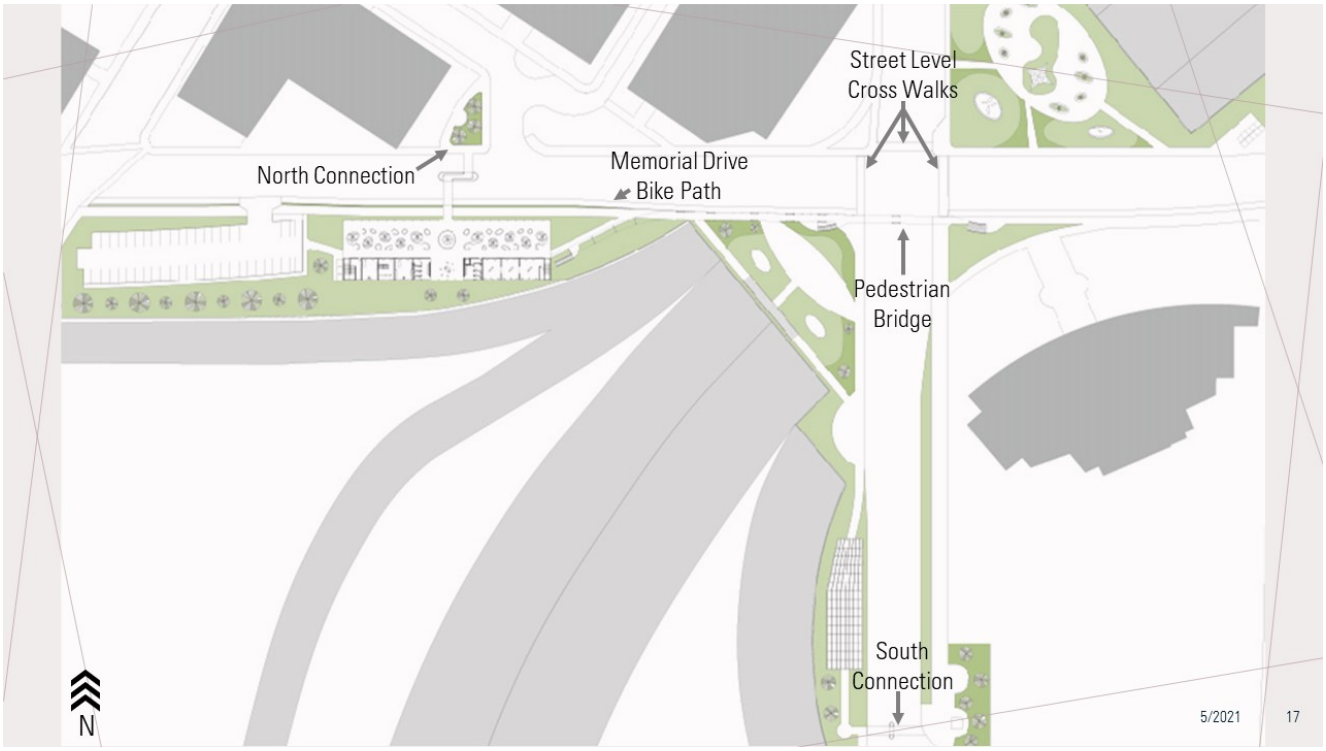


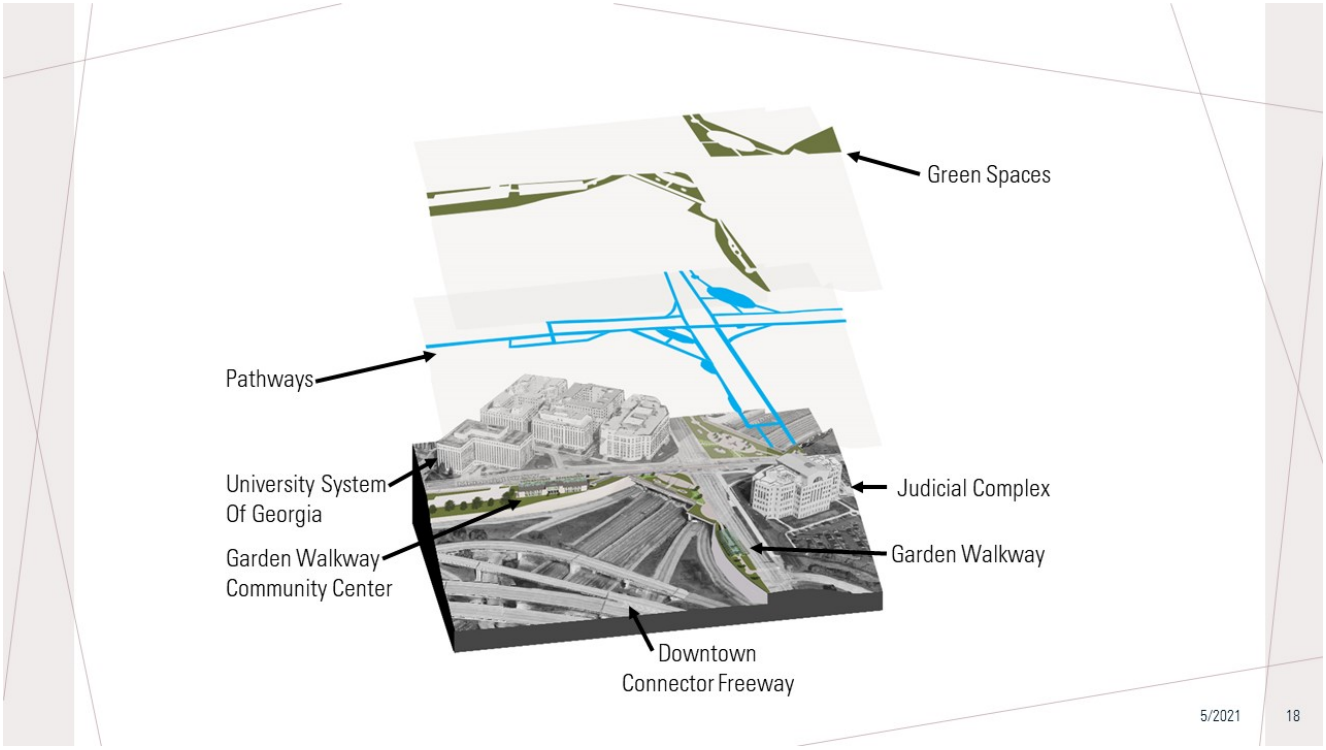


Site Design

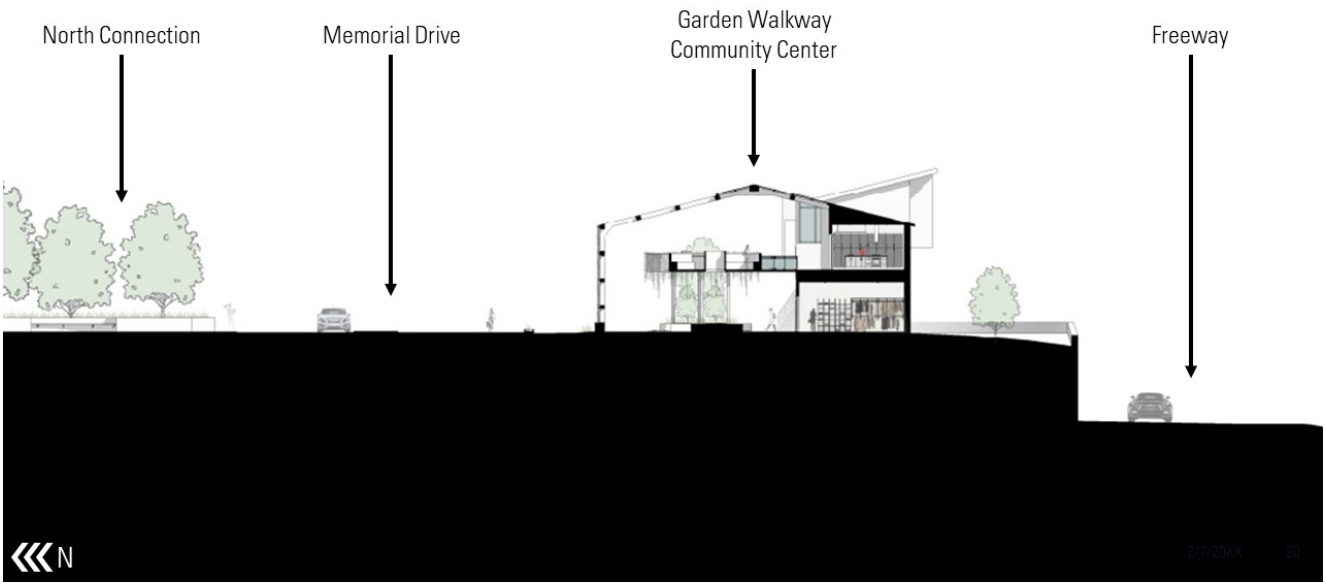
ATLANTA, GA




Street Level
Cross Walks
North Connection
Memorial Drive
Bike Path
Pedestrian
Bridge
South
Connection
N
5/2021
17


Green Spaces
Pathways
University System
Of Georgia
Garden Walkway
Community Center
Judicial Complex
Garden Walkway
Downtown
Connector Freeway
5/2021
18


Garden Walkway
Community Center Section
N
5/2021
19


North Connection
Memorial Drive
Garden Walkway
Community Center
Freeway
N

GARDEN WALKWAY COMMUNITY CENTER

Memorial Drive 2-Way Bike Path

Pedestrian Pathway

First Floor Spaces

- Garden Walk and Seating
- Market Room

Second Floor Spaces

- Floating Garden Walk and Seating
- Greenhouse Kitchen

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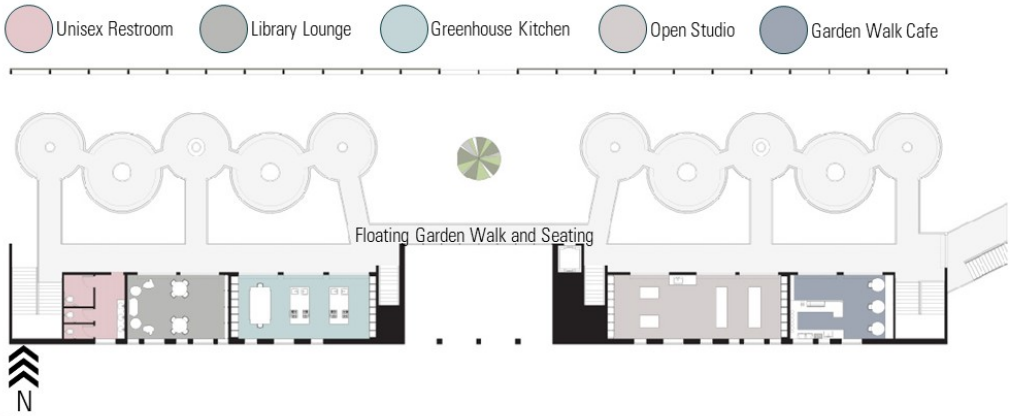
GARDEN WALKWAY COMMUNITY CENTER – FIRST FLOOR

GARDEN WALKWAY COMMUNITY CENTER – SECOND FLOOR



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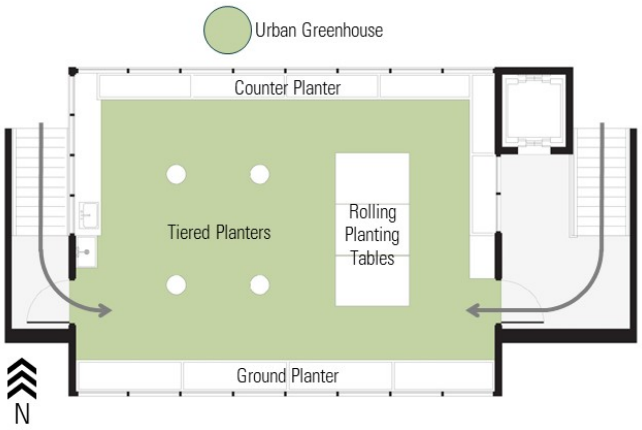
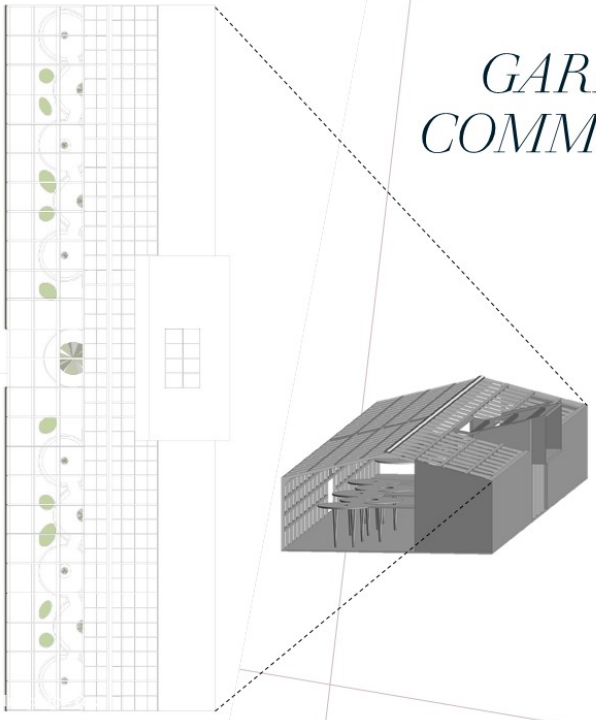
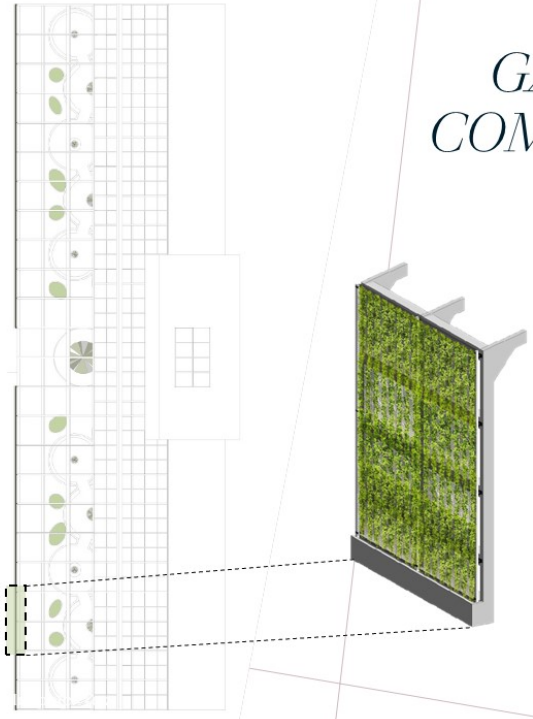
GARDEN WALKWAY COMMUNITY CENTER – RAISED SECOND FLOOR



GARDEN WALKWAY COMMUNITY CENTER – DETAILS

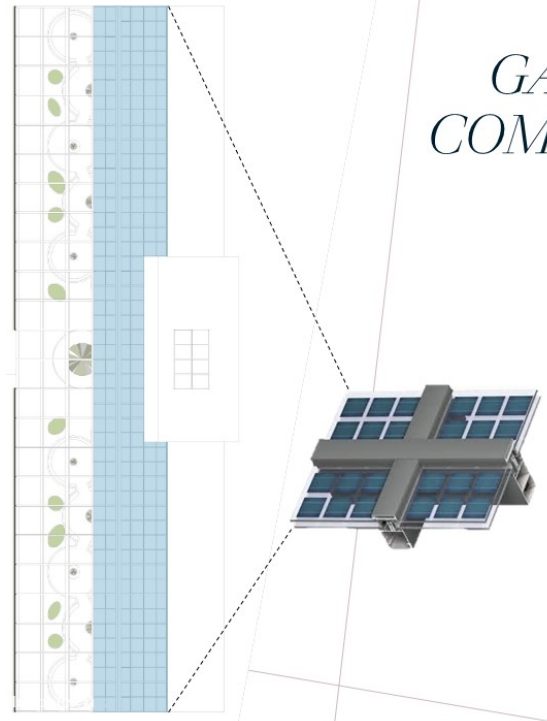


- Reinforced Concrete Portal Frame
- 20" Cast-In-Place Concrete Walls
- Second Level Walkway
- Raised Second Level



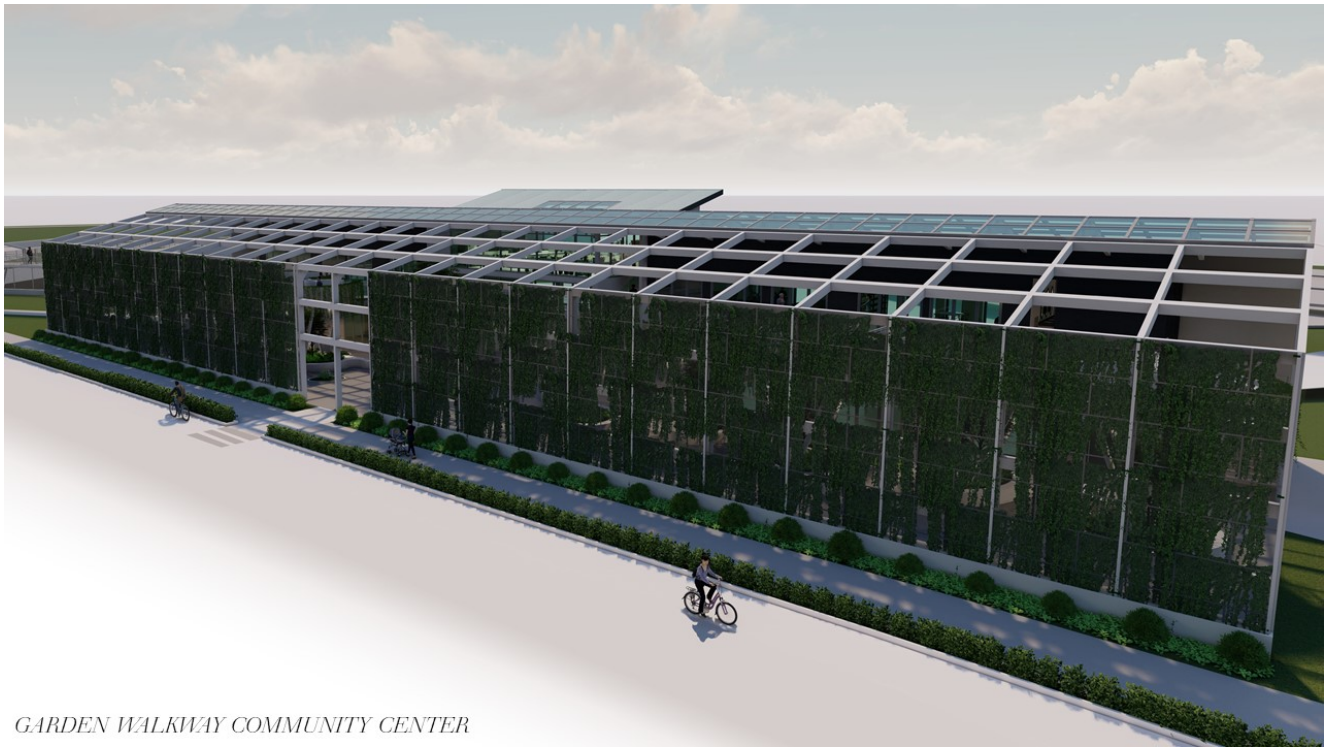
GARDEN WALKWAY COMMUNITY CENTER – DETAILS

- Reinforced Concrete Planter Box
- 28' Stainless Steel Wire Mesh
- Anchor Connections
- Benefits To Site



GARDEN WALKWAY COMMUNITY CENTER – DETAILS

- Double Glass Transparent Solar Panel
- Aluminum Frame
- Junction Box
- Benefits To Site



GARDEN WALKWAY COMMUNITY CENTER

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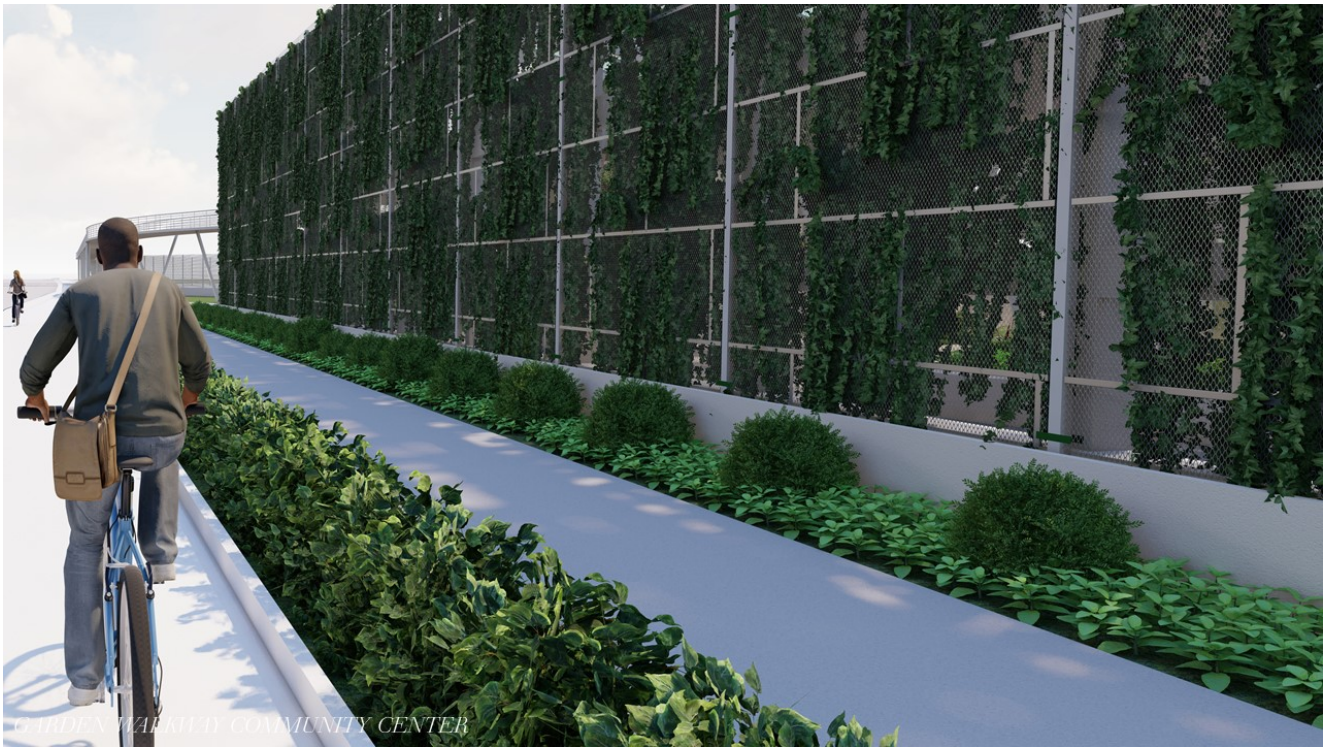
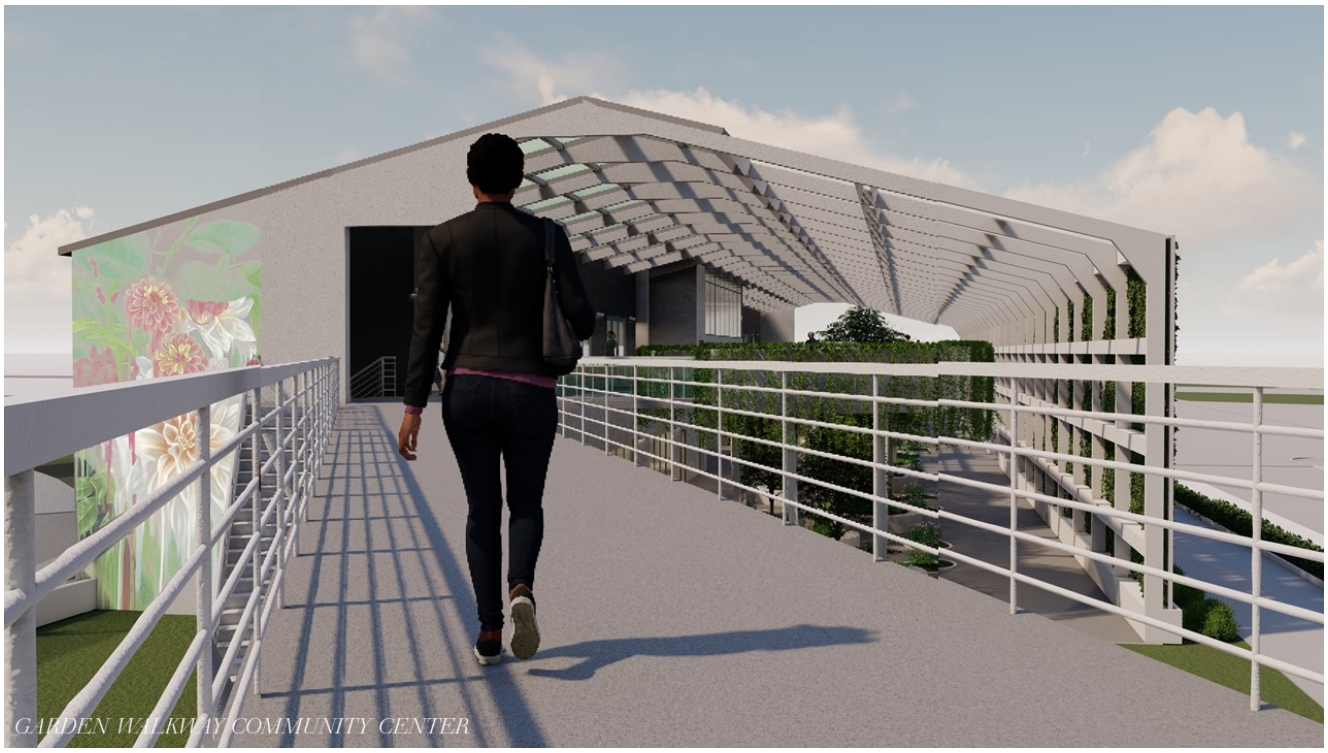
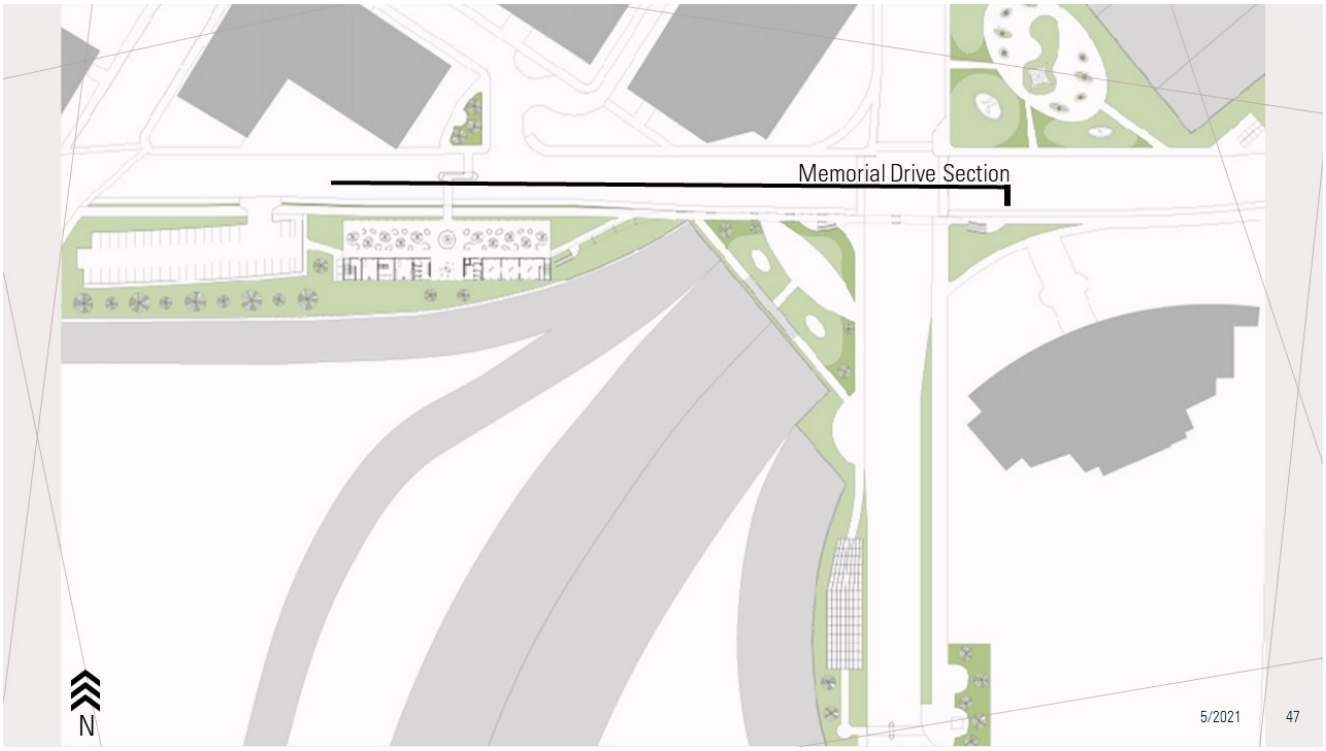
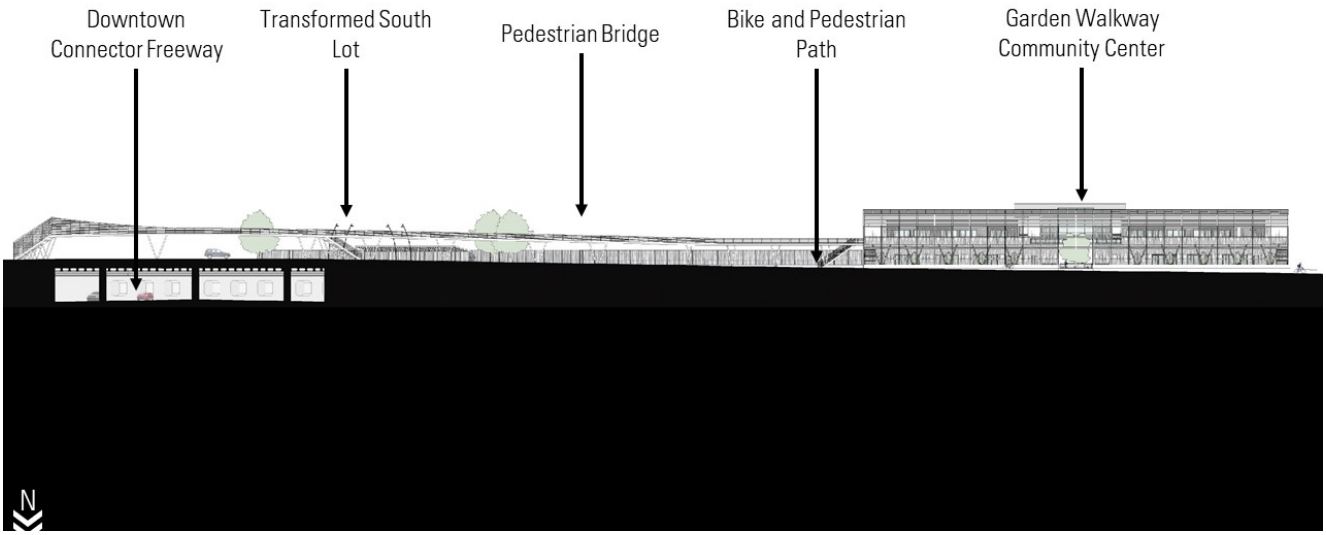
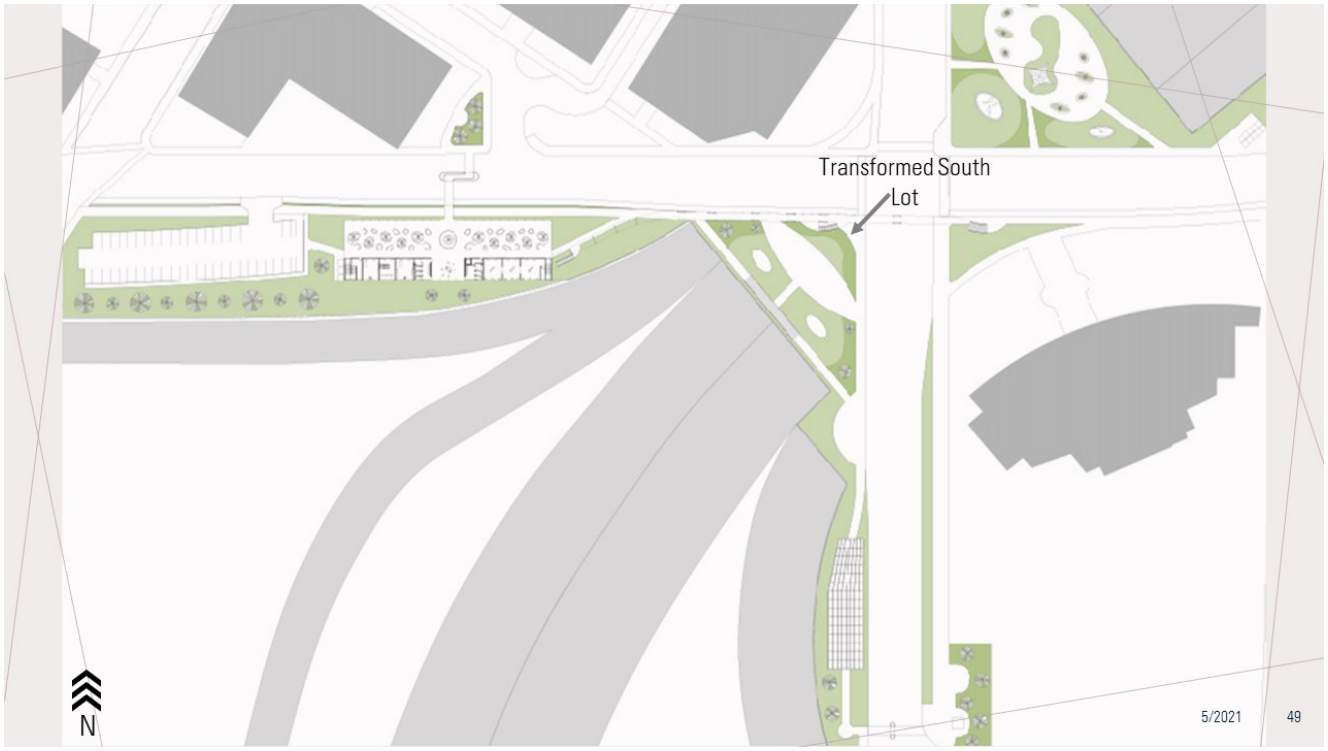

GARDEN WALKWAY COMMUNITY CENTER


GARDEN WALKWAY COMMUNITY CENTER


Memorial Drive Section
N
5/2021
47

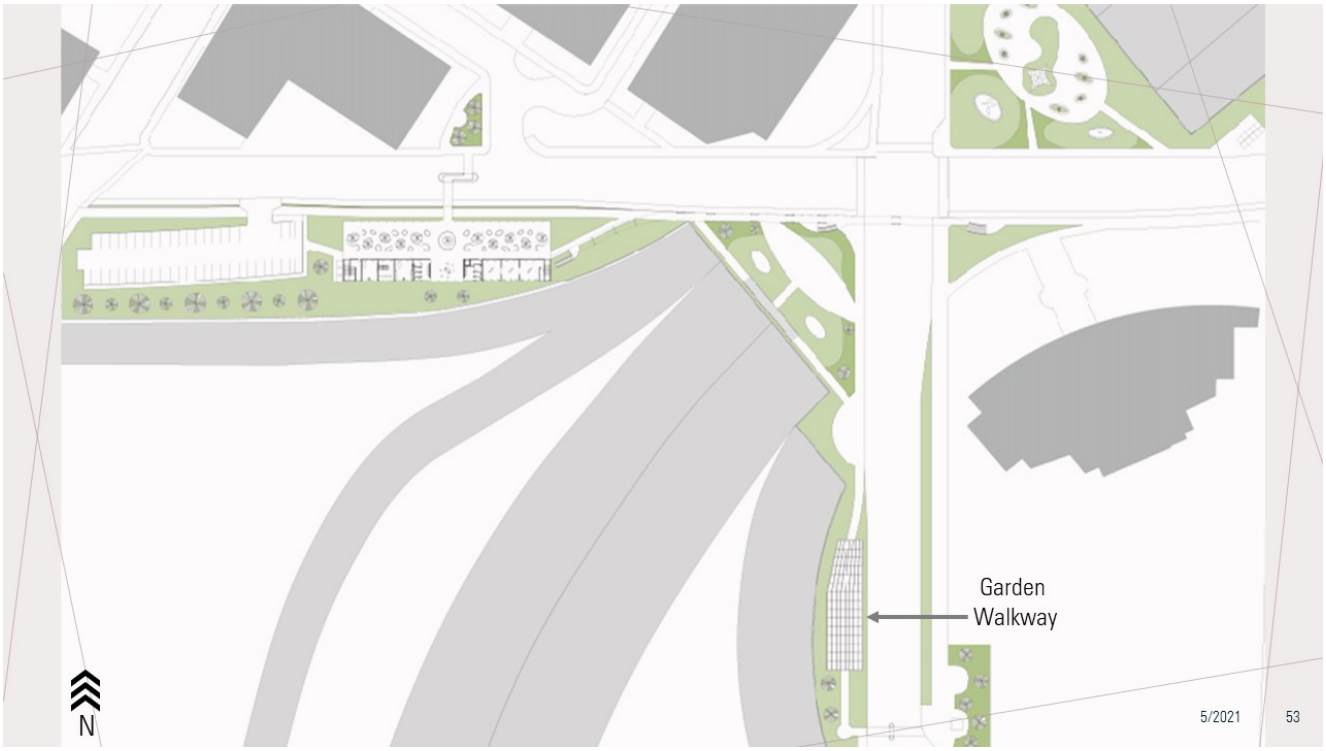

Downtown Connector Freeway
Transformed South Lot
Pedestrian Bridge
Bike and Pedestrian Path
Garden Walkway Community Center
N


Transformed South
Lot
N
5/2021
49


TRANSFORMED SOUTH LOT


Transformed North
Lot
N
5/2021
51


TRANSFORMED NORTH LOT


Garden
Walkway
N
5/2021
53


GARDEN WALKWAY


WASTED SPACE
REIMAGINING AND REPURPOSING SPACES
Underutilized spaces have become more prominent in densely populated cities for many reasons. Prior zoning codes have disconnected typologies, creating adverse effects to layouts and connections. Site usage and municipal ownership have affected how physical connection influences design. Because of these reasons, a count of spaces separate from the public has been created. Due to the increase of populations in urban areas, all potential underutilized spaces need to be reconsidered to add value to a city's residents. One key necessity in urban areas is also green space. As research shows, living in proximity and having access to green space has positive effects on physical, mental, and emotional wellbeing. With those factors in mind, a site in Atlanta, Georgia was chosen due to its sharp increase in population, decrease in land availability, its need for a transformation of spaces for its marginalized communities, and demand for usable green space incorporated into public space.
GARDEN WALKWAY COMMUNITY CENTER
TRANSFORMED NORTH AND SOUTH LOTS
STRUCTURAL
GREEN FACADE
GARDEN WALKWAY
DOWNTOWN ATLANTA
ATLANTA NEIGHBORHOODS
PATHWAYS AND GREEN SPACE
ALEXANDRA ERVANSON

FIGURE 75

APPENDIX: REFERENCE LIST

Atlanta, GA. (n.d.). Retrieved October 24, 2020, from https://www.atlantaga.gov/government/departments/city-planning/office-of-zoning-development/zoning

Atlanta Topo Map in Fulton. (2016, January 13). Retrieved October 24, 2020, fromhttps://www.topozone.com/Georgia/fulton-ga/city/atlanta-5/

Baldwin, E. (2018, October 12). Urban Nouveau Aims to Save Stockholm's Lidingö Bridge by Combining New Housing. Retrieved September 7, 2020, from https://www.archdaily.com/903840/urban-nouveau-aims-to-save-stockholms-lidingo-bridge-by-combining-new-housing

Cogley, B. (2019, March 08). The Bentway park opens under Toronto's Gardiner Expressway. Retrieved September 7, 2020, from https://www.dezeen.com/2019/03/08/bentway-park-public-work-greenberg-toronto/

Dorpat, P. (2015, December 13). How architect Richard Haag turned a gas plant into the beautiful Gas Works Park. Retrieved September 7, 2020, from https://www.seattletimes.com/pacific-nw-magazine/gas-works-parks-is-architect-richard-haags-enduring-gift-to-seattle/

Grove, M. (2020). Wuhan Yangtze Riverfront Park. Retrieved September 7, 2020, from https://www.sasaki.com/projects/wuhan-yangtze-riverfront-park/

Herzmann, D. (n.d.). IEM :: Site Locator. Retrieved October 24, 2020, from http://mesonet.agron.iastate.edu/sites/windrose.phtml?network=GA_ASOS

REFERENCE LIST

Landezine Newsletter. (2020, March 27). Retrieved September 7, 2020, from http://landezine.com/index.php/2020/03/wuhan-yangtze-riverfront-park-by-sasaki/

Manns, A. (2018, October 15). Urban Nouveau launch petition to build Stockholm bridge village and park. Retrieved September 7, 2020, from https://www.cladglobal.com/news.cfm?codeid=339411

Sawyer, S. (2020, March 19). Gas Works Park (Seattle). Retrieved September 7, 2020, from https://www.historylink.org/File/20978

Sibolboro, R. (2018, October 09). Project: Under Gardiner. Retrieved September 7, 2020, from http://opencityprojects.com/project-under-gardiner/

U.S. Census Bureau QuickFacts: Atlanta city, Georgia. (2020). Retrieved October 24, 2020, from https://www.census.gov/quickfacts/fact/table/atlantacitygeorgia/PST120219

Walsh, N. (2019, January 31). Sasaki Transform the Yangtze Waterfront with Flood-Friendly Masterplan. Retrieved September 7, 2020, from https://www.archdaily.com/910565/sasaki-transform-the-yangtze-waterfront-with-flood-friendly-masterplan

Yu Media Group (n.d.). Atlanta, GA - Detailed climate information and monthly weather forecast. Retrieved October 24, 2020, from https://www.weather-us.com/en/georgia-usa/atlanta-climate

PREVIOUS STUDIO EXPERIENCE

PREVIOUS STUDIO EXPERIENCE

2ND YEAR

FALL 2017	Tea House Commercial Darryl Booker
SPRING 2018	Tiny House Town of Cripple Creek, CO Residential / Town Planning Cindy Urness

3RD YEAR

FALL 2018	Oscar Zero Visitor Center Visitor Center Regin Schwaen
	Viewpoint of the Fjords Visitor Center Regin Schwaen
SPRING 2019	Rehab Facility Healthcare Niloufar Alenjery
	Museum of Native American Art Commercial Niloufar Alenjery

4TH YEAR

FALL 2019	Miami High Rise Mixed-Use High Rise Mark Barnhouse
SPRING 2020	City Block Redevelopment Mixed Use Urban Design Paul Gleye

5TH YEAR

Fall 2020	Historic Spa and Bath House Commercial Ronald Ramsay

"Through this program, I have created many lasting memories with friends and professors. Thank you to all who have helped me along the way, and I will cherish these past years for the rest of my life!"

[redacted]

[redacted]

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site.com/ alixandrahermanson

[redacted]