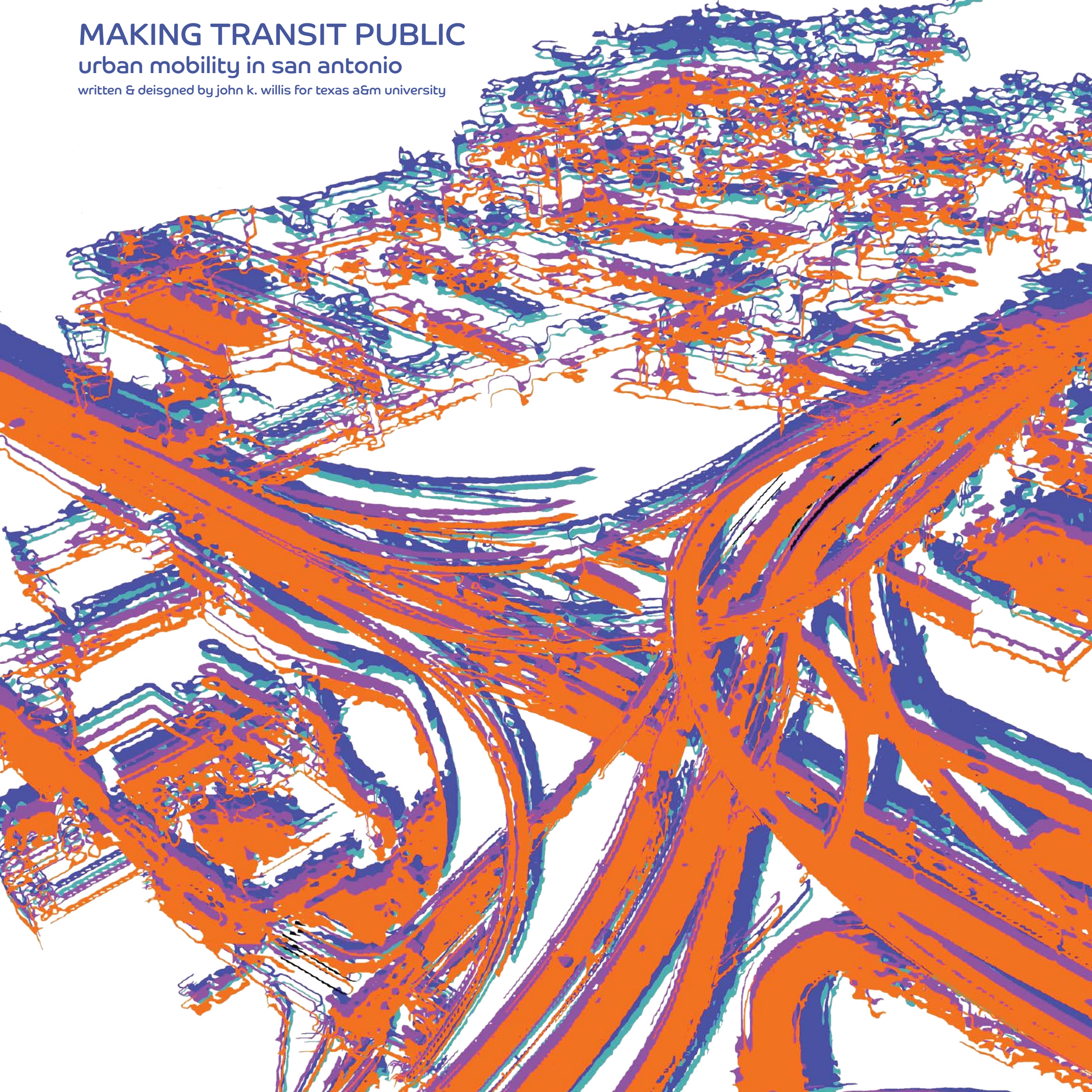


MAKING TRANSIT PUBLIC

urban mobility in san antonio

written & deisgned by john k. willis for texas a&m university



a thesis project for

texas a&m university
college of architecture

MAKING TRANSIT PUBLIC

urban mobility in san antonio

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MAKING TRANSIT PUBLIC

Was published upon completion of the Texas A&M University Master of Architecture program to chronical the development of the thesis project required for degree consideration. Project completed for the ARCH 607 & 608 courses in the 2021-2022 academic year and submitted for graduation in May 2022.

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Handwritten signature of John K. Willis in black ink, consisting of a large, stylized 'J' and 'W'.

For my family and friends,
without whom I would not have been in a position to succeed

My instructors and advisors,
who pushed me to develop my thinking and world view

And my classmates,
who helped me to develop my designs and stay creative

In memory of John Lee Willis

CONTENTS

06 | PREFACE

Framing of the project's theoretical framework and an introduction to the readings and sources that informed its initial conceptualization.

08 | PART I - RESEARCH & MAPPING ANALYSIS

Presentation of the information that was collected and analyzed in order to select the specific project typology and location, as well as a look at the initial design concepts.

24 | PART II - PRECEDENT ANALYSIS

A brief analysis of the buildings, designs, and planning projects that had significant influence on the final design.

46 | PART III - DESIGN RESPONSE

In depth presentation of the design that resulted from the prior theoretical framework, research, and precedent analysis, and a positioning of the design within its social context.

66 | PART IV - REFLECTIONS

An overview of the ways that this design process helped to develop my view of design and its consequences, and a prospective view of how this project could be further developed.

68 | ENDNOTES

Collected notations for referenced sources and further explanations of concepts that are not specifically defined in the text.

PREFACE

Conceptualization

The initial impetus for this project was to use an architectural setting to explore the concept of mobility. It positions mobility not only in terms of efficiency and economic structures however, but also in terms of how accessible it is to people and how impactful it is on the communities that it is nested within. It attempts to view mobility not in terms of moving the largest number of possible people and doing so in a way that is segregated from its context, but also in terms of who can access the transit infrastructure that we build, and how it directly relates to the people that will be interacting with in on a daily basis. Through contextual insight, the programming of the project, and the physical design of the sight, it looks to enhance the spatial quality of the surrounding community, and serve needs beyond transit and commerce, hoping to alter the view of the transit station from a way point for people outside of the community, to a destination serving the residents within it.

Theoretical Framework

In order to create a framework through which the project could be conceptualized, several texts were referenced that provided background on how we have historically thought about transit, which were paired with texts concerning alternative futures for transit planning. Most important among the texts that helped to frame and understand the history of transportation were *Urban Mass Transportation Planning*, by Alan Black, and *Mass Motorization + Mass Transit: An American History and Policy Analysis*, by David W. Jones. These texts in particular provided significant insight into how policy developed the current transportation landscape and the material history of transportation planning, specifically focusing on historic land use policies, the effects of the Great Depression, post World War II expansion of the suburbs and highway networks, and the eventual privatization of the transportation industry during the neoliberal reformation of the 1980s and 1990s. In addition to this material history, the texts also attempt to provide a more sociological account of the history of transit, covering the role and importance of mobility within the political economy, the development and reasons for the success of various transportation technologies, the challenges faced by policy makers supporting public transit, and the marketing strategies that influenced the political landscape surrounding transportation.^{0.1}

After gaining an understanding of the historical context of how modern methods of transportation came to be, the focus began to shift towards gaining an understanding of how these material conditions were implemented in reality, and how they relate to localized communities. This increased depth came from texts such as *Mobility Justice: The Politics of Movement in an Age of Extremes*, by Mimi Sheller, *Rights in*

Transit: Public Transportation and the Right to the City in California's East Bay, by Kafui Ablode Attoh, and *Right of Way: Race, Class, and the Silent Epidemic of Pedestrian Deaths in America*, by Angie Schmitt, with each text providing a different scale and perspective on transportation planning within their own contexts.^{0.2}

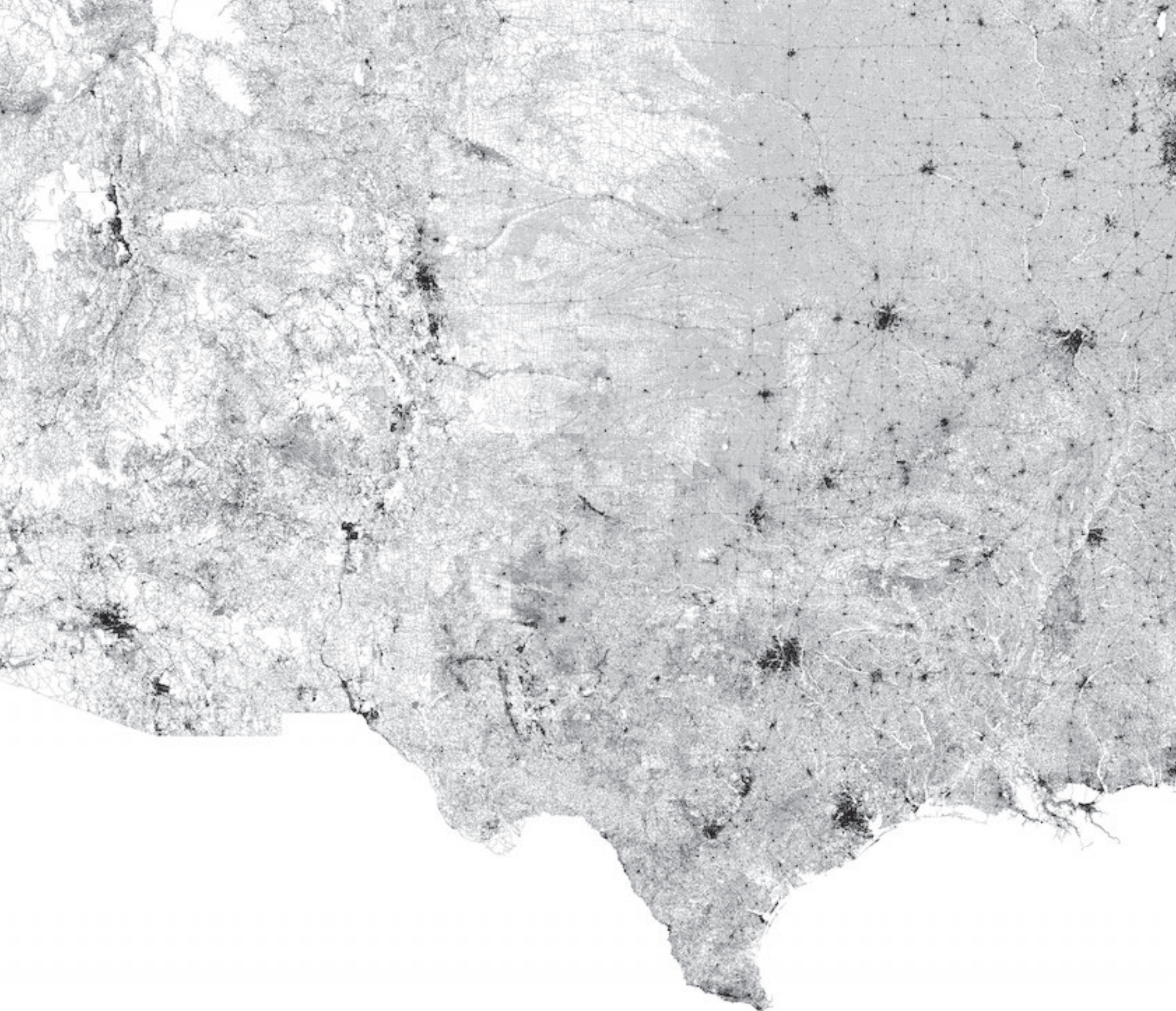
The final step in creating a theoretical framework through which this project could be viewed was to consider and understand the physical implications of the design itself. Reference texts such as *The Color of Law*, by Richard Rothstein, and *The Aesthetics of Equity*, by Craig L. Wilkins, provide insight into the intentional ways that physical design has historically been crafted with the express intent of being exclusionary and repressive.^{0.3} Perspectives on positive community engagement through design came primarily from the texts *Expanding Architecture: Design as Activism*, by Bryan Bell and Katie Wakeford, *The Image of the City*, by Kevin Lynch, and *Soft City: Building Density for Everyday Life*, by David Sim.^{0.4} Finally, the intersections of physical design, public policy, and transportation infrastructure needed to be considered. To help with the consideration and synthesis of all of these aspects, *The New Transit Town: Best Practices in Transit-Oriented Development*, by Hank Dittmar and Gloria Ohland, was instrumental.^{0.5}

Design Approach

As this book will display, these theoretical concepts were then channeled through a research first approach, attempting to allow community needs and material realities inform the site selection, programming, and planning of the project.

Research began at the national scale, attempting to gain an understanding of what types of transit infrastructure and mobility design would be most beneficial, and where it would be most impactful. As the research progressed, the scale began to shrink until a site could be selected. The context surrounding this site was then analyzed in an attempt to understand community need in the immediate area.

All of the knowledge resulting from the research was then combined with precedent study of other design projects. The result of this synthesis is a design that is both international in its scale of considerations, while remaining firmly engrained in the community it inhabits.



> PART I

PART I

Research & Mapping Analysis

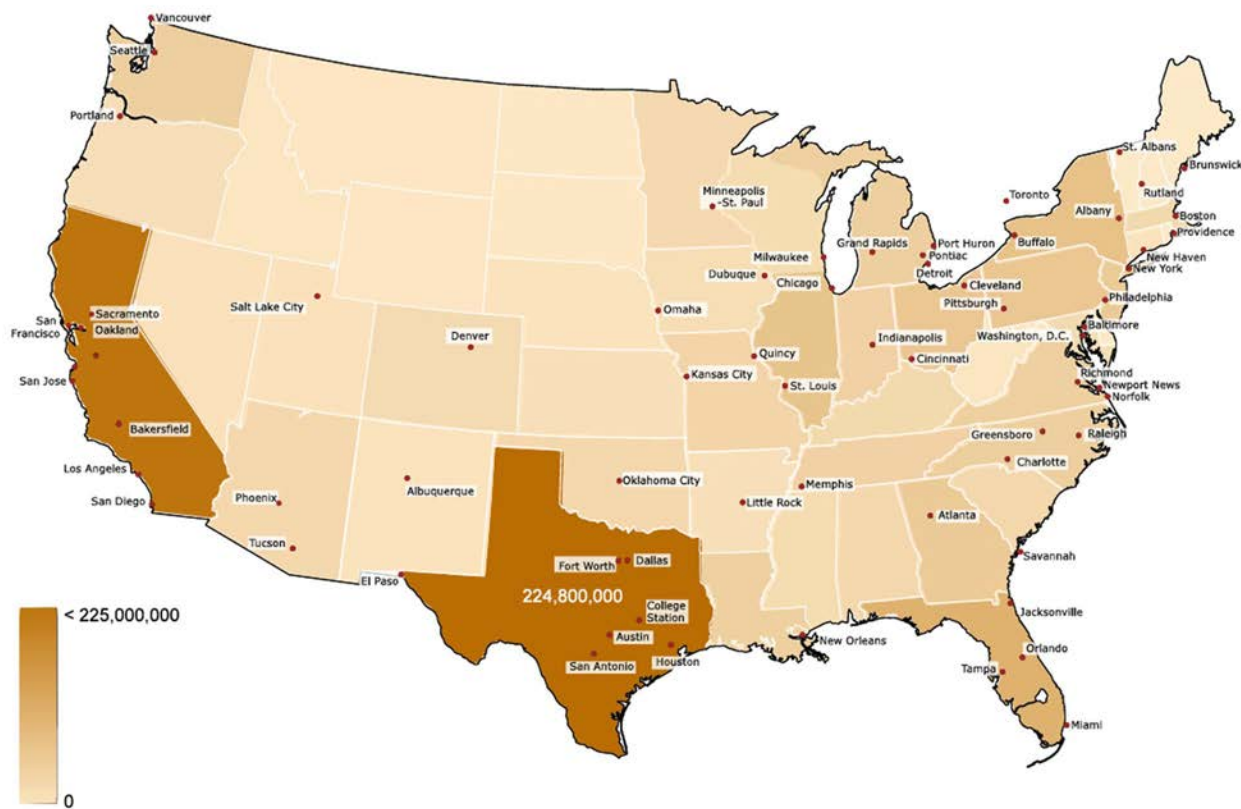
Background & Methodology

In order to establish a design that was rooted in material need at every scale, it was important to begin the project by collecting relevant data at every level of intervention. The first such data metrics that were collected were emissions data from across the entire country. Considering that 27% of national carbon emissions are a direct result of transportation services, which does not include emissions from the manufacturing of transportation infrastructure,^{1,1} it became clear that one of the most direct ways to position this design within a national and global context would be to select a site that could provide a significant reduction in national carbon emissions simply through the existence of more sustainable transportation.

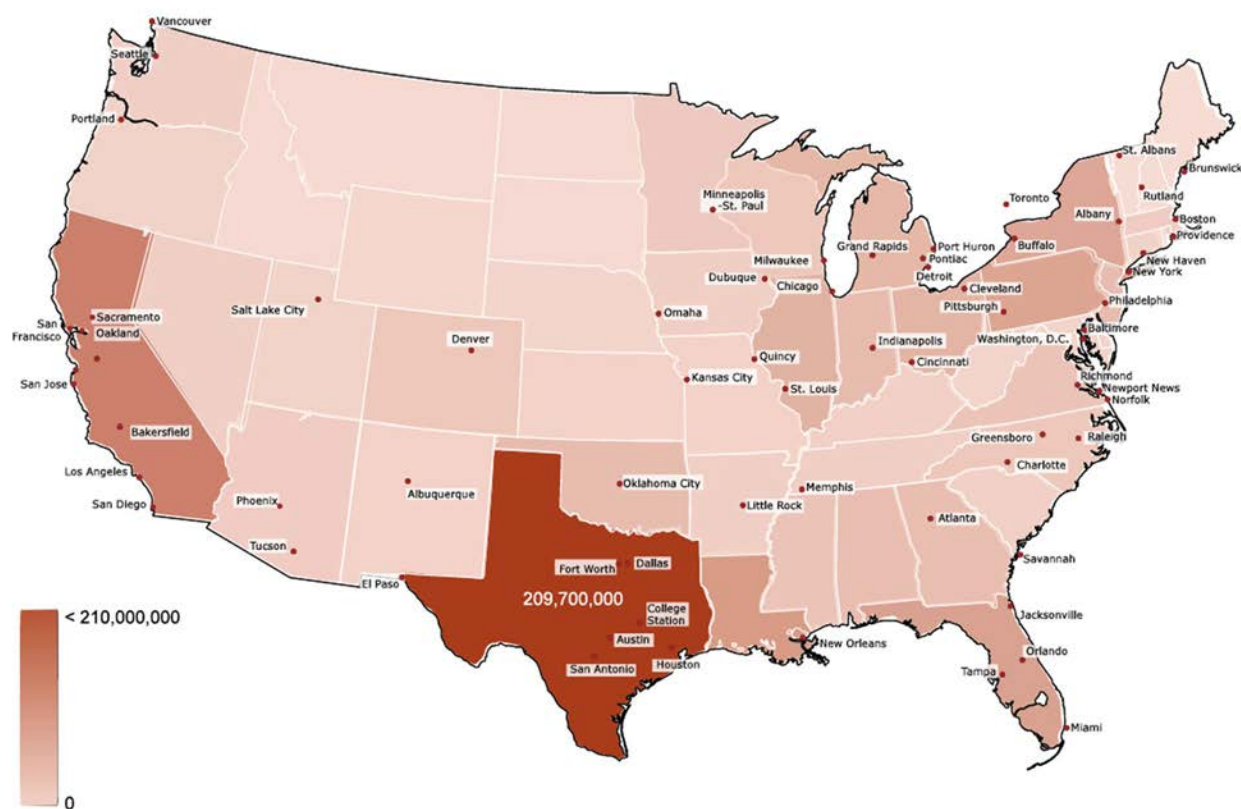
Selecting such a site began with visualizing where emissions in the United States originate from, mapping the carbon emissions by state, and then breaking down the overall data into individual categories in order to understand where the emissions are coming from.^{1,2} Then, data surrounding current transit infrastructure was collected in order to understand what type of infrastructure currently exists and how it might impact the emissions data previously studied. These mapped data sets allowed the state of Texas to be selected as the state that would be targeted specifically due to its unique combination of high population, high emissions, especially from transportation, and existing infrastructure that is readily available for use in sustainable transportation.

Once Texas had been selected as the state for study, a similar process of data mapping was carried out at the state level, attempting to use visualized data to select a city that would be able to strongly impact the emissions within the state and serve the most possible people. Specifically, all of the statewide transit infrastructure was mapped and cross referenced with the density of usage and the county GDP data.^{1,3} The resulting analysis led to the conclusion that Bexar County and the city of San Antonio would serve as the most impactful location for new transit infrastructure in terms of potential density of use and percentage of the state population served.

The final step in the process of site selection and background research was then to index all of the relevant data in Bexar County so that a final site could be selected and the design process could begin. This localized data collection looked at infrastructure mapping similar to what was done at the state level, but also began to break down things such as district demographics, historic exclusion, available community services, and physical form of the city^{1,4} in order to select a site that would help to enrich the available community services and respond to existing resident needs.



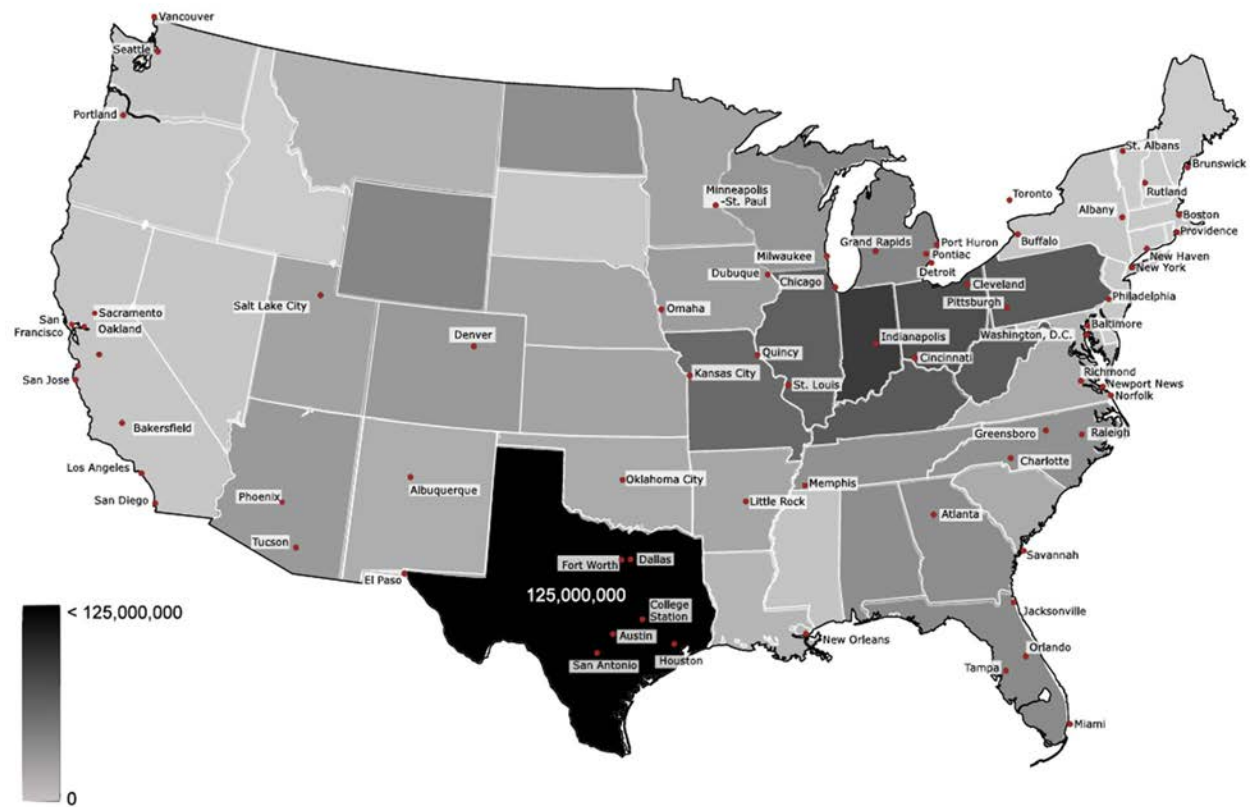
Annual CO2 Emissions from Petroleum (in metric tons)
 Petroleum emissions are calculated based upon the impact of the end use, not the emissions generated in the drilling process. It is the largest source of carbon emissions nationally and accounts for the vast majority of transportation emissions. Texas and California combine to be responsible for nearly half of all national petroleum emissions.



Annual CO2 Emissions from Natural Gas (in metric tons)
 Natural gas emissions are calculated based upon all end uses, whether that be direct consumption uses or electricity generation uses. It is the second largest source of carbon emissions nationally and accounts for a negligible minority of transportation emissions.

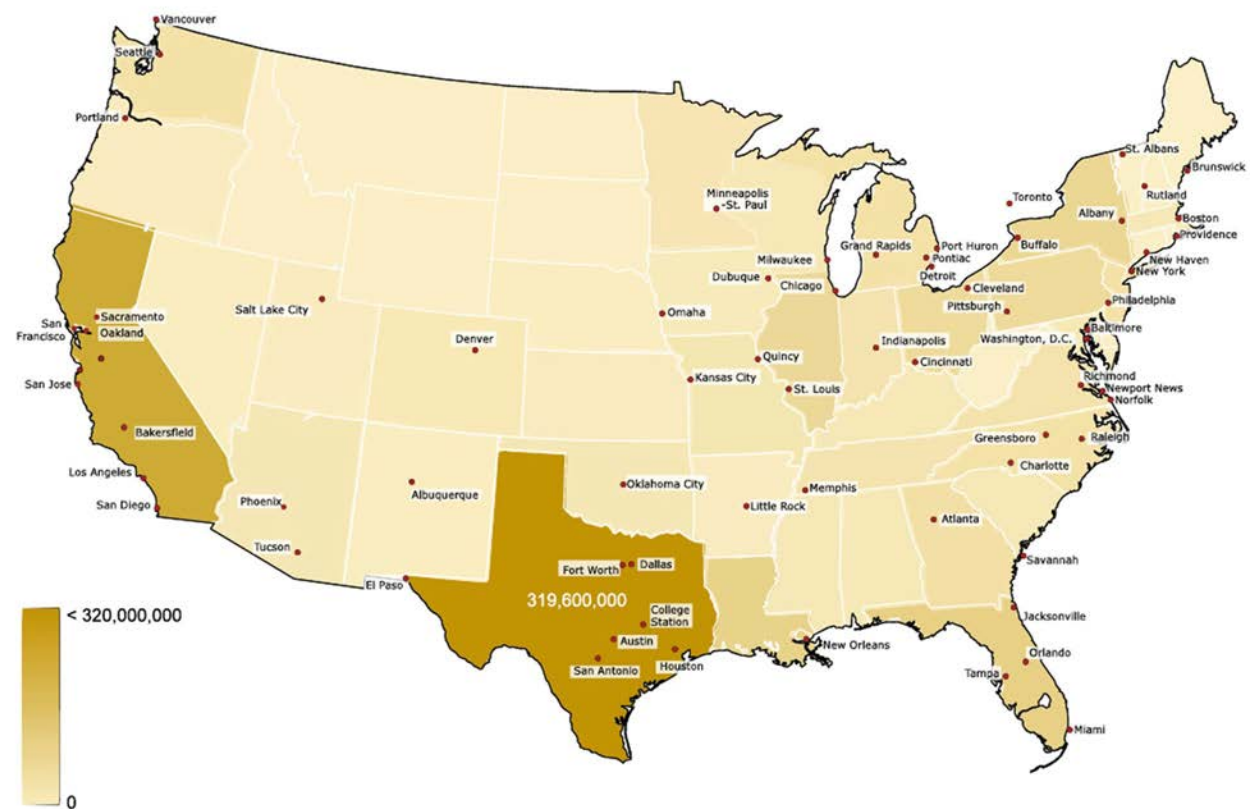
Annual CO2 Emissions from Coal (in metric tons)

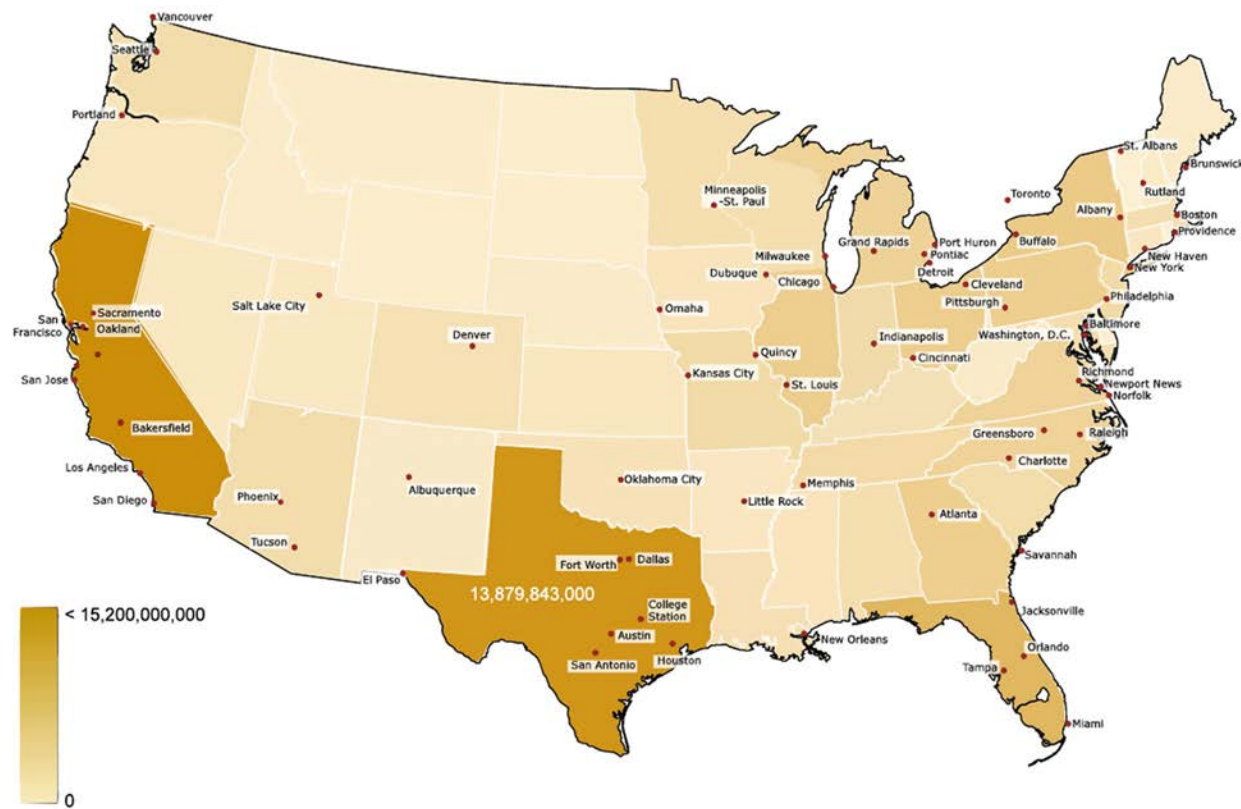
Coal has the smallest impact on transportation by far, accounting for less than 1% of total transportation end use emissions. Over 90% of coal emissions originate from electricity generation, with Texas producing the largest amount of coal energy, doubling the next most consumptive state.



Annual CO2 Emissions from Transportation (in metric tons)

The end result of these three primary sources of carbon emissions is a transportation emissions map in which Texas holds an even greater share of both total emissions and per capita emissions.

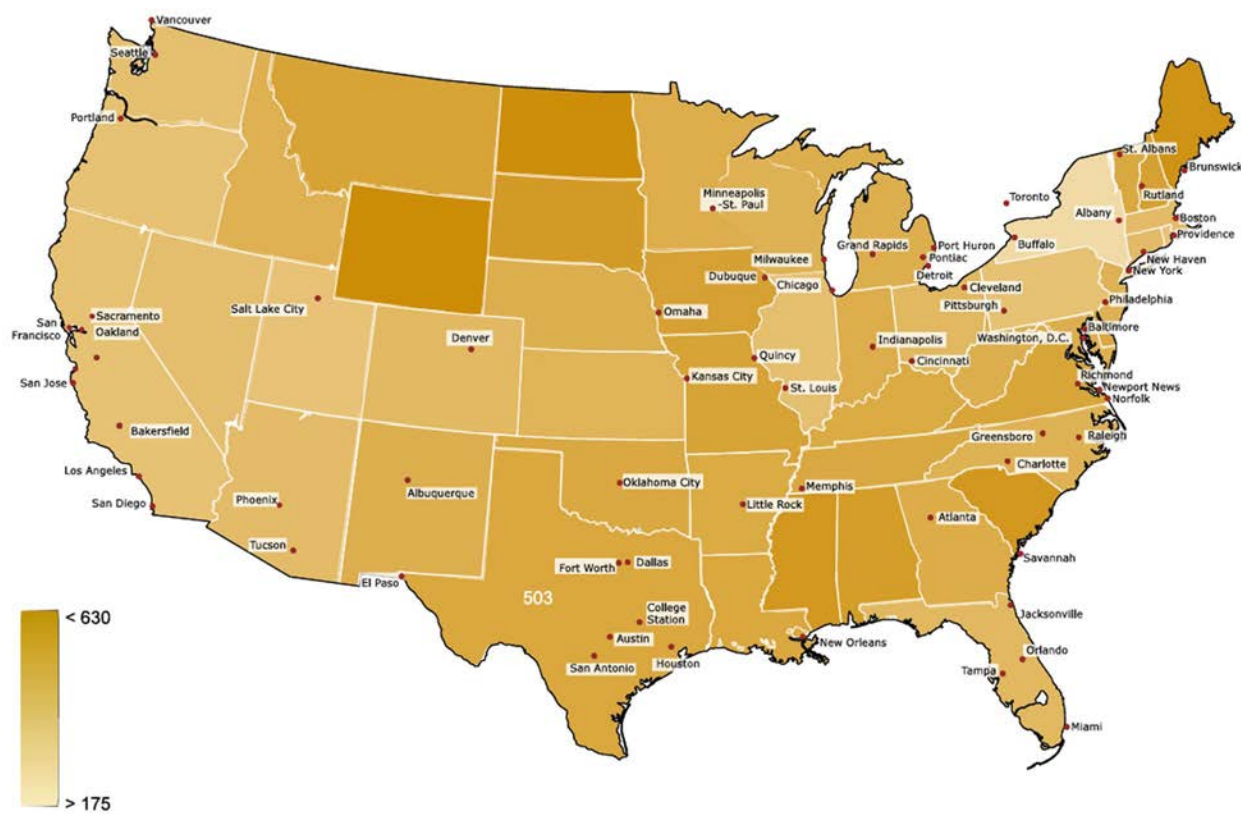




Total Annual Gasoline Usage (in Gallons)

Total Annual Gasoline Consumption (in Gallons)

What enables Texas to be so highly consumptive in the transportation sector is its extremely high consumption of gasoline and dependence on automobiles.



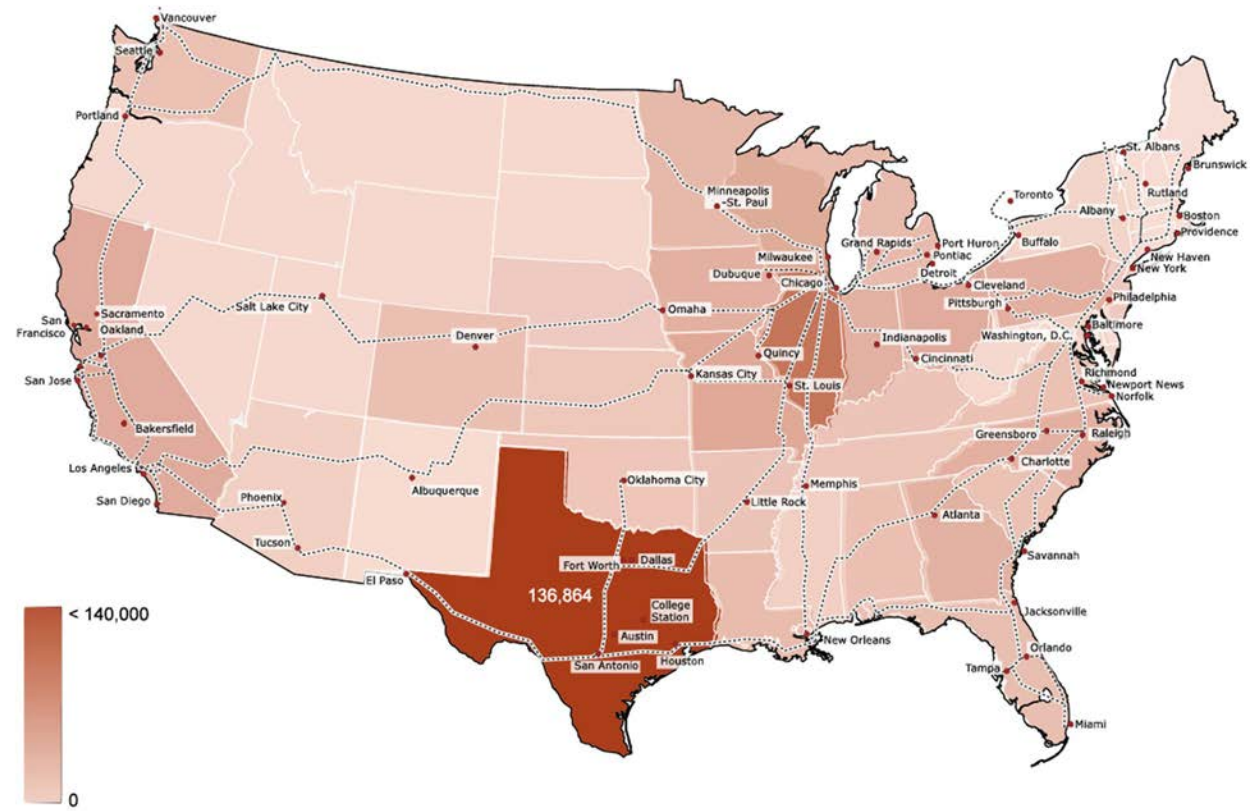
Annual Gasoline Usage per Capita (in gallons)

Annual Gasoline Consumption per Capita (in Gallons)

While there is clearly more parity between Texas and other states, Texas still ranks in the top quarter of per capita gasoline consumption, contrasting greatly with how California's overall and per capita consumption compare to one another.

Annual International Railway Freight Imports (in Tons)

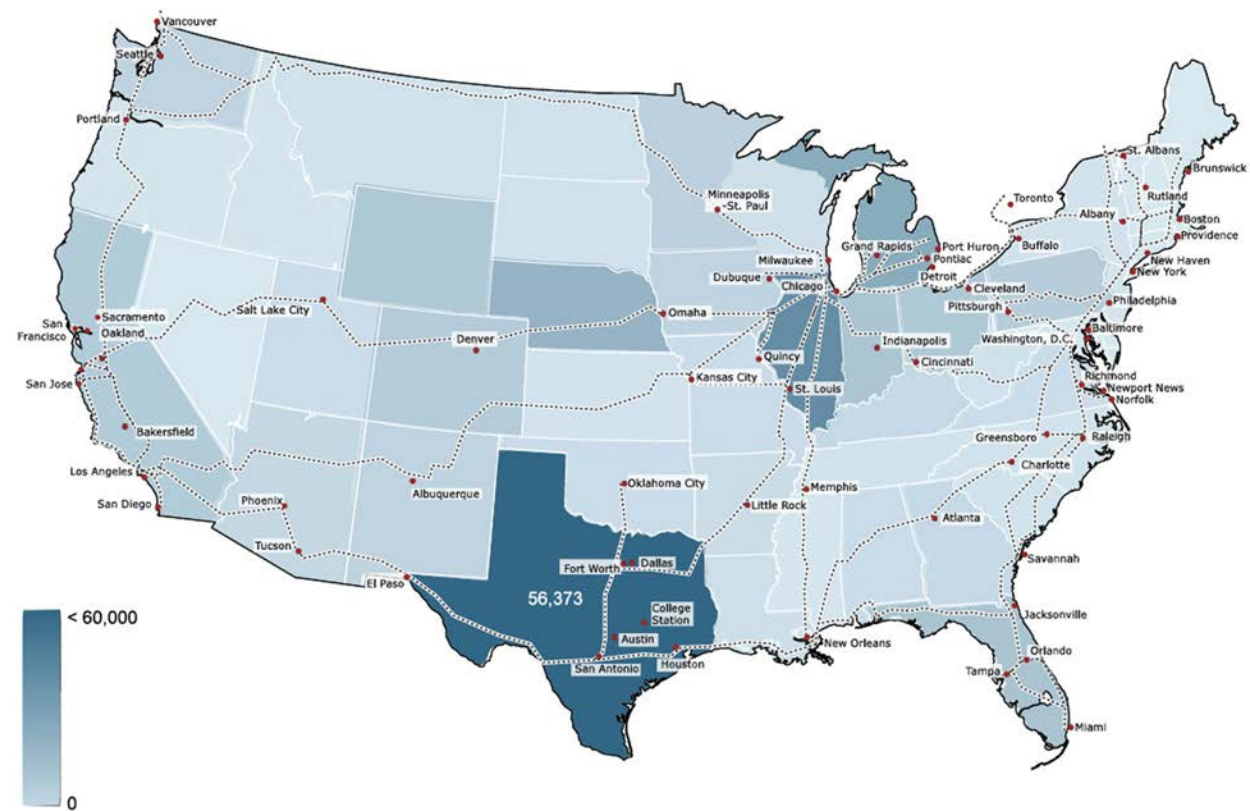
In spite of Texas' high annual emissions, especially in the transportation sector, Texas does seemingly have the capacity to handle more sustainable transportation methods, such as rail.^{1,6} This is evidenced by the extremely high amounts of railway freight that is moved through the state on an annual basis.



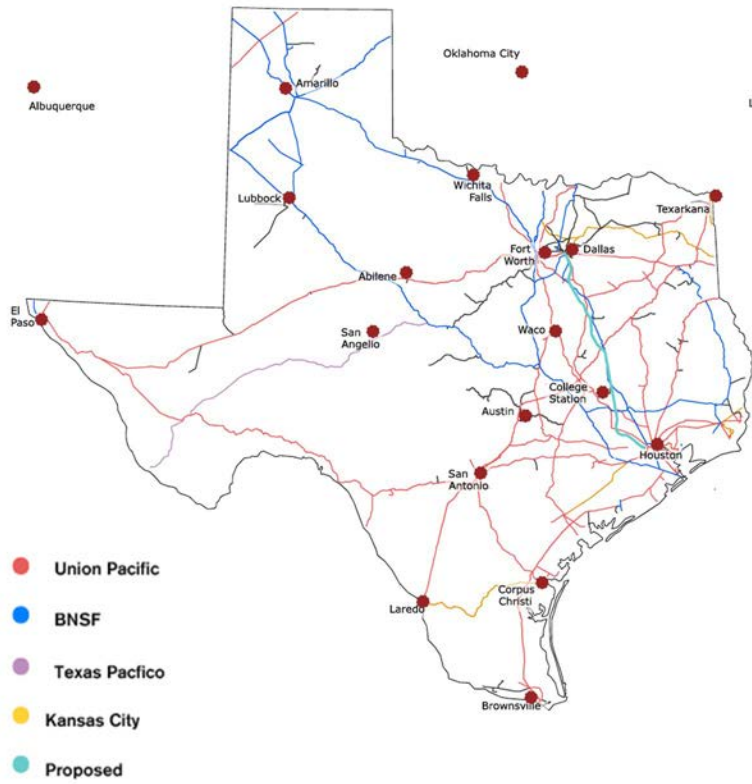
International Railway Freight Imports (in tons)

Annual Domestic Railway Freight Imports (in Tons)

These assumptions surrounding Texas' ability to effectively utilize rail are further supported by its high levels on domestic rail usage, displaying a clear ability to interface and connect with domestic transportation networks across the country.

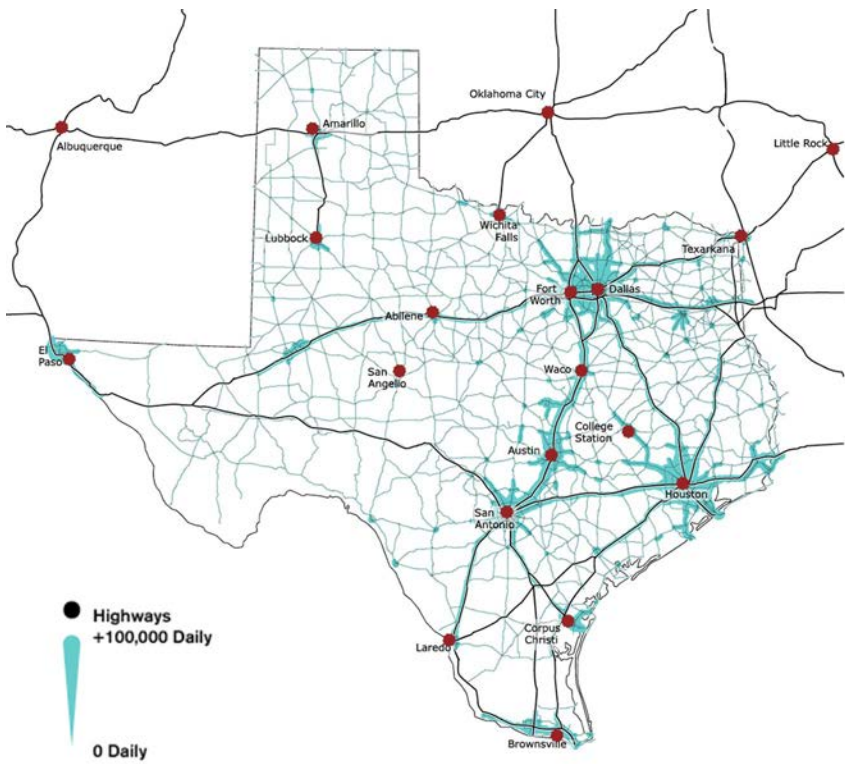
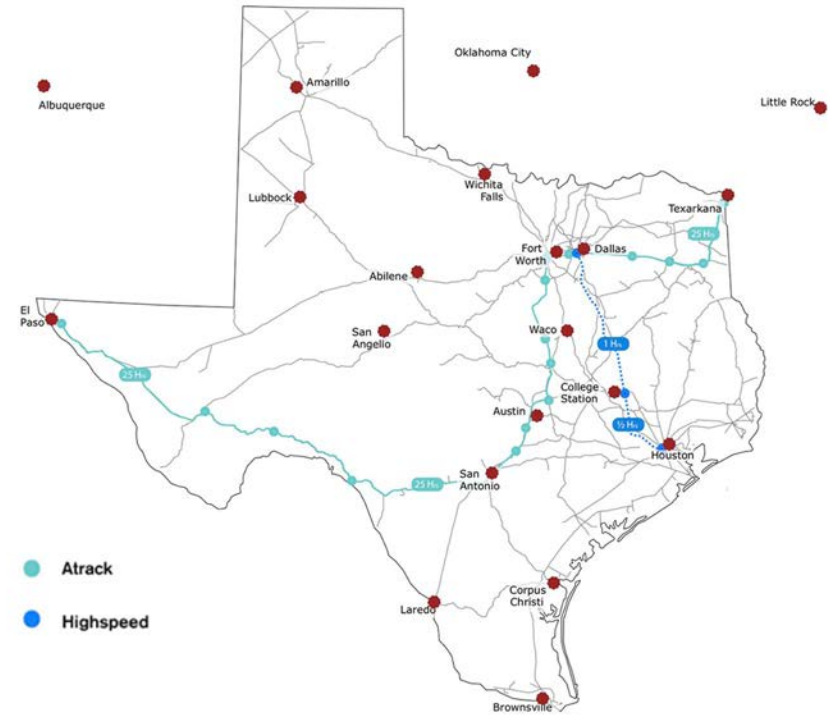


Domestic Railway Freight Imports (in tons)



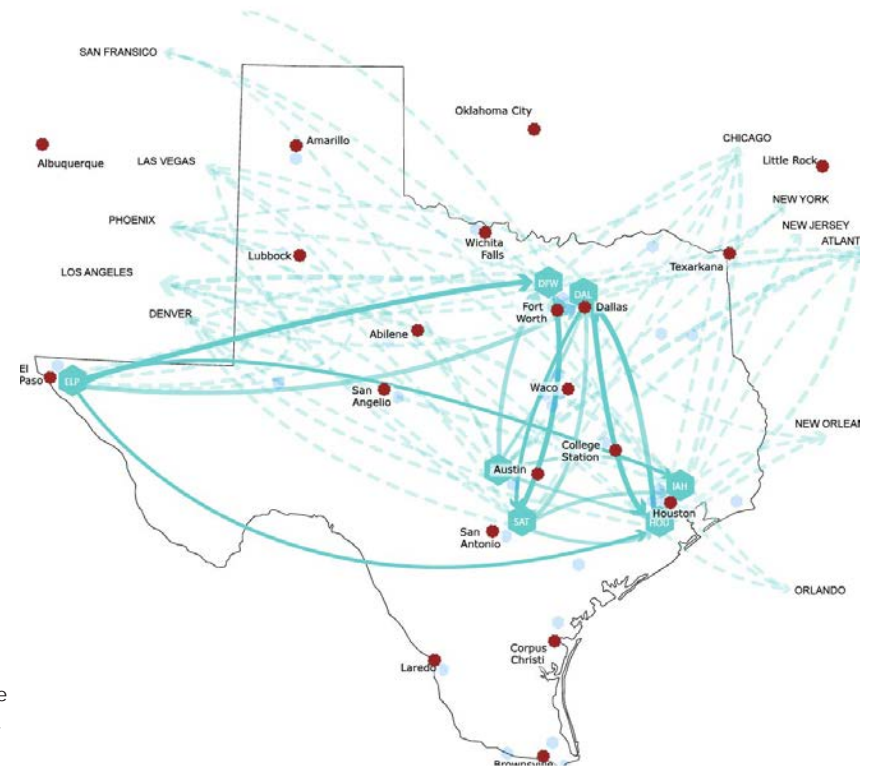
Active Rail Lines in Texas

Supporting the assumption that Texas has the infrastructure to support a more sustainable mode of transportation, the commercial rail network connects every major city across the state (left), however, when highlighting the current pedestrian rail lines (right), it becomes clear that there is a lack of focus on rail lines as transportation.



Transit Routes in Texas










When mapping the daily road use by daily users (left) and air travel routes (right), there appears an obvious triangle between the Austin-San Antonio, Dallas-Fort Worth, and Houston metropolitan areas.^{1,7}

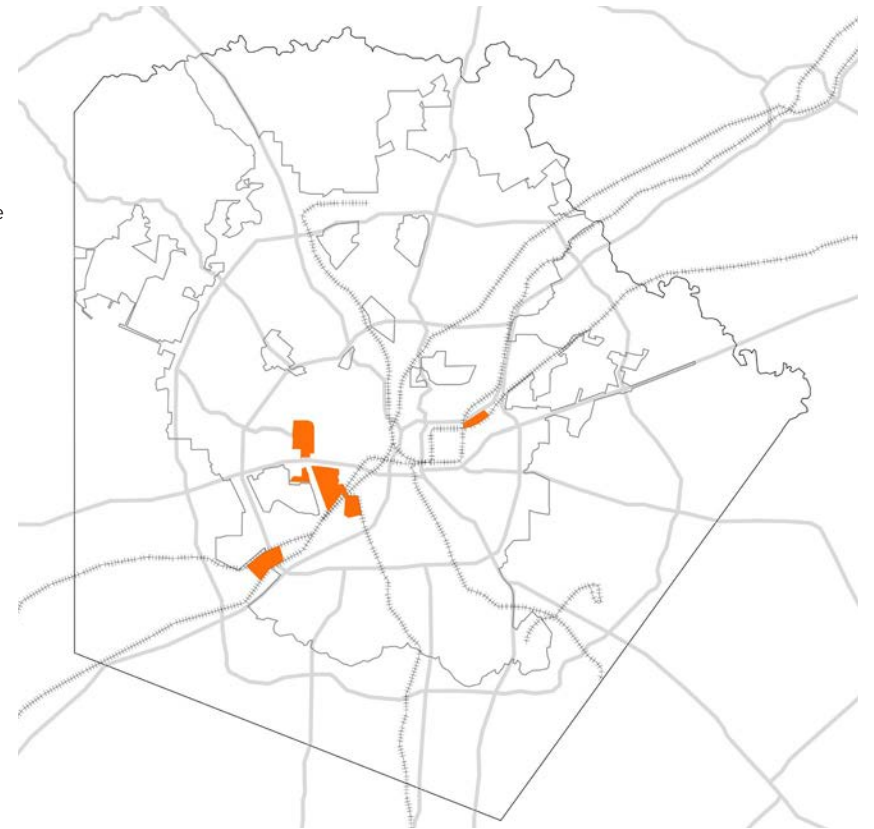
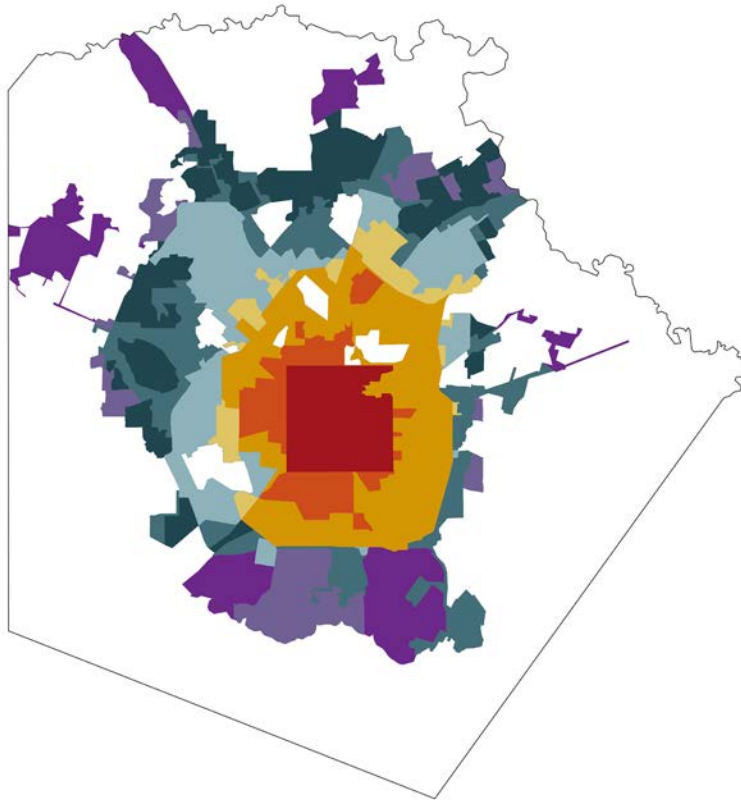


Form of the City

After selecting San Antonio as the city of focus, mapping the city in order to select an appropriate site was the next step. First, the mapping was focused on physical form of the city, looking at the growth of the city over time (left) and the transit infrastructure in the city (right).

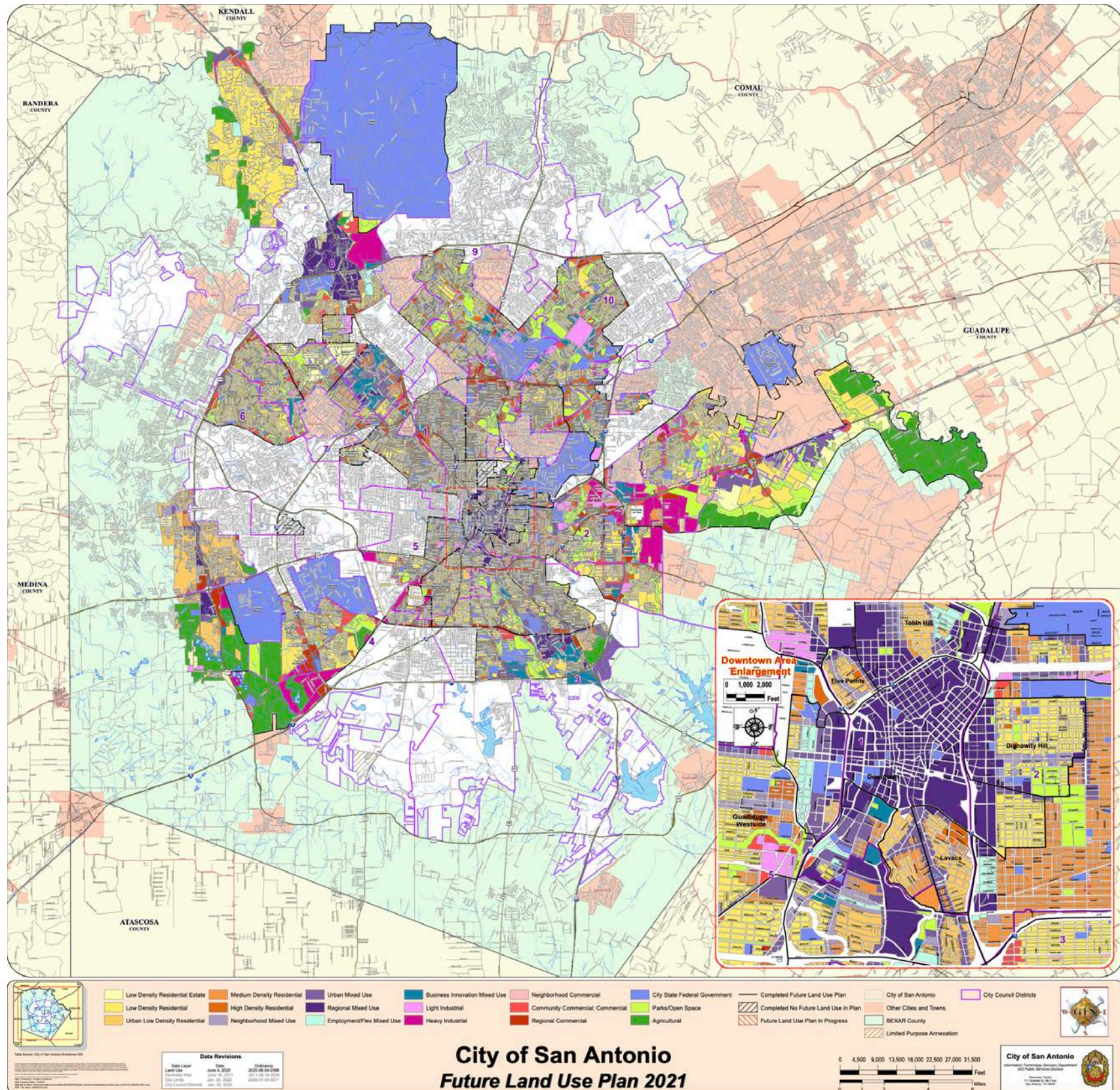
Legend

-  Original City Limits
-  1940
-  1950
-  1960
-  1970
-  1980
-  1990
-  2000
-  Present Day



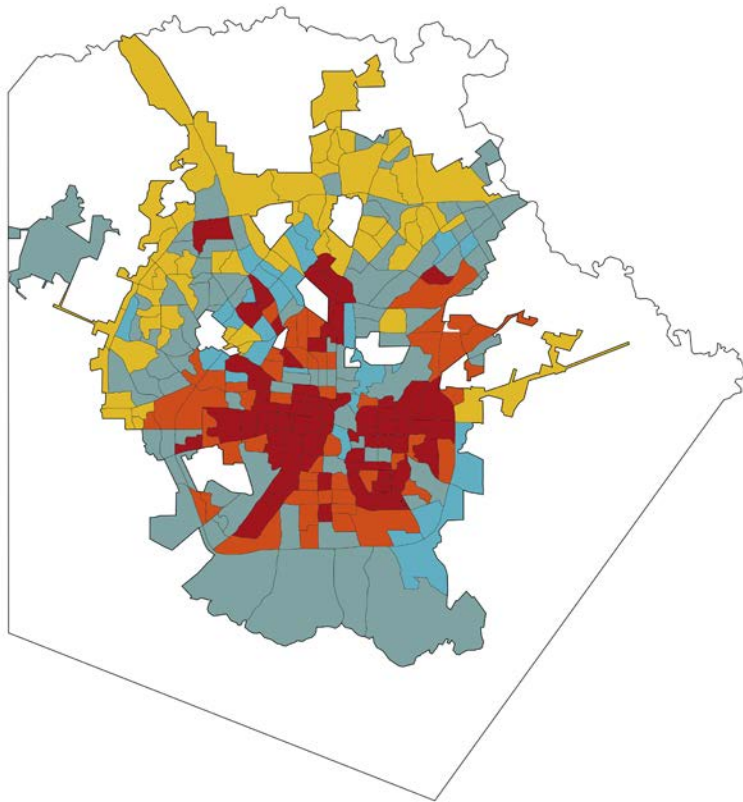
Intracity Transportation

When indexing the form of the city, it was important to understand where the existing transit infrastructure in the city is. Connecting intracity and inner city transit is key in developing a design that is accessible and sustainable, so a site that connects with and understands the city's robust bus network was key.



City Land Use Plan

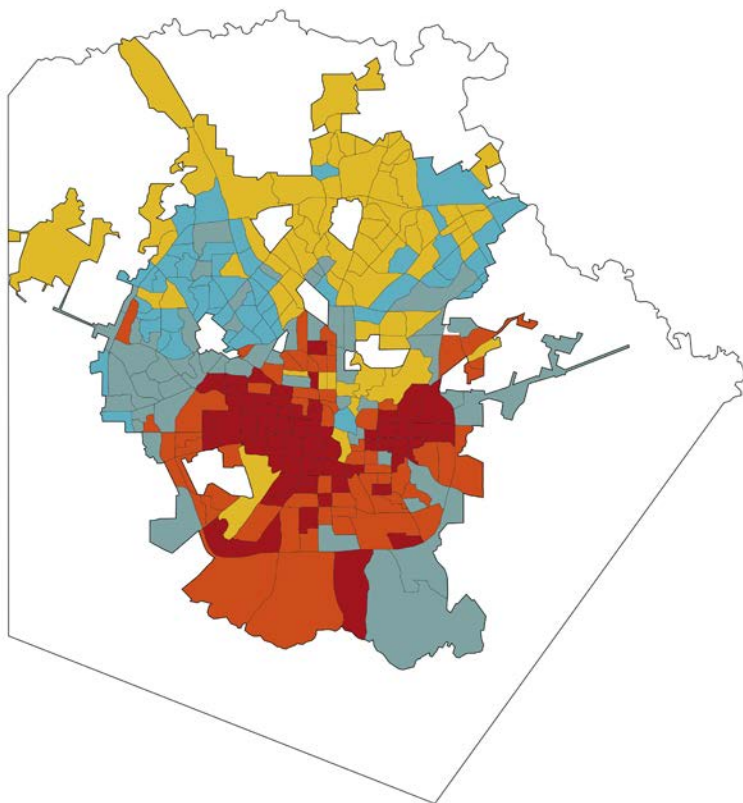
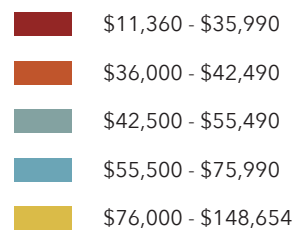
The land use planning was also a key factor in selecting the eventual site, as it would ideally be near a residential area that it has the potential to benefit, while also complying with zoning plans and avoiding destruction of existing communities.



City Income Demographics

Delving further into the political mapping of the city, it was then important to understand the socio-political divides in the city in order to select a site that could attempt to serve the communities that would most greatly benefit from investment. The first demographic that was studied was the income districts in the city, in order to understand which communities might not currently have the resources to economically invest in themselves.^{1,8}

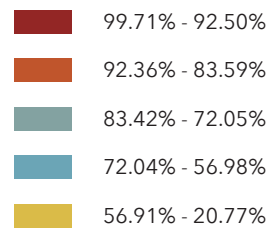
Legend

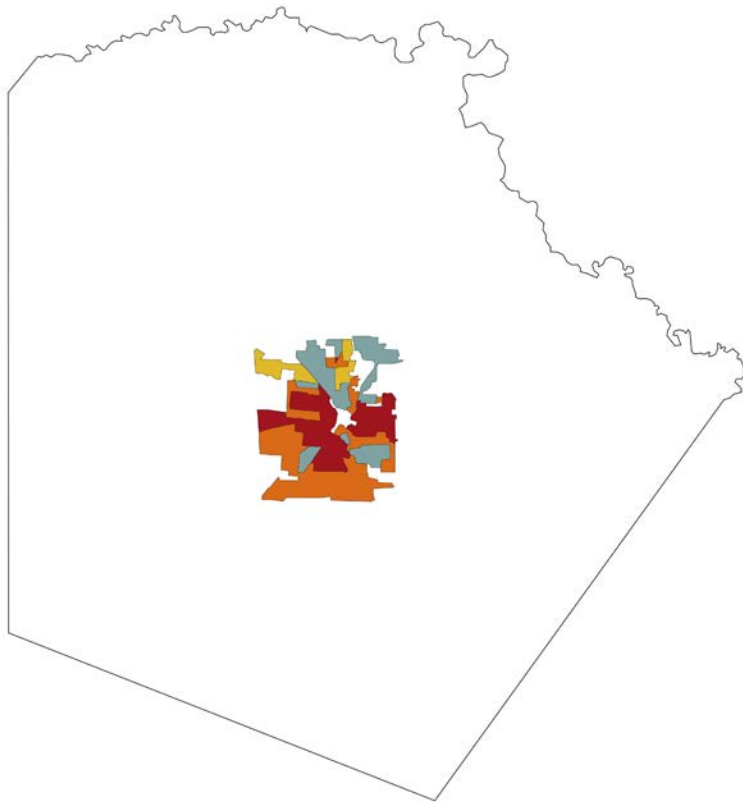


City Racial Demographics

Expanding this view of community investment, a mapping and search was then done surrounding the racial demographics of each city district. While "minority" is a word that exists in a different context in the city of San Antonio due to the fact that the city is majority Hispanic, there is still a clear correlation between the percentage of non-white population and the income distribution in the city districts.

Legend



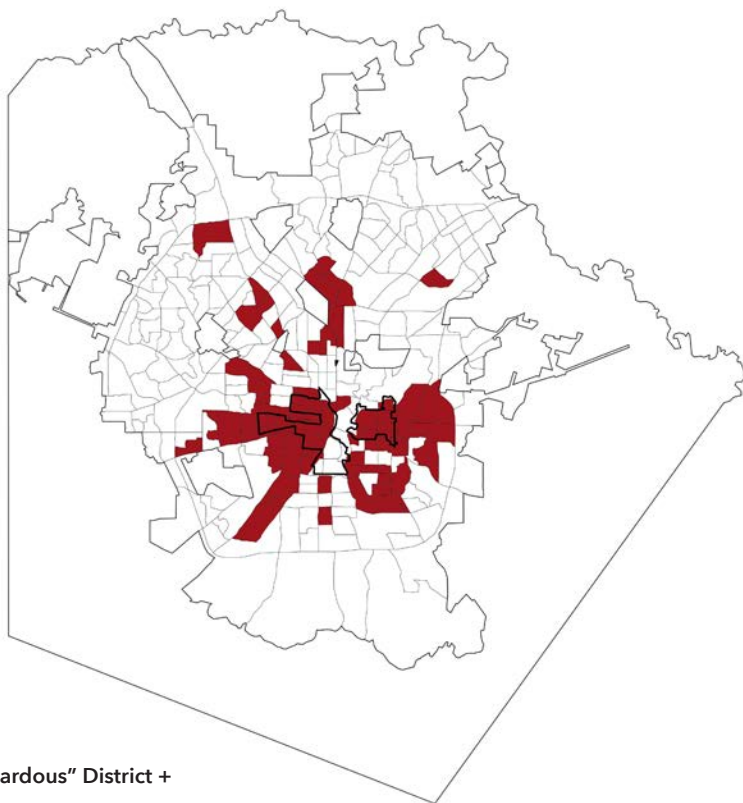


Historic Red lining

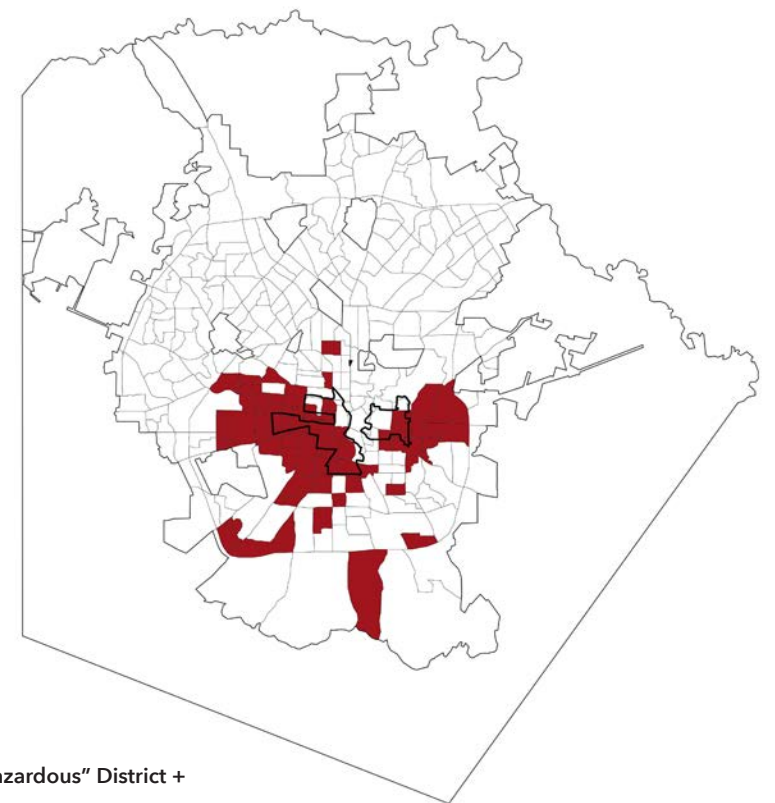
The correlation between racial demographics and economic divisions is only strengthened when viewing the original red lining districts in the city, showing an incredibly strong correlation between the original "hazardous" districts and modern day high poverty-high minority districts. This view is clear enough when viewing the maps separately, but becomes undeniable when actually overlaying the economic, racial, and red lining districts on top of each other, as is displayed below.

Legend

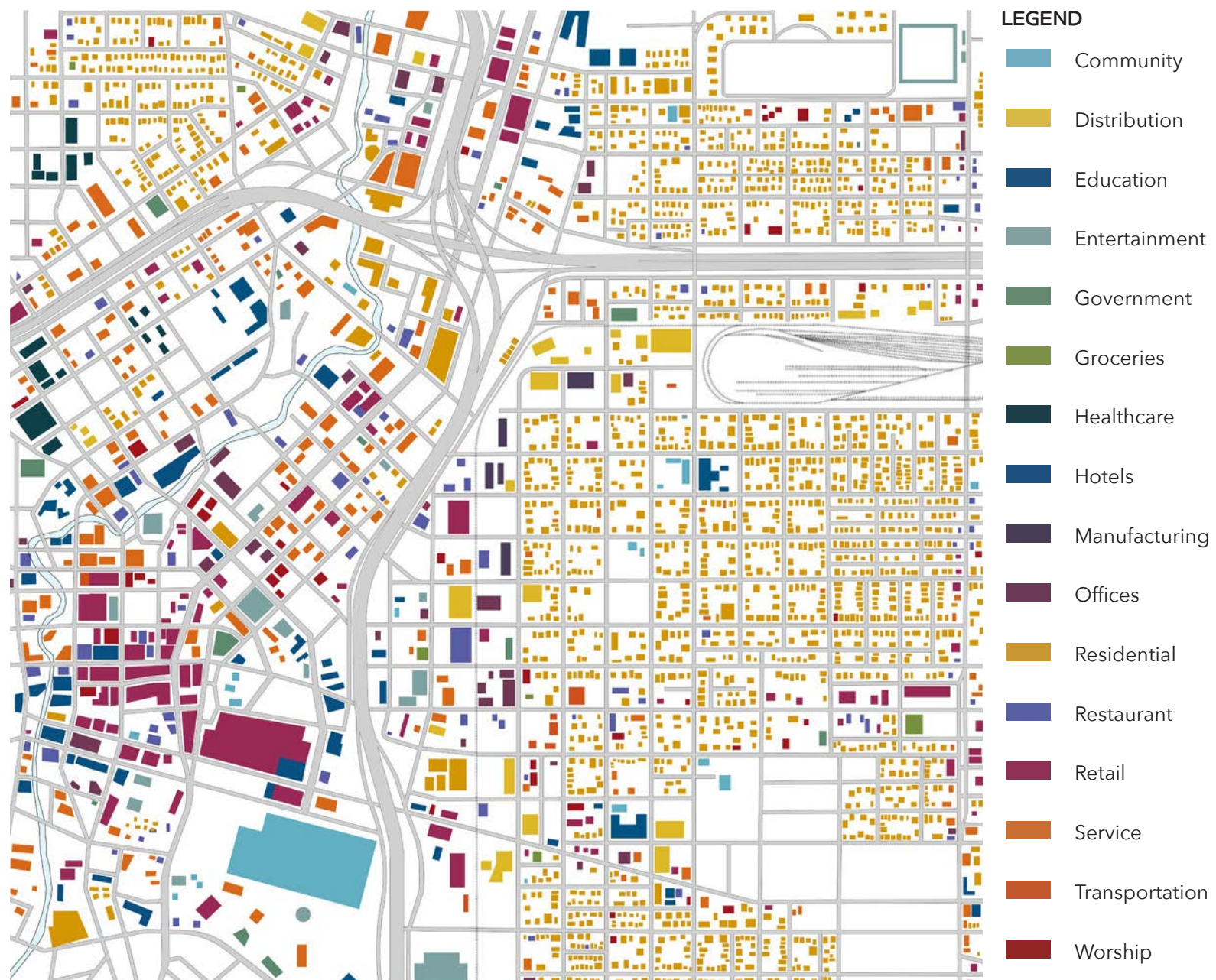
- "Hazardous"
- "Declining"
- "Still Desirable"
- "Best"



"Hazardous" District +
Income Districts



"Hazardous" District +
Demographic Districts



Site Selection

With all of the previous information of where the current transportation infrastructure meets, the historic exclusion and modern challenges of different segments of the population, and how the current local transit system works, a decision was made concerning the area of focus for site selection. The area of focus is a 2 mile square in the downtown area next to the dignowity hill neighborhood, which is highlighted on both the land use and transit system maps. This area of focus was selected based upon the high density of the downtown area, its central location relative to the rest of the city and the bus system, and its location next to a historically excluded area.

Now that this area had been selected as the area of focus, extensive mapping was done to index all of the building use types in the area. This was done to provide context to where the specific site would be located, allowing a site to be selected that fits within this dense urban context, without disturbing the current fabric of the community.

Site Selection

As is highlighted in the selected maps below, there is a clear divide across the interstate highway between the residential area and the commercial downtown district. The only consistent merging of the residential and commercial services that currently exists is in the approximately three blocks between the two zones just east of the highway. It was because of this lack of clear typological division, as well as the clear formal and density division shown in the 3D model of the city below that this zone was selected as the site for the project. (highlighted below)



Residences



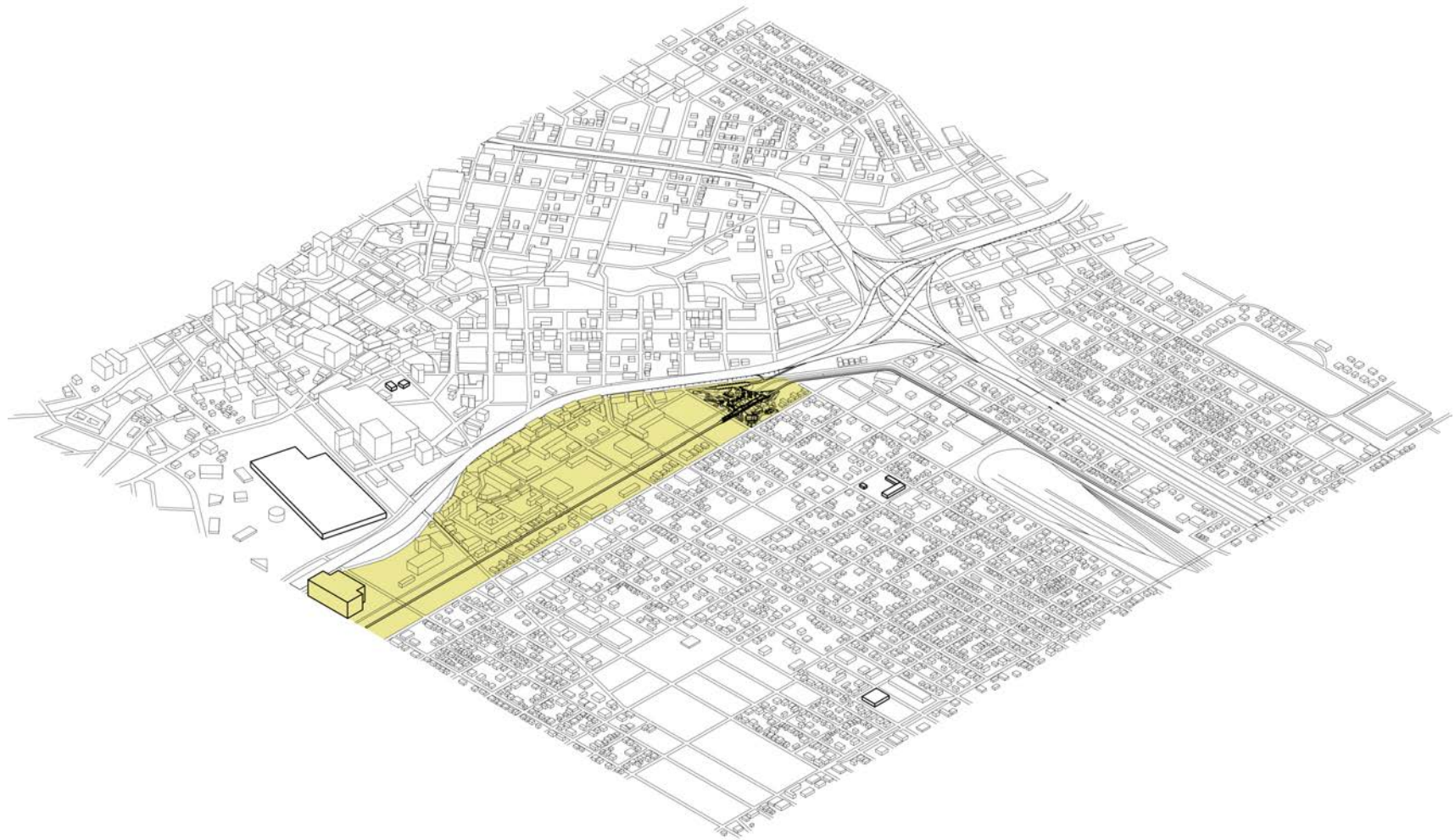
Retail Businesses

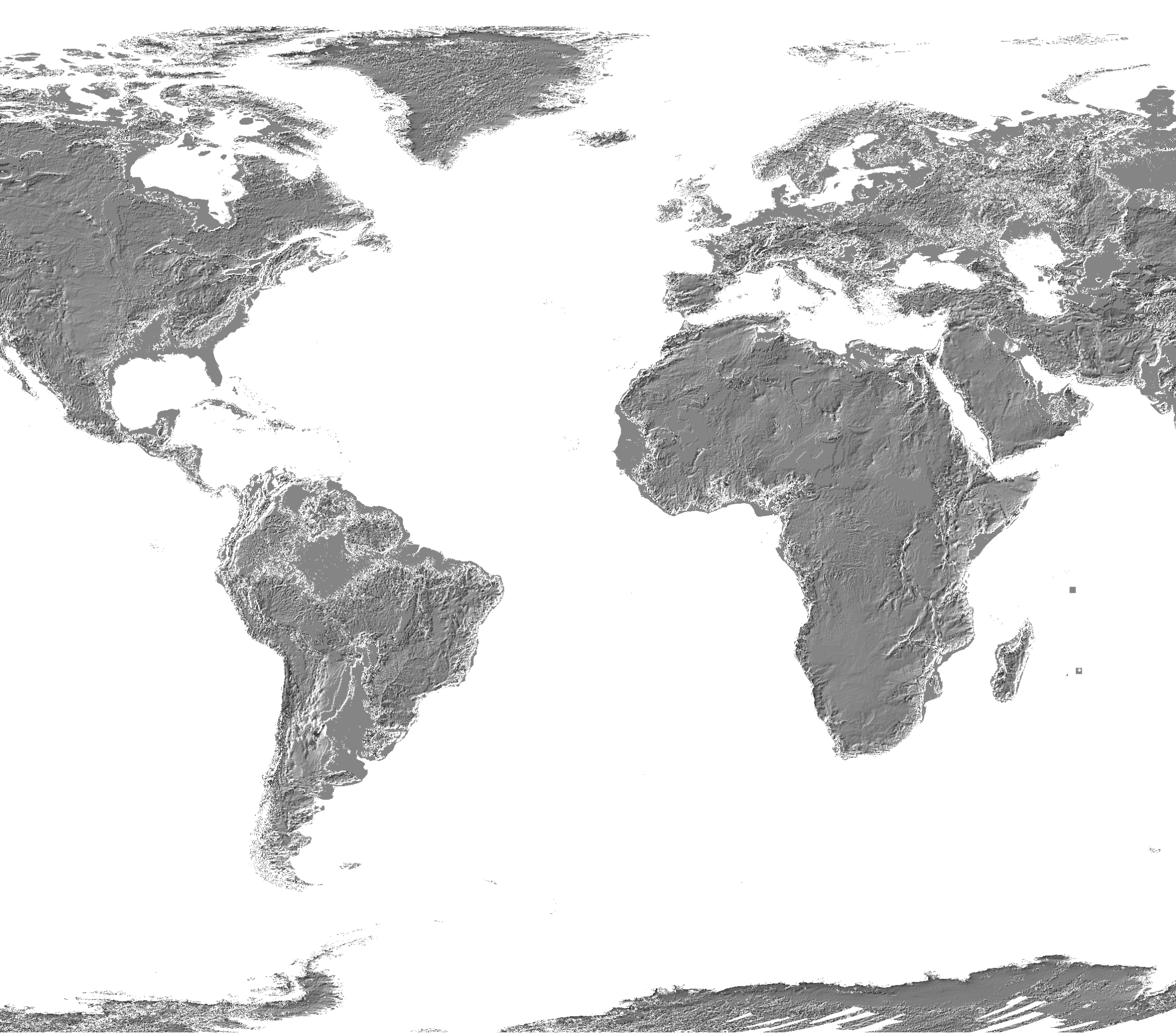


Service Businesses



Healthcare Services





> PART II

Nordic Office of Architecture

Oslo, Norway

Vanke Waterfront City, the Floating Pier

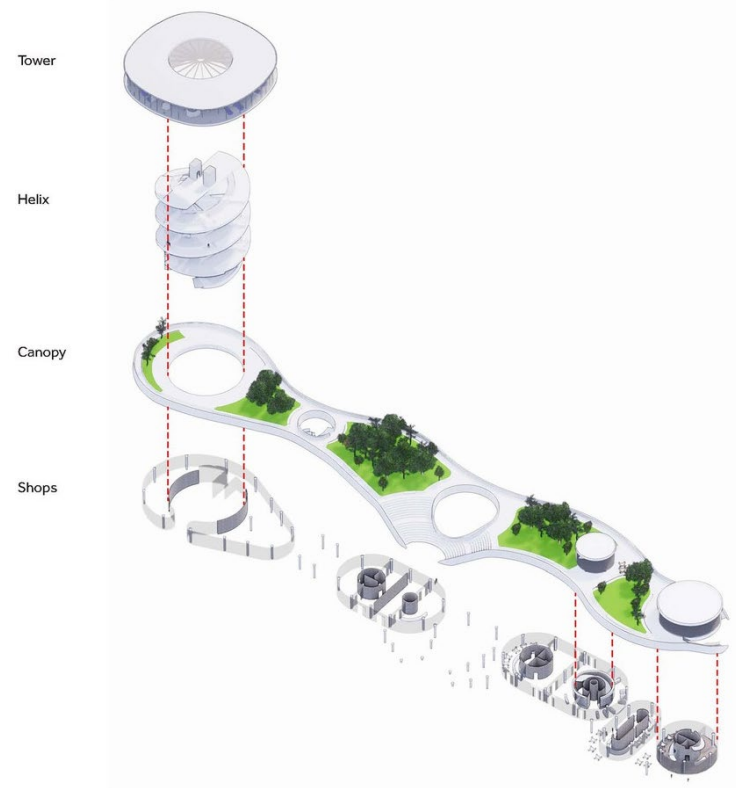
Nanchang, China, 2020

This project was selected in order to study the way that it combines ecology with the physical form of the design and connects the ground plane to the exterior upper levels. It positions itself as an unnatural object that borrows from natural forms to create a clear juxtaposition between the built environment and the natural one without having one dominate the other. It fits both within the urban context that it is surrounded by, and the natural context that make up its immediate site.

Comfort, transparency, and pedestrian experience are key to the design, integrating directly with the normal sidewalk that pedestrians can use to cross the city. The landscape areas formally reference the way that natural patches might form, while remaining strictly designed and tightly regulated.

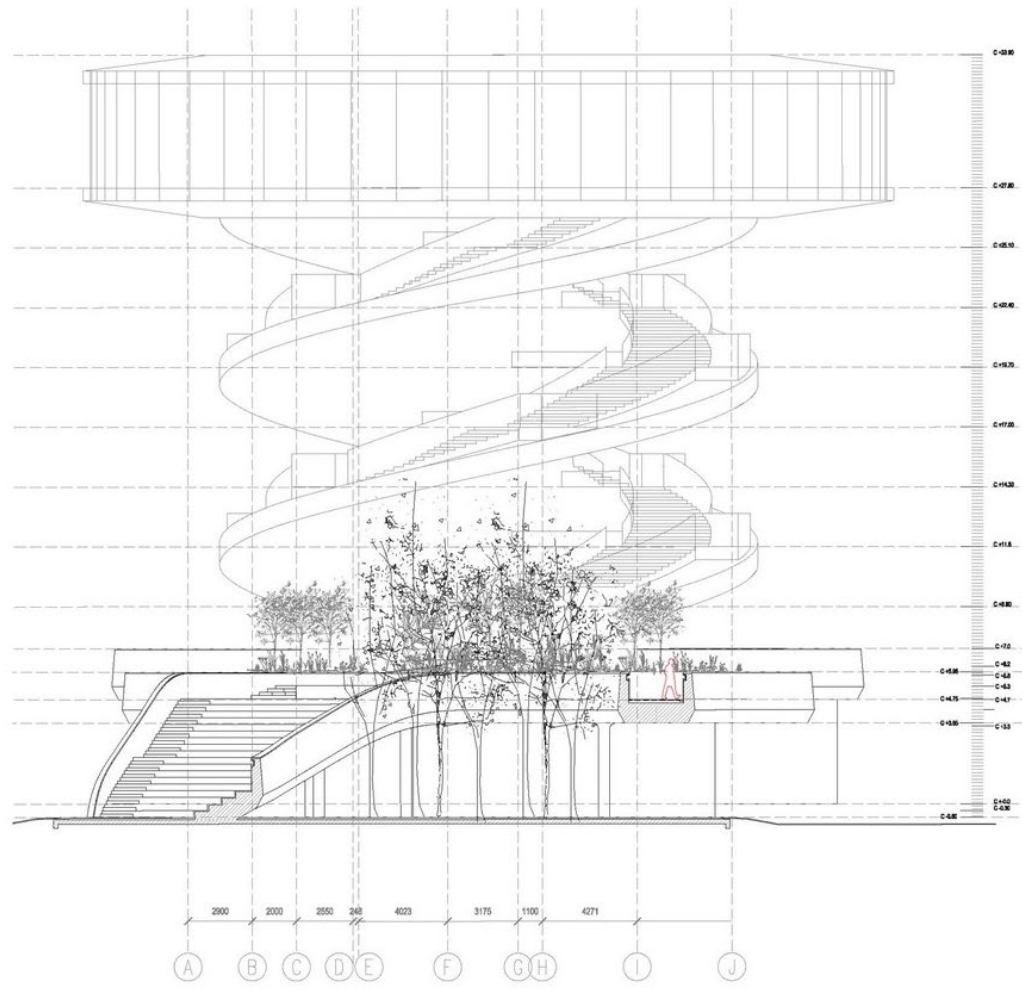
Interior space on the site is dominated by the exterior public space, creating an environment in which it is clear that site and the public are the focus, while providing the necessary interior spaces and program. This focus on the exterior specifically also incentivises the use of the exterior space as a gathering space, limiting the normal boundary of exterior and interior.

From studying this project, I hoped to gain a better understanding of these principles of integrating the site with the design of the building itself and breaking down the barriers of public vs. private.

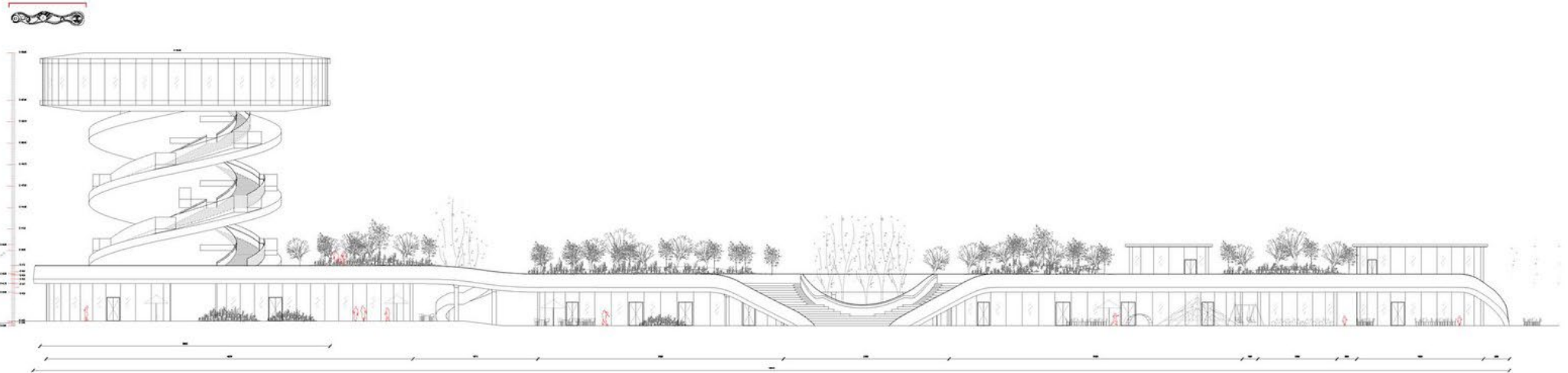








South west elevation



AUBE CONCEPTION And **SWA Group**

Shenzhen, China

Shenzehen Bao'an Waterfront Cultural Park

Shenzhen, China, 2020

This is another project selected for the formal analysis of its integration of site and program, creating a public space and park that incentivises use of exterior site and connection to its context over the specific needs of the interior space.

Going even further than the previous project to provide a focus on the public aspects of the design. This Cultural Park provides more clearly defined exterior program for people to interact with such as the sports park, ferris wheel, and art installations. These programmed spaces integrate fluidly with the natural planting areas of the park, providing a feeling of being surrounded by nature even in the urban context of the design.

The design also seamlessly integrates vertical circulation into the natural design of the park, allowing people to travel across and upward through the space without feeling that their path of travel is being interrupted.









Approach Design

Beijing, China

Yunqi Town Exhibition Center

Hangzhou, China, 2017

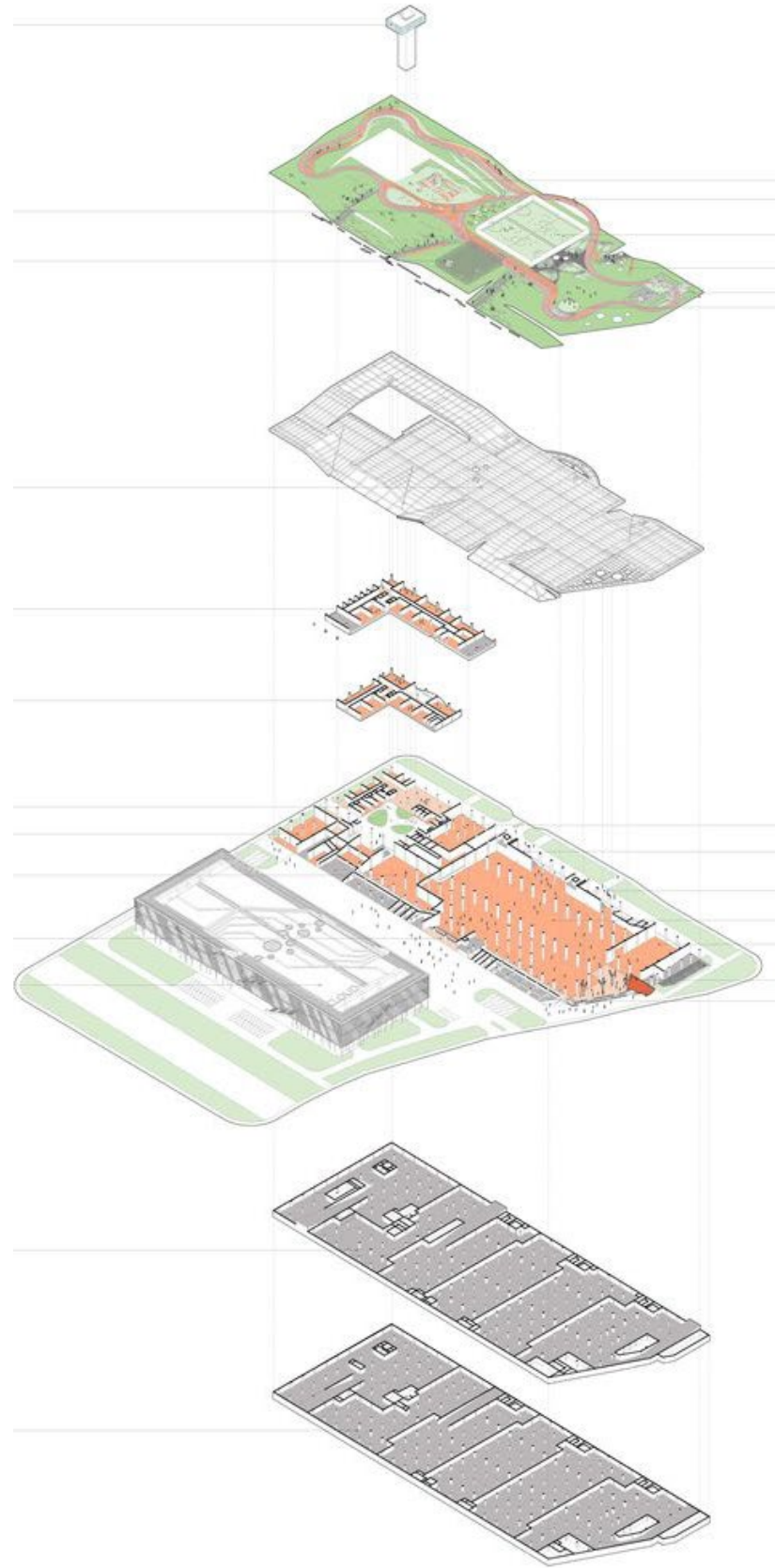
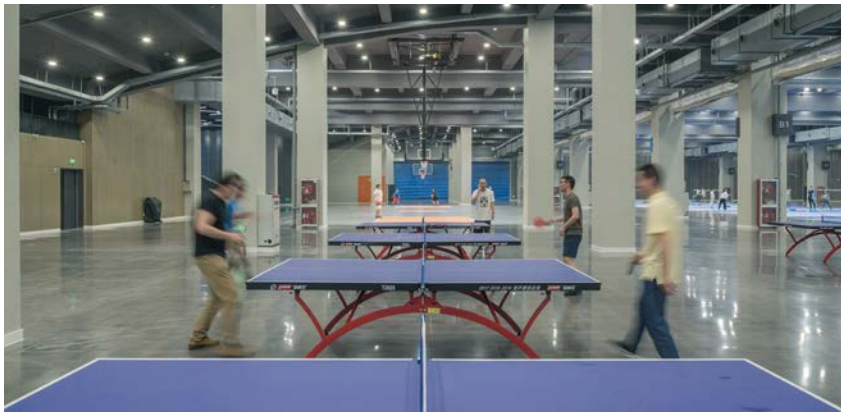
Yunqi Town Exhibition Center is a project that is entirely community based, utilizing every square foot of interior and exterior space to connect with the community and social context surrounding it. Programmatically, this project is designed to serve multiple functions depending on its current need. It is the home to many exhibitions and conferences, as the name suggests, but the interior space is designed to be a gymnasium and fitness center when it is not in use as a conference center. This decision was made based upon a study that showed that most exhibition centers such as this are only used for conferences and exhibitions for about 40% of the year, leaving the large interior space to the community for over half of the year.

Even when less community focused events are being held in the space, the entire roof is dedicated as a 24 hour public park, allowing the community to engage with it regardless of its other functions. The functions contained just within the rooftop park of this building include sporting fields, walking/running paths, a community garden, play areas for children, and a small stage and performance area.









MAD Architects

Los Angeles, California

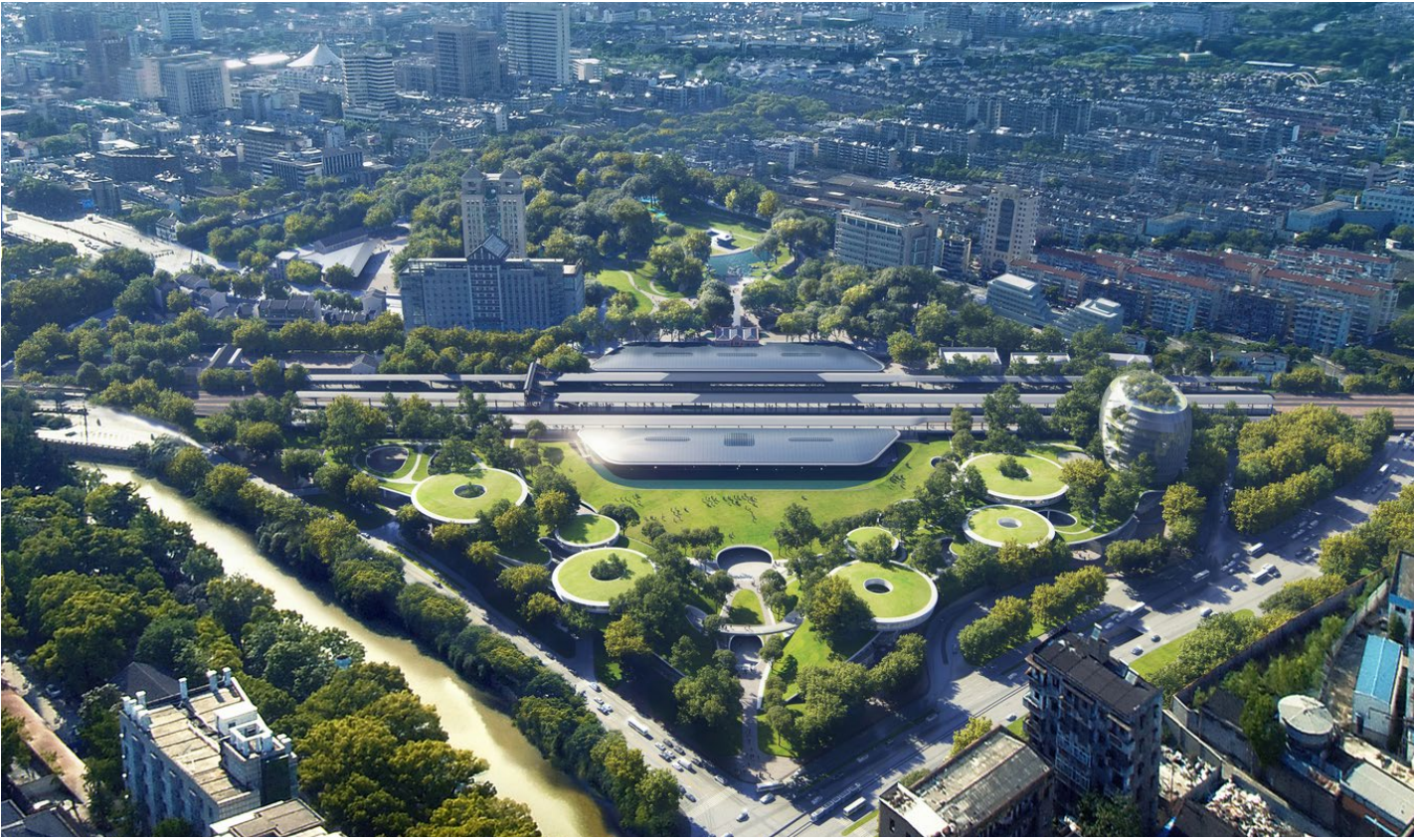
Train Station in the Forest

Jiaxing, China, 2021

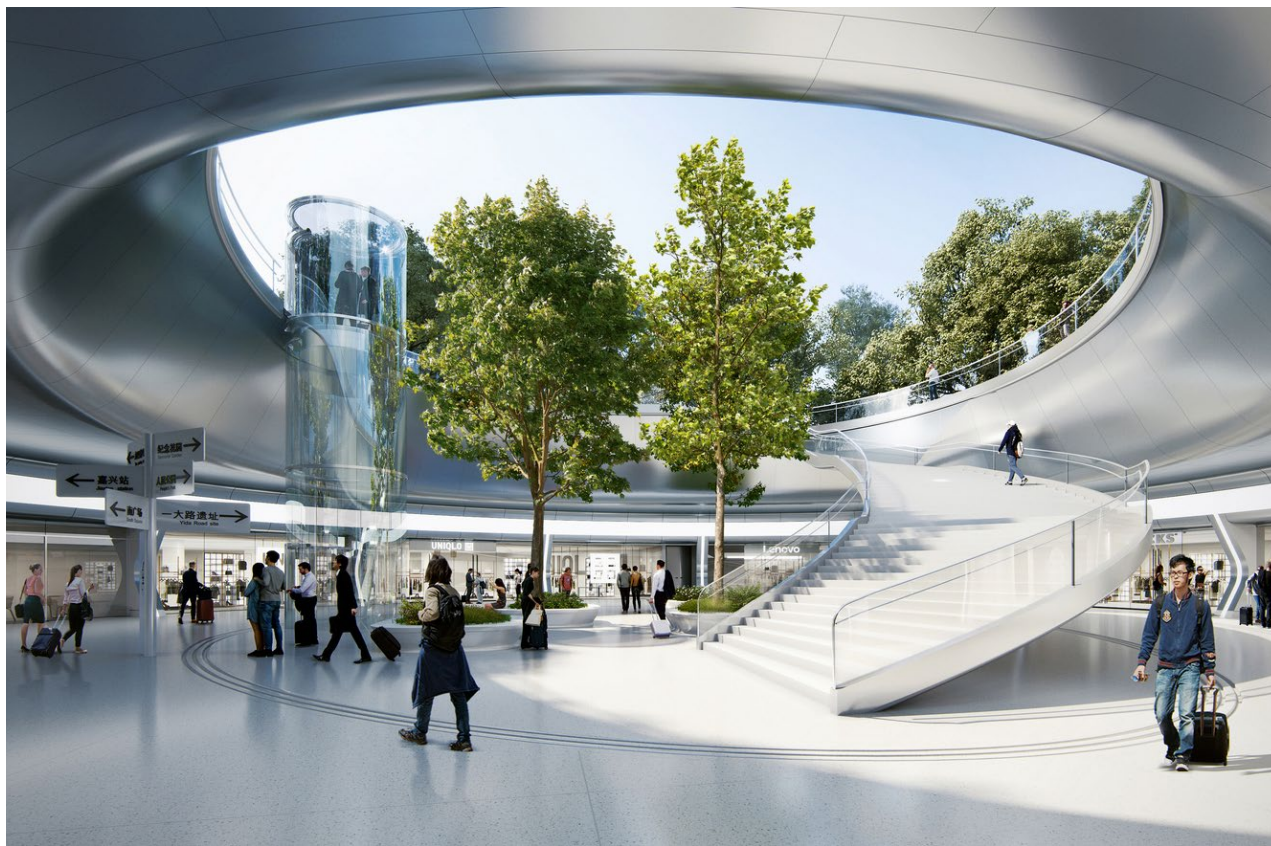
The most pragmatically similar to the focus of my specific project, this project views the area surrounding a train station in Jiaxing as public space, designing a complex series of pathways that weave through planted greens pace all around the site. The use of these green spaces help to offset the carbon emissions that come with the typical designs of a high usage space such as a train station.

It connects the exterior space directly to the interior space, using sloped pathways and staircases to carry people directly into the train station itself. The separation between interior program and exterior park space is allowed to transition smoothly through the use of buffer spaces on the exterior that are strictly designed, creating a step between the interior and the natural growth present on the exterior of the site. This natural growth on the exterior of the site also helps to buffer the site from the surrounding city, blocking much of the air pollution, sound, and heat island that is ordinarily created in spaces such as this due to the highly dense urban context.

The only drawback to a project such as this, which I hope to counter in my design proposal, is that it fails to engage with the community on any level other than physical. The train station design remains largely unchanged aside from the context of it being located at the center of a public park. In engaging with some of these same ideas, I hope to bring a greater sense of community into the physical design itself, allowing the interior space to be effected by its context as well.







SLA Landscape Architects

Copenhagen, Denmark

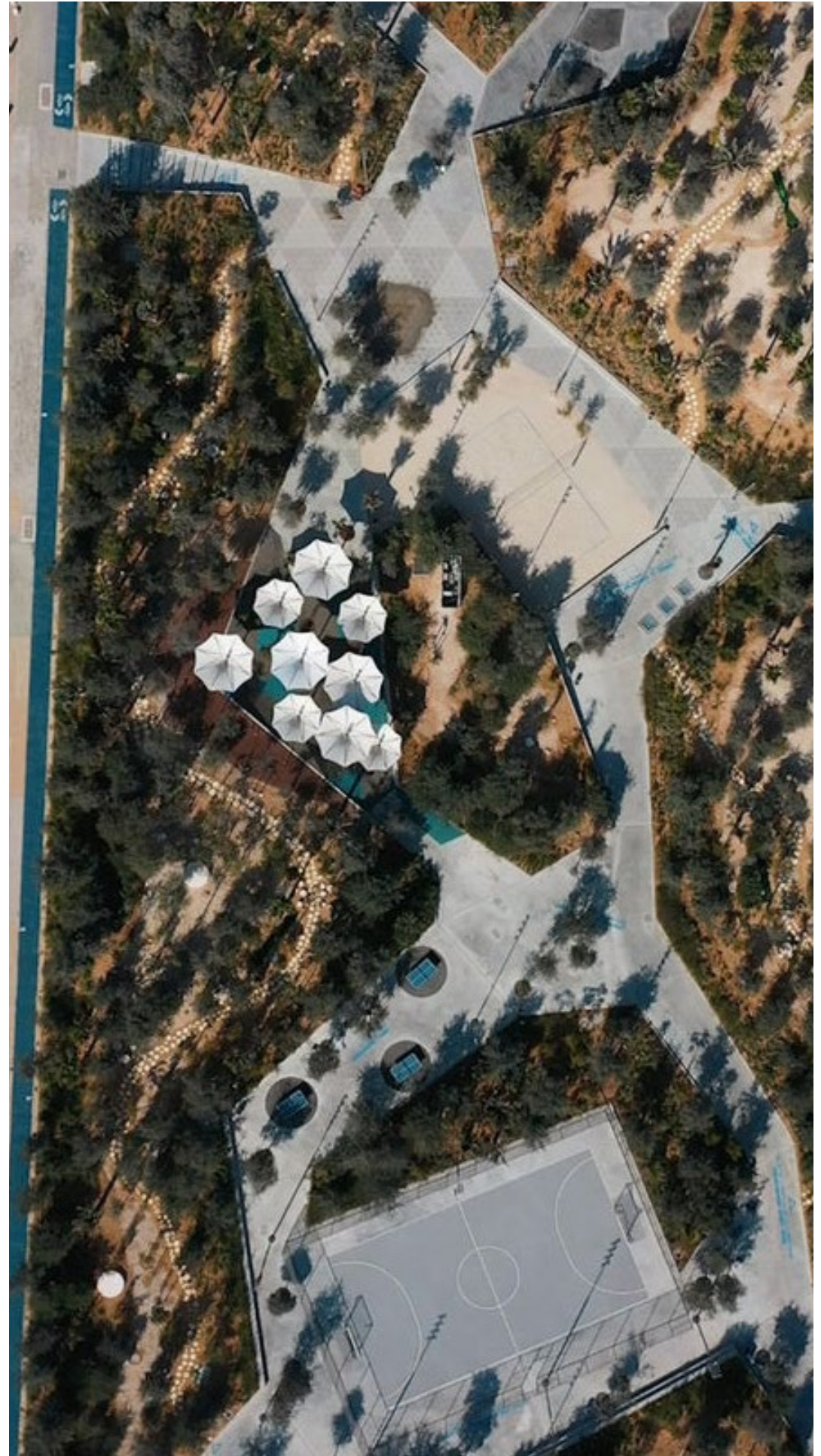
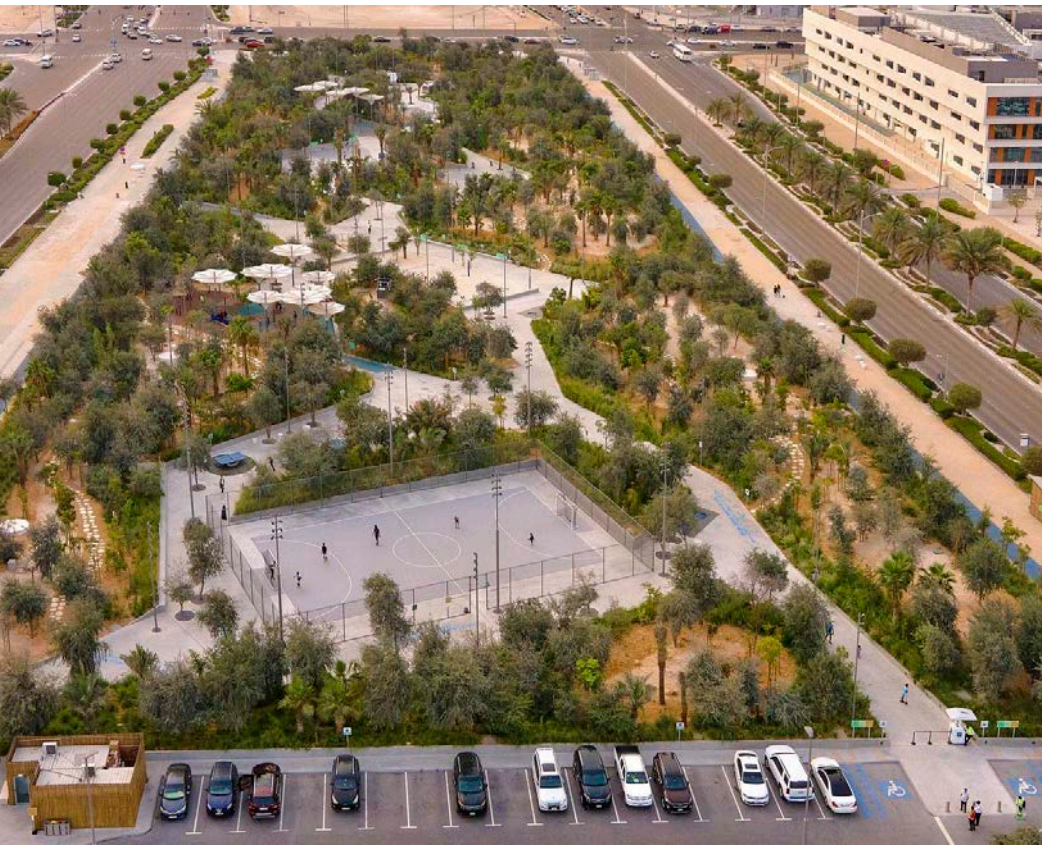
Al Fay Park

Abu Dhabi, UAE, 2021

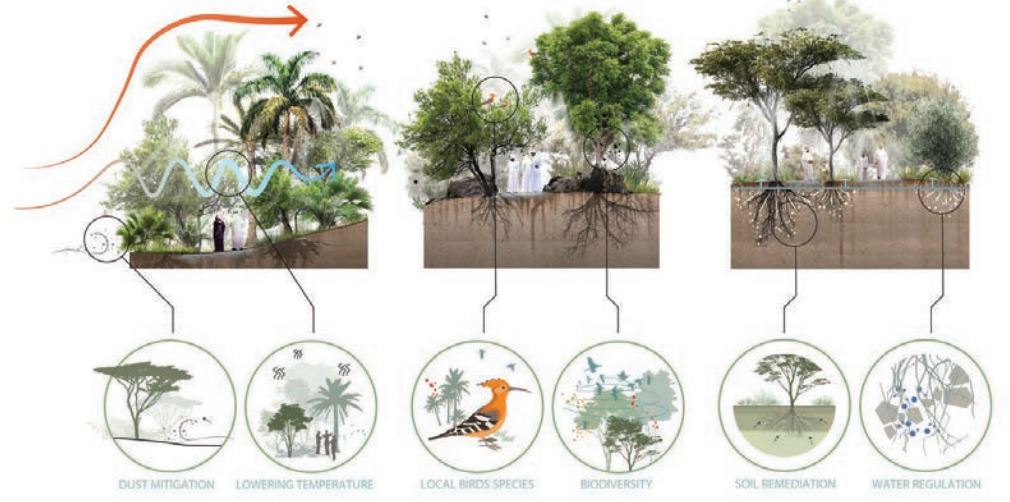
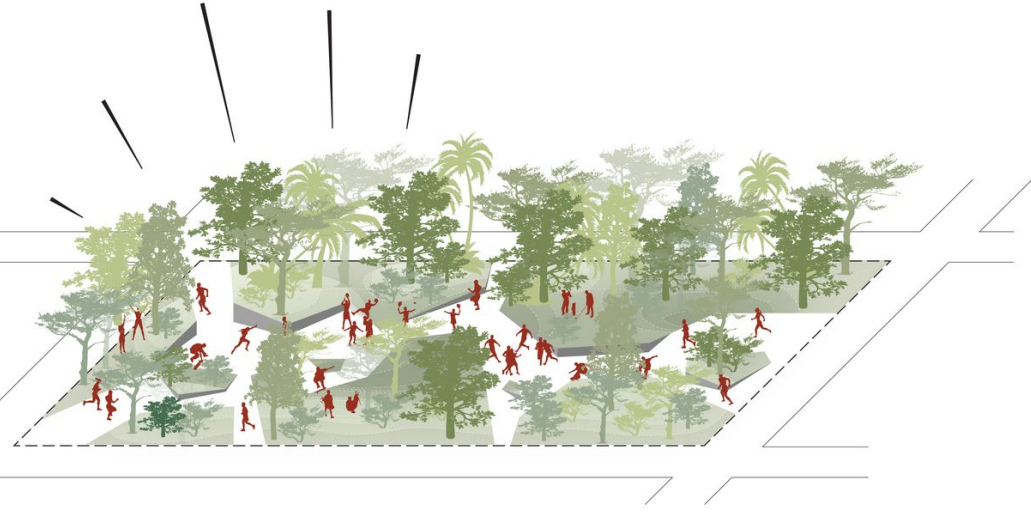
While this project is entirely site based, being a public park that does not contain any interior spaces, its design does provide some important insights to the way that I would like to approach my site. The most important aspect of the site that I would like to pull from is the way that paths of travel and pedestrian experience drives the design. All of the paths of travel across the site connect with the surrounding city and allow people that are simply passing through to have an easy and enjoyable interaction with the area, and it then uses the remaining spaces surrounding the paths of travel to contain the programmed space of the park.

These community spaces engage with their community through the use of sports courts, skate parks, and playground areas for children, providing spaces for every member of the community to engage with the design. It also integrates the landscaping of the site seamlessly into the areas surrounding the programmed space, allowing the design to feel as if it is a natural area that contains community space within it, as opposed to feeling as though it is an activity space with a segregated natural area.











> PART III

PART III

Design Response

Approach & Outcomes

The design of this project takes into consideration all of the theoretical frameworks, research background, and architectural precedent previously discussed, and works to craft a response that understands and acknowledges the material conditions of its context, while recognizing that the architecture in itself cannot be a singular solution to the challenges faced by the community.

After the selection of the downtown transition zone previously discussed as the area of focus was made, the planning of the design goals that respond to this specific context began. The transition zone between the two areas allowed the design to perform several functions that were key to the design process. First, the proximity to both the high density downtown area and the low density residential area meant that the transit functions would provide mobility to people commuting to, and through, the city for a larger number of reasons, whether it be for business, vacation, family visits, or simple daily transportation. Second, the industrial zone that makes up the division between high and low density development would allow for construction of a large scale project such as this one without disrupting the functions of the areas, or the physical aesthetics of the historic neighborhood that it hopes to serve. Finally, the presence of an existing rail line, which currently carries the San Antonio Amtrak line, and its proximity to a highway that serves many of the bus routes in the city, mean that there would be limited disturbance to the already functioning transportation infrastructure within the city.

Next, the focus of the project turned to the design of the site itself. Wanting to focus on transparent connection to the community and mobility across the site, the process of mapping key points on both sides of the site helped to understand where common paths of travel might be, so that pedestrian mobility could be the basis of the design. After designing paths that would be able to connect these key points that had been mapped around the site, the open spaces between the paths became the area of focus for where to place the programming and functions that the site would serve. Instead of attempting to think about the site as a singular building that would have the pathways act as intersections or raised bridges over the building, the form was conceptualized as an archipelago of connected islands, operating and serving their programming independently from one another, connected only by the exterior space that dominates the site. Functions were selected for these islands based upon community need, with interior spaces including a pharmacy and medical clinic, a public library, a cafe, a fitness center that would be free to members of the community, and a gallery space that would showcase installations from local artists. The programmed exterior space was selected based on a similar process of analyzing the local area and selecting functions that are not currently served in the community. These outdoor spaces include a small theater, a children's playground, a basketball court & small soccer field, and a skate park. The remaining space that is less rigidly defined in terms of program was left to be "natural areas" that utilize landscaping and local ecology to provide a more natural public area that

would provide better air quality, noise reduction for the surrounding neighborhood, temperature regulation during the San Antonio heat, and an enjoyable public space for both community members, as well as for people waiting on their next train or bus. The locations for each of these programmed functions, both interior and exterior, were selected based upon neighborhood proximity, with the most community focused elements, such as the playground and sporting areas located directly across the street from the adjacent neighborhood, and the elements such as the art gallery and the outdoor theater located across the railroad tracks on the downtown side of the site.

After the site was programmed, the issue of massing became the next area of focus. The primary problem to solve with the massing was about how to connect people to the elevated high speed rail and bus platforms in a way that does not impeded the pedestrian mobility. The resulting massing design is one that allows key pathways to slope from the ground floor to the elevated platforms directly, connecting the ground level to the upper level without breaking the flow of pedestrians utilizing the site. After creating the slopes that connect the ground to the upper level, a curving slab was designed that connects the two raised platforms, covers the interior programmed spaces, and provides a covering over the lower level commuter train platform. The slab that makes up the pathways and platforms were then bordered with sloping landscape areas, allowing the natural ecology that defines much of the site to also flow from the top ground to the upper levels, while also providing a strong structural base that does not appear out of place on the site. Once this process of defining the edges of the mass was complete, a large void was taken from the center of the slab, this void allows light to enter the lower platform area and the interior spaces that are covered by the slab, and also allows for internal vertical circulation that does not require pedestrians to walk to the ramps at the edges of the slab.

Now that the form had been found, the question of the site turned to materiality and finishing details. The primary concern in selecting a material for the masses that resulted from programming the interior spaces was how to find a material that could serve as a structural bearing wall that would support the second level platforms and concourse, and would be able to transition into a retaining wall that contains the sloped landscape areas surrounding the mass. Instead of attempting to find a material that would be able to serve both of these functions simultaneously, the decision was made to use structural CMU blocks for the structural base of the enclosed masses, and use a thin gabion wall as a veneer over the top of it. The benefit of using a gabion wall veneer is that it would be able to connect directly and seamlessly with larger gabion retaining walls, which would not have a CMU structural backing. This allows the masses to appear as though they are one continuous transition from landscape area to interior space, without the potential drawbacks that could come from attempting to transition a wall designed for vertical structural support into one designed to contain lateral forces from soil pressure. The other added benefit of utilizing gabion walls as retaining walls is that it allows the landscape areas to be bordered by a partially porous structure, allowing excess water from heavy rains to drain out of the landscape areas, preventing local ecology from being effected by excess water that it is not acclimated to.

Altogether, this is a project that attempts to recognize and respond to its context in an insightful way without attempting to reshape or alter the community that houses it. Through the use of extensive background research, careful site selection, and unorthodox design practices, it positions itself as a response to the way that we think about mobility and public transit, and attempts to ask how we can rethink transit to truly be more public.



The Riverwalk

Area of Focus + Significant Paths

Shown above is the zone that was selected earlier as the general location of the site. This map also highlights the significant points of interest that are within walking district including, the Riverwalk, the Alamo, the City Convention Center, the Alamodome Sports Complex, a Local Grocery Store, and a Community Garden and Service Center.



The Alamo

The Alamodome



Sprout Austin Community Center



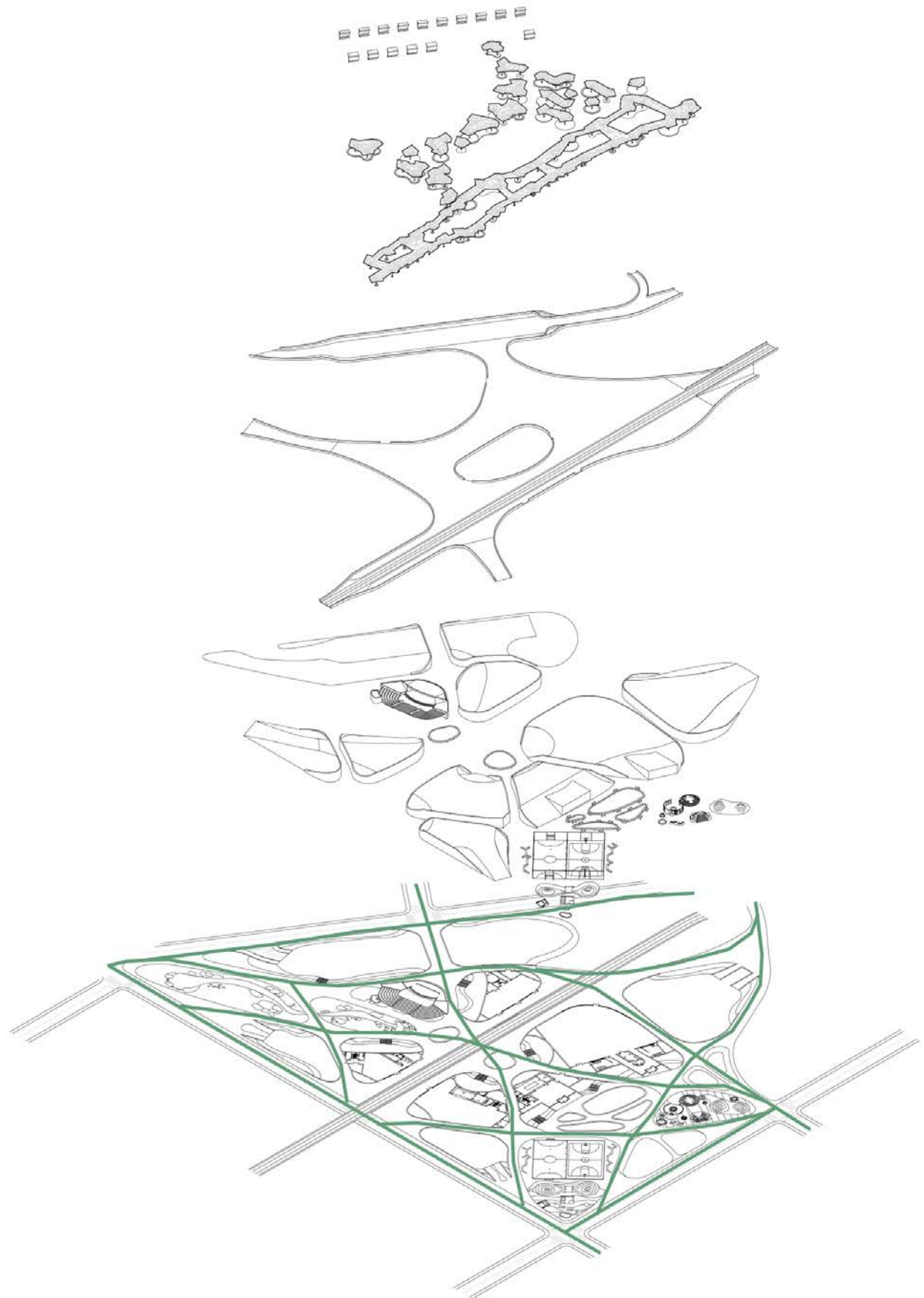
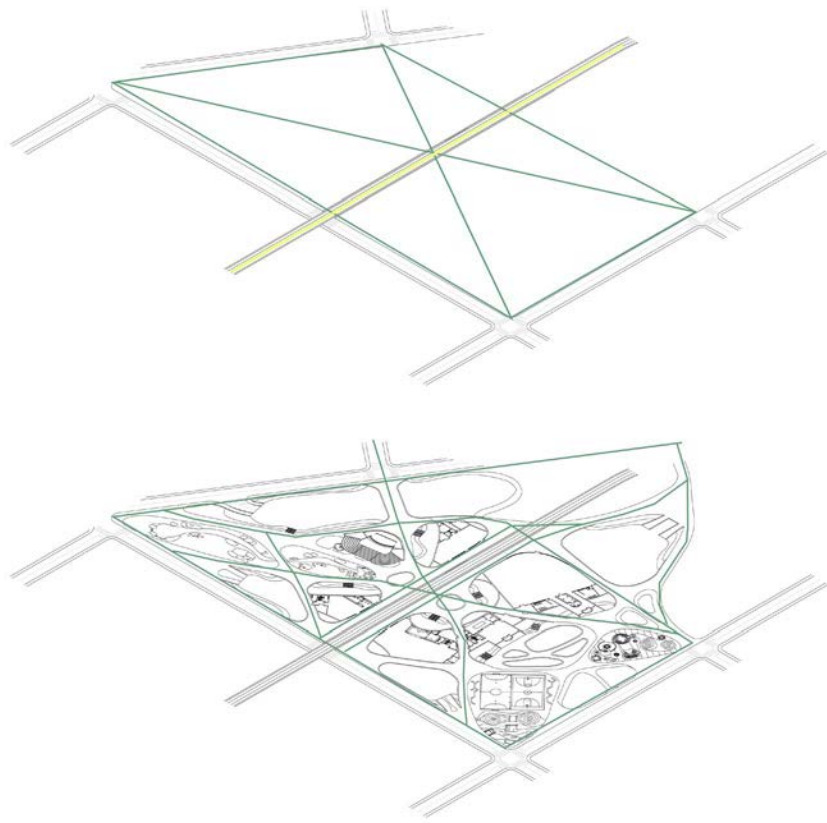
Dignowity Hill HEB

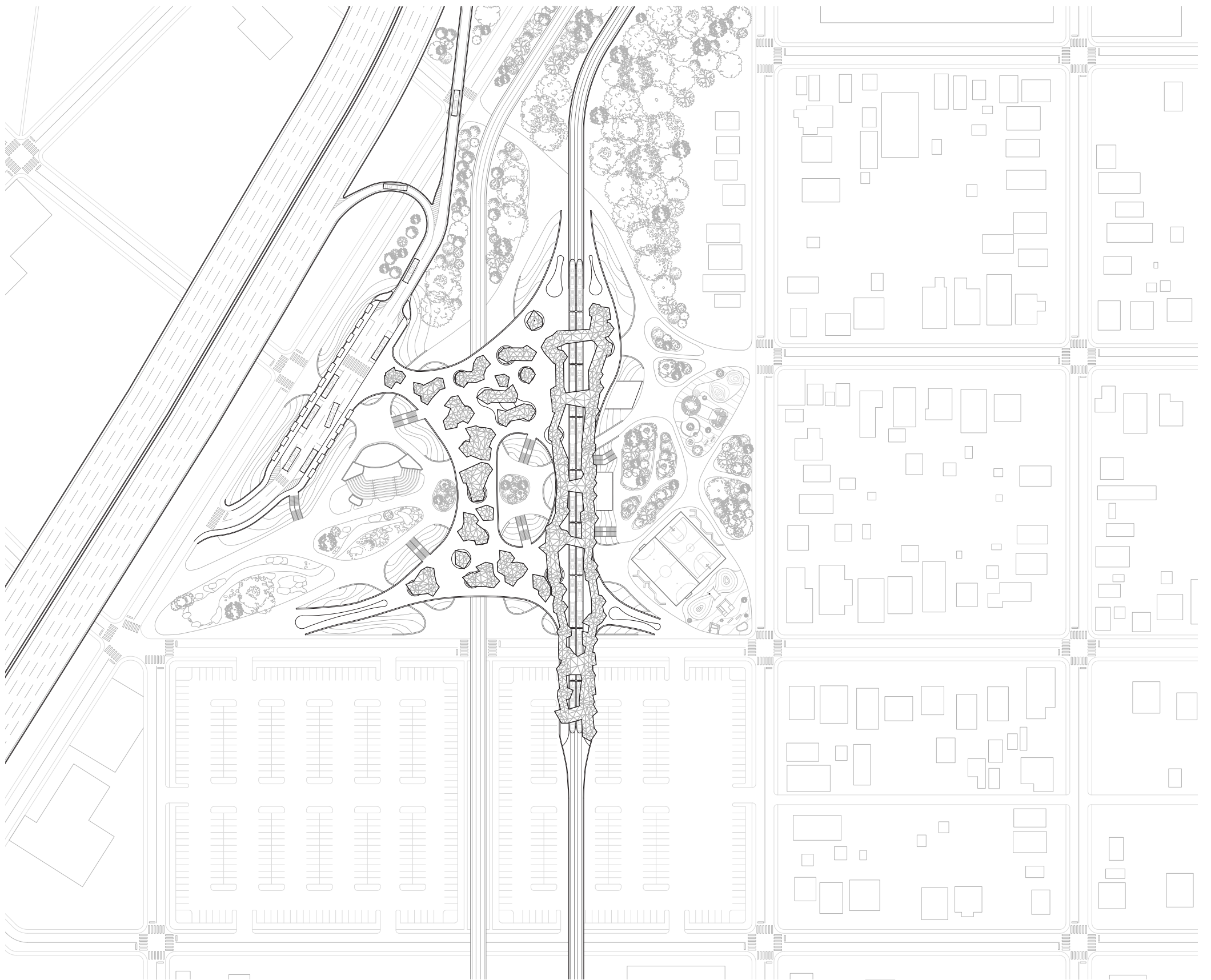


Formal Conceptualization

With these connection points and the idea of pedestrian mobility in mind, the project planning then began. Utilizing the area at the northernmost point of the highlighted area of focus, primarily because of the limited amount of construction existing on that part of the site, connection points to the different paths of travel across the site were laid out and were then manipulated in such a way that any point of interest a pedestrian might be traveling towards could easily be reached without breaking their path of travel.

The resulting spaces between the paths of travel then became the programmed exterior and interior space that form the building mass. After programming each space in the site plan, a mass was developed that would allow people to access the second level concourse, which connects to the bus and high speed rail service, without needing to interrupt their path of travel to enter an interior space. This also keeps the entire space public, and allows community members to access these spaces even if they are not intending to utilize the transit functions of the site.



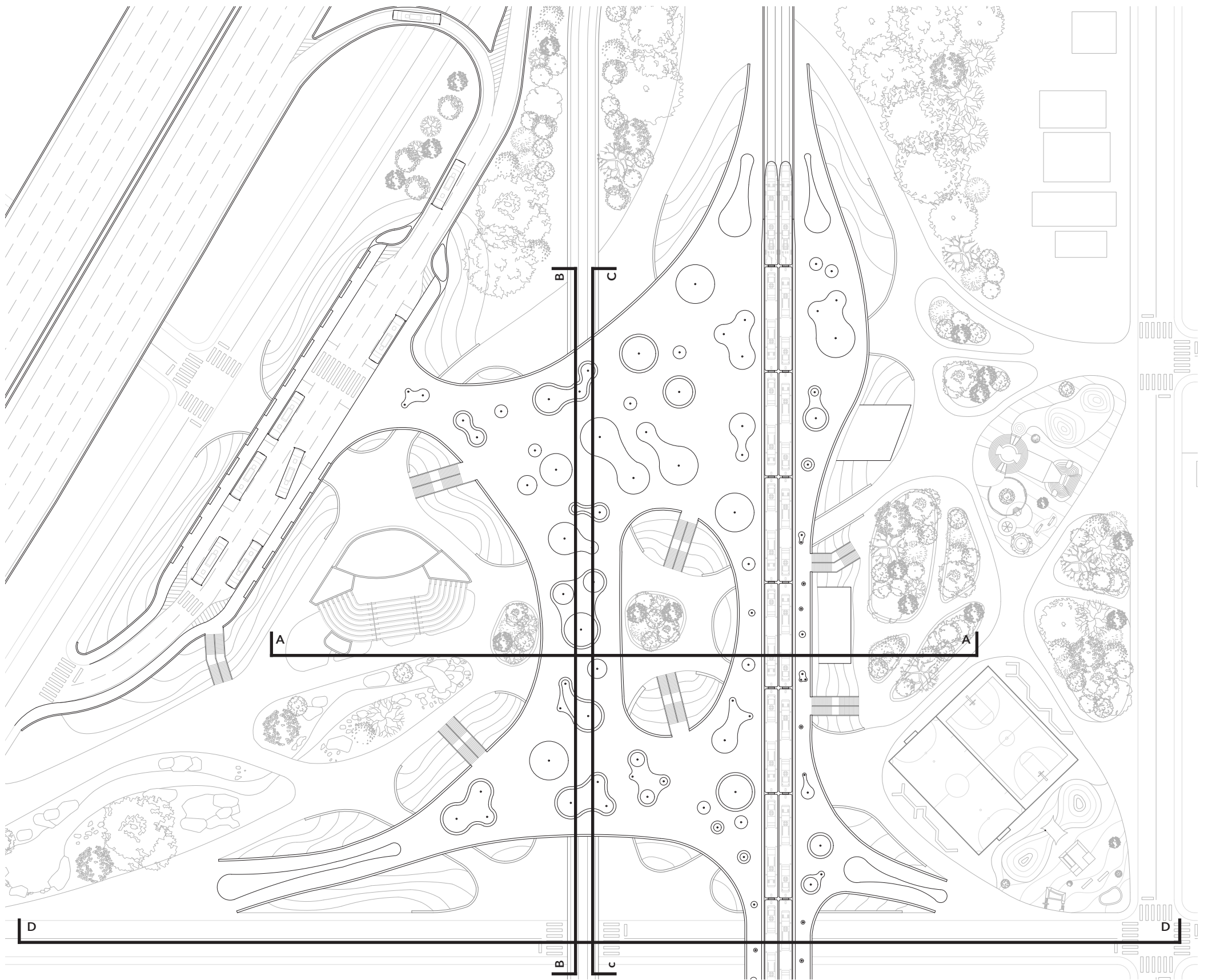


Site Plan

These connections to the community previously discussed can be seen on the overall site plan, with each path of travel connecting to an existing pedestrian route on either the residential (east) or the commercial (west) side. Heavier infrastructure, such as the amphitheater, is contained to the residential side, while community services, such as the park, remain on the residential side. The site entrance from the residential side can be seen on the following page.





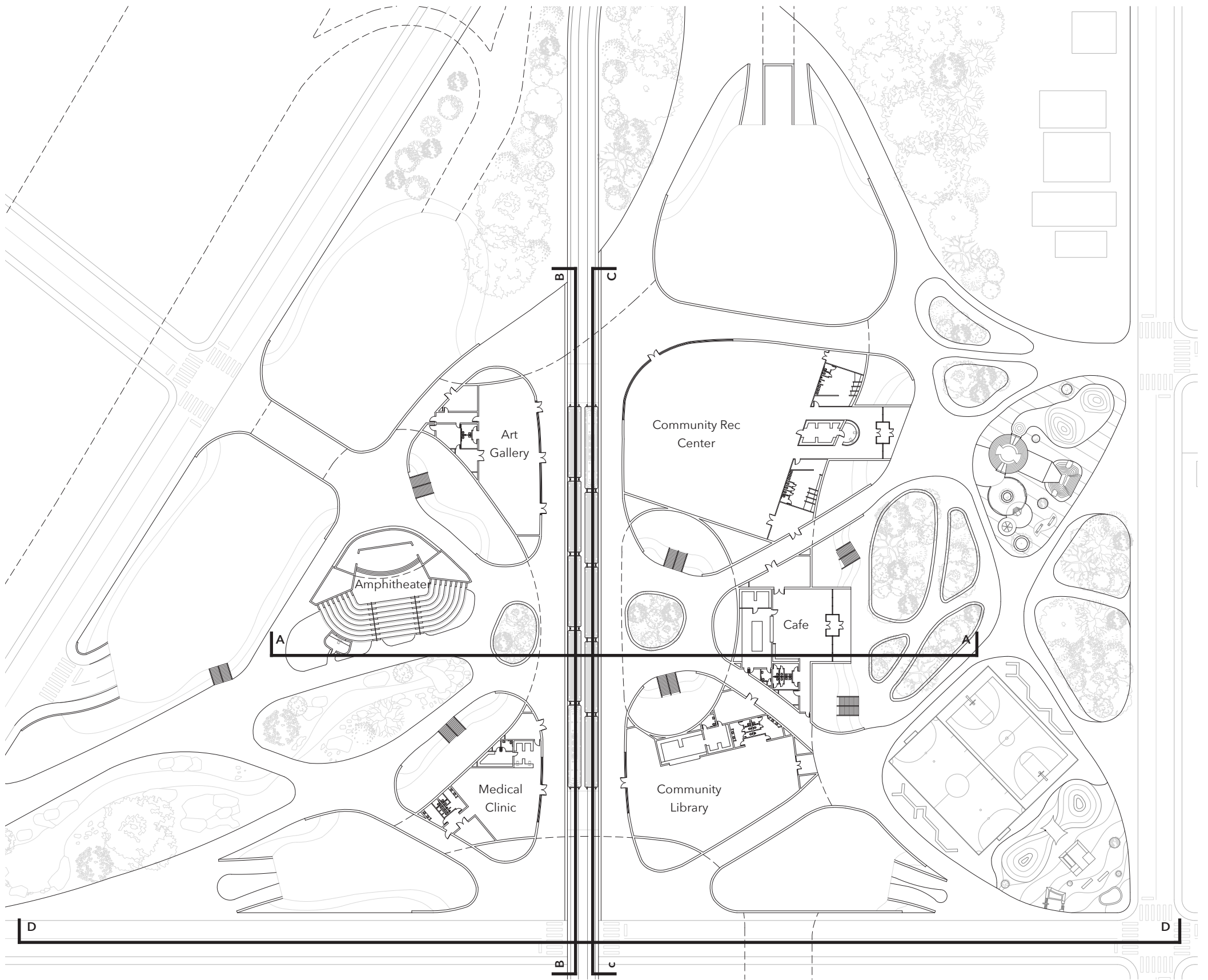


Upper Concourse Floor Plan

Zooming in and looking at the upper floor specifically, the shaded seating areas which serve people waiting for their scheduled departure appear as an abstraction of the local ecology that makes up the ground level. The planter areas bring natural green to the upper level, while also assisting the tree shaped shading devices in regulating the temperatures and air quality. This level is easily accessible by the sloping ground planes that connect with the existing paths of travel, but vertical circulation is also assisted by the large exterior stairs.





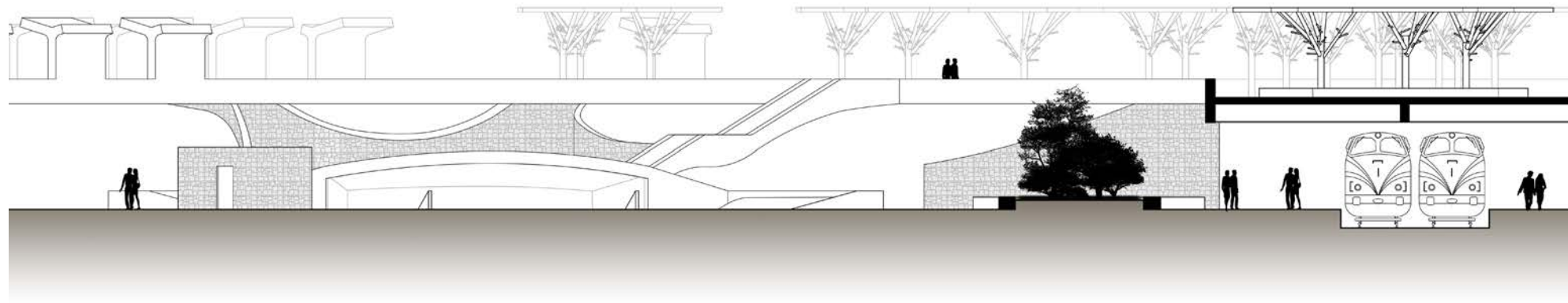


Lower Level Floor Plan

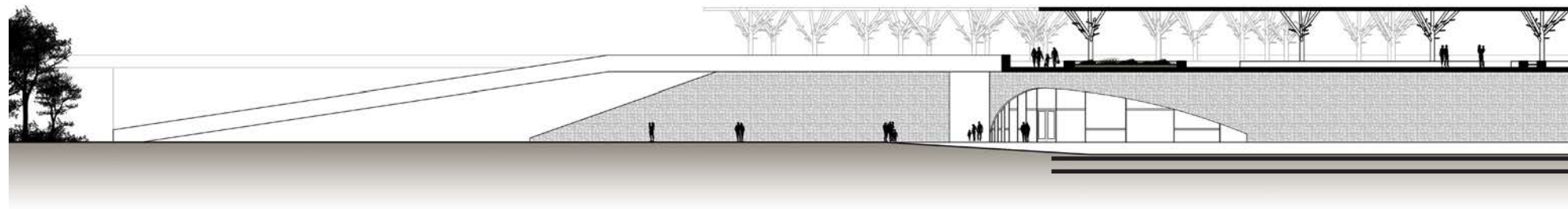
In addition to the programmed exterior space on the ground level, the interior spaces provide more formalized functions intended to support the local community. In addition to serving the localized community as intended, these spaces also provide easy access to the entire city through the transit services that the design is based around.



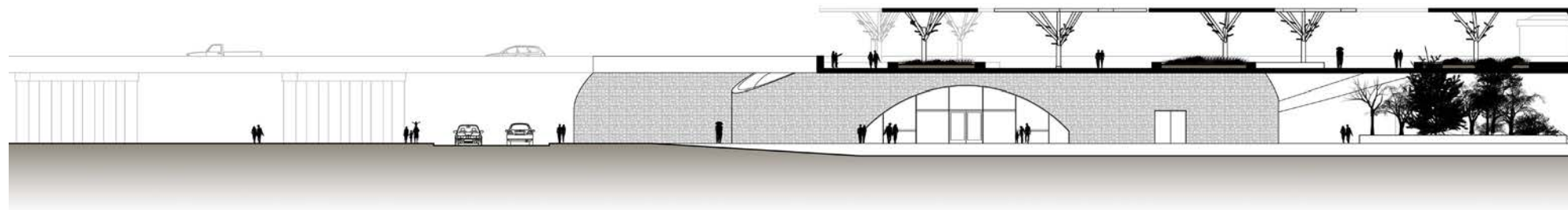




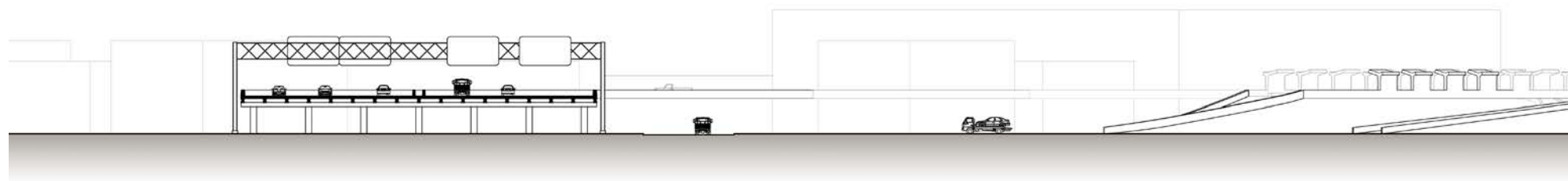
Building Section A-A



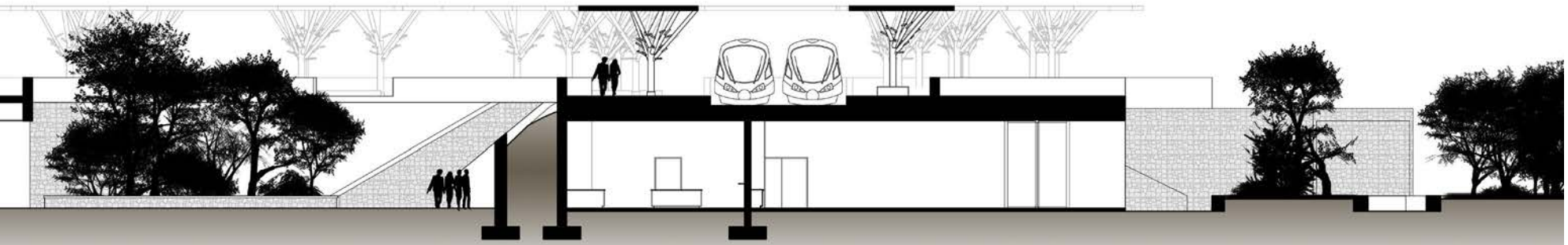
Building Section B-B



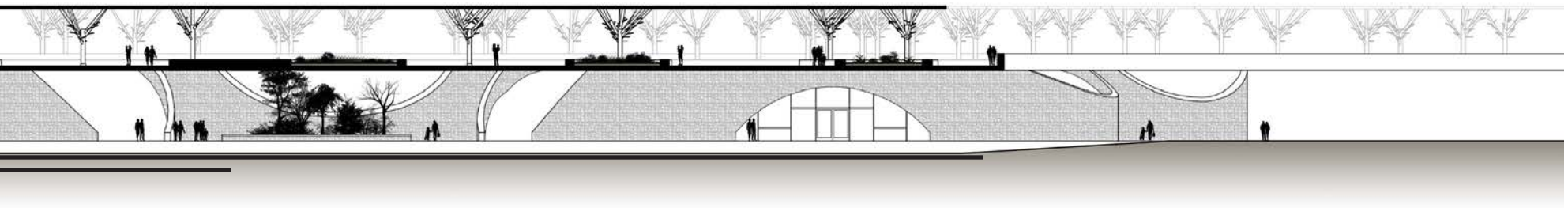
Building Section C-C



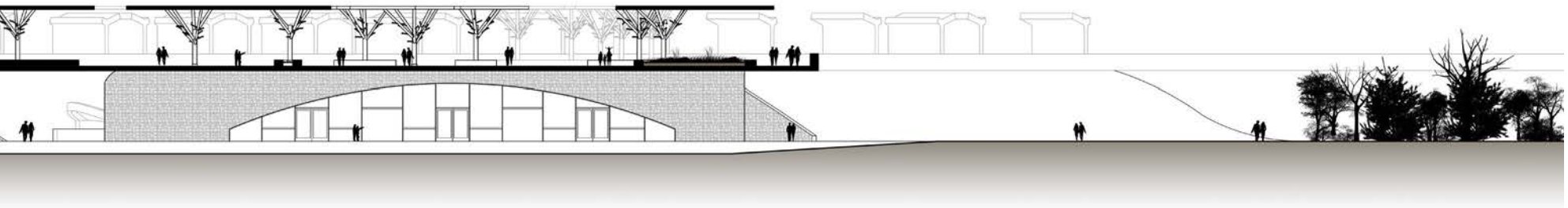
Building Section D-D



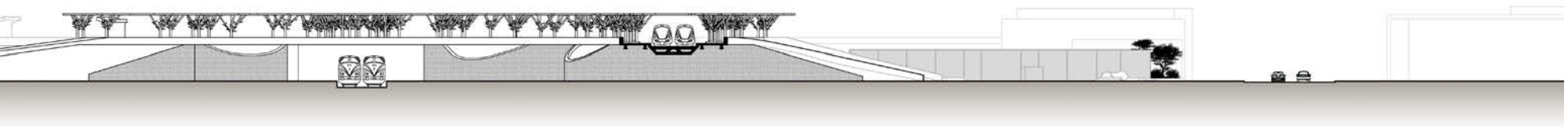
0' 15' 30' 60'



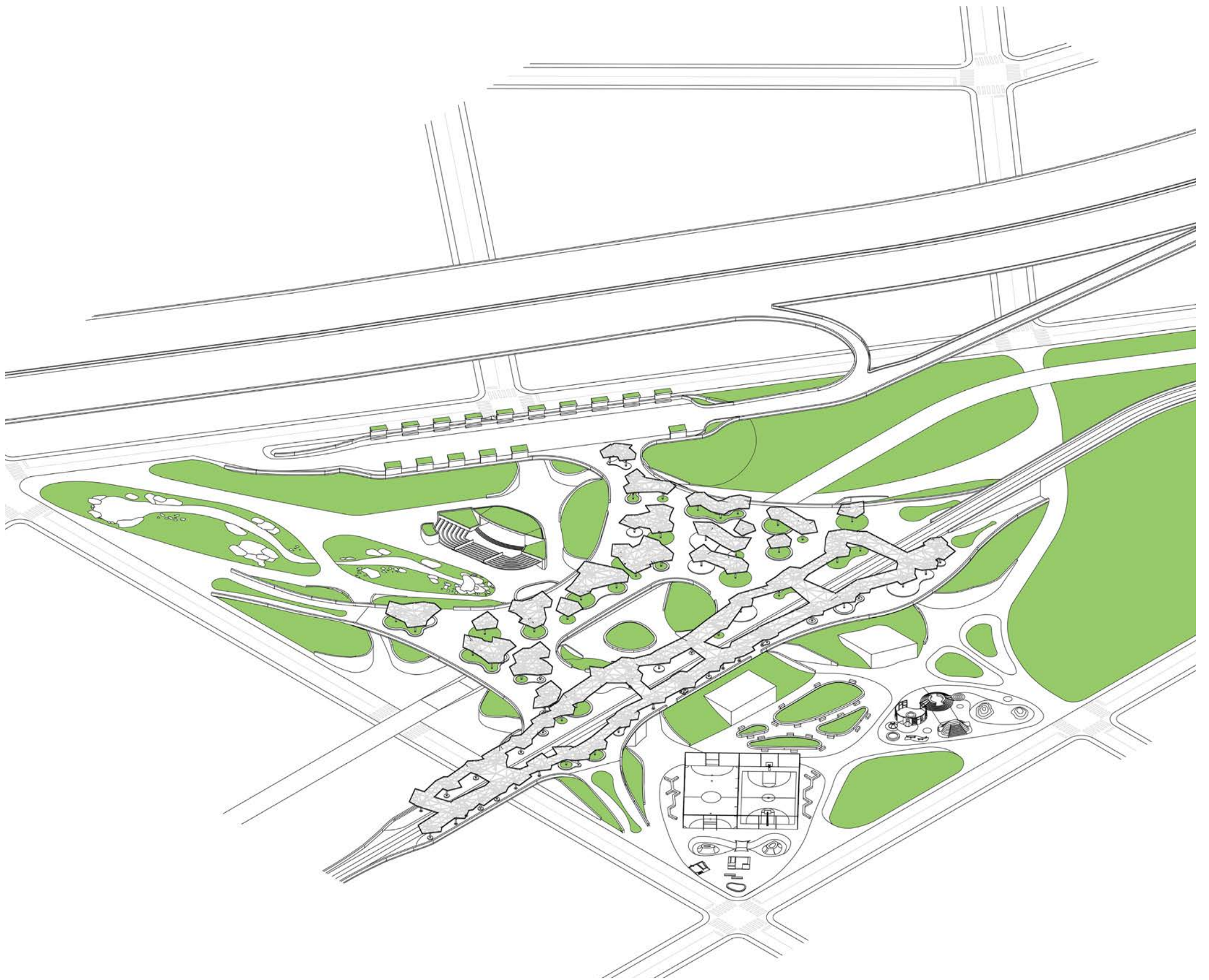
0' 20' 40' 80'



0' 20' 40' 80'



0' 60' 120' 240'



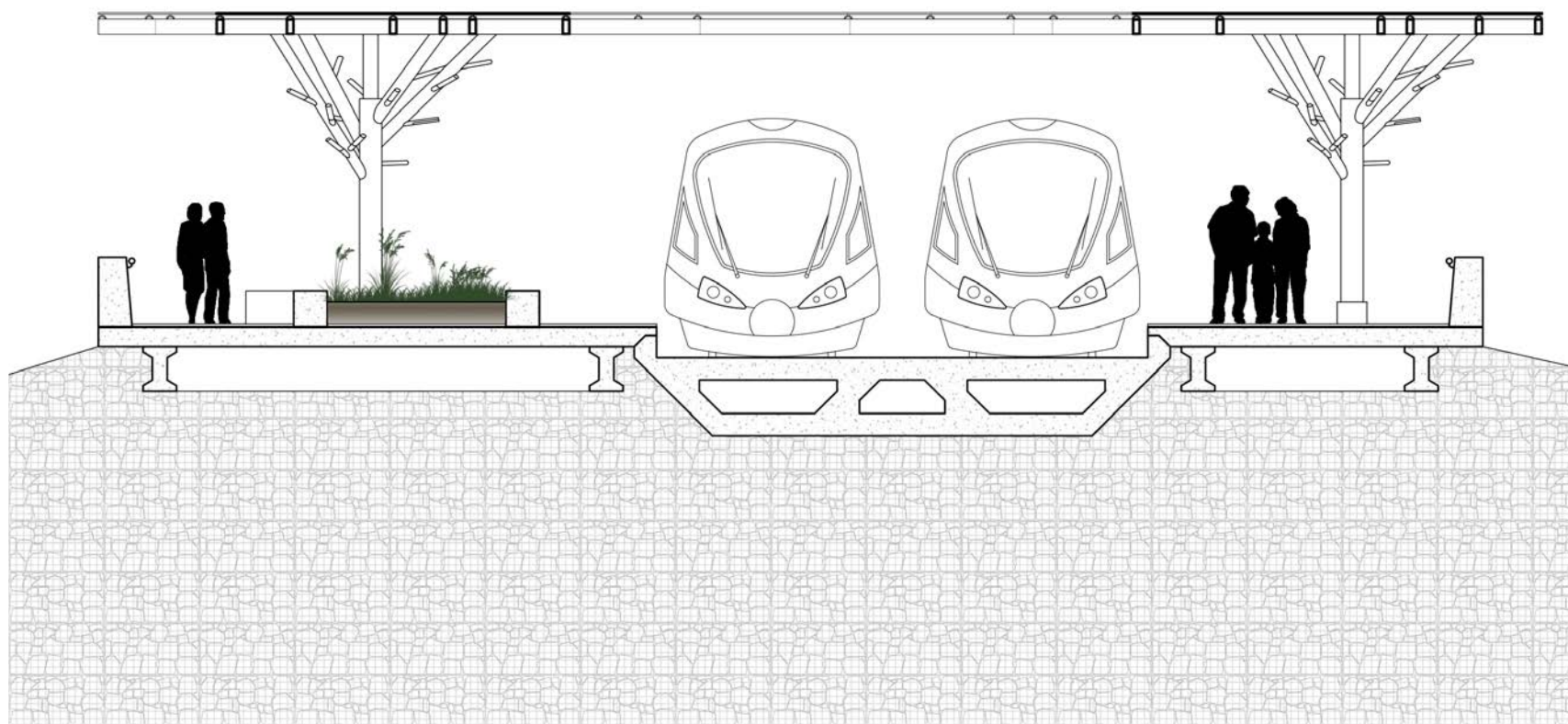
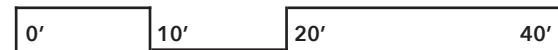
Full Site Axonometric

This view of the site displays the programmatic spread of the local ecology across the site. Each highlighted green area is planted with local species and ecotypes in an effort to bring natural growth to the area that will be self-sustaining in the local climate. Aside from the aesthetic and comfort benefits of surrounding public spaces with living ecology, there is an additional benefit of carbon sequestration that helps to offset the emissive capacity of the construction.



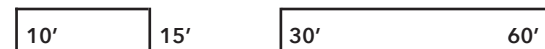
Section at Bus Stops

This view, which is cut across the bus stops on the downtown (west) side of the site, shows the method for construction of the unprogrammed masses. Gabion wall blocks are used as a structural retaining wall to contain the sloping mass of earth underneath the roadways and sidewalks. The primary benefit of gabion walls outside of their structural capacity is their ability to allow the soils to self regulate, releasing excess water that would normally collect into aquifers and springs so that the local plantlife will not be overwatered by excess rain conditions.



Section at High Speed Rail Platform

This view is cut where the high speed rail platform meets the structural wall beneath it. The platforms railway structure are separate structural components, allowing the vibrations and flexing that occurs under the force of the train to remain independent of the pedestrian areas. It also displays the tree shaped vertical elements that serve as both structural support for the shading elements, as well as providing area lighting via the "branches" that protrude from the main structural supports.

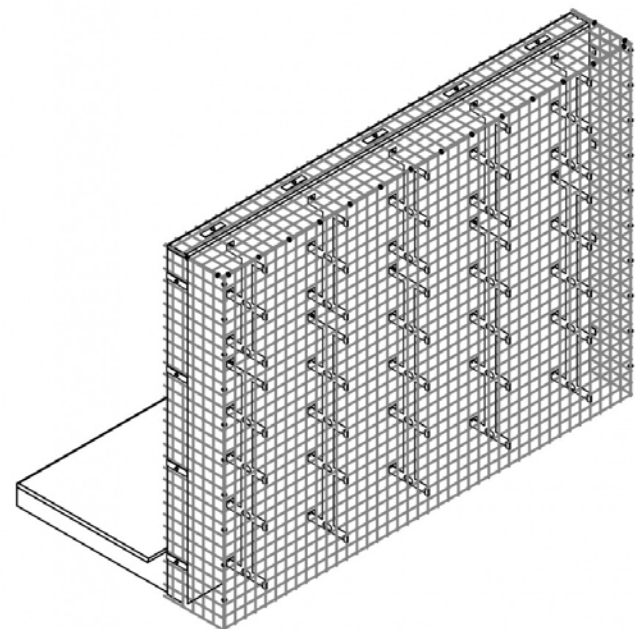




Landscape Design

The Landscaping of the site is based upon the nearby Government Canyon Natural Area, a state operated nature preserve containing many of the different native plant types in the bexar county hill country area. By designing the site to utilize local ecotypes in its flora, there will be a drastically reduced demand for maintaince and energy waste on keeping the landscaping alive.

The gabion retaining walls are also key in this area, allowing excess water to drain out of the soils and into the crushed gravel pathways similar to the way that water is allowed to naturally drain into sub terranian aquifers. This allows the water to be cast off and avoid drowning the low-water plant life in times of higher than usual rain.





Anaqua



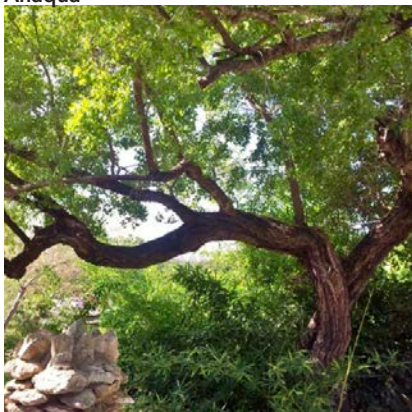
Ebony



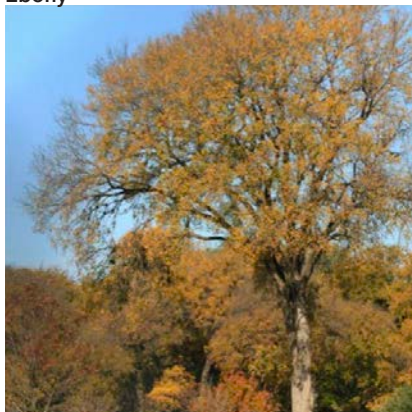
Escarpment Live Oak



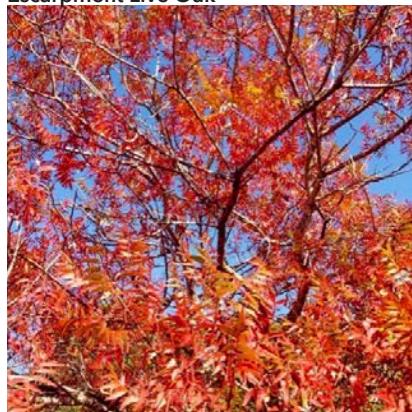
Mountain Cedar



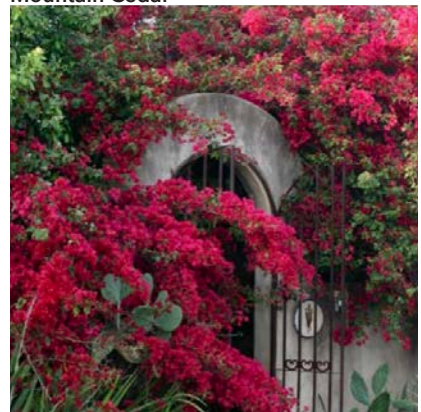
Bluewood Condalia



Cedar Elm



Flameleaf Sumac



Bougainvillea



Brown-Eyed Susan



Prickly Poppy



Black Dalea



Ruby Grass



Curly Mesquite Grass



Mexican Bush Sage



Scarlet Sage



Autumn Sage



> PART IV

REFLECTIONS

As Charles Eames phrased it, "Recognizing the need is the primary condition for design." Architecture, at its core, is the synthesis of design, efficiency, and planning. These concepts may be applied in varying amounts depending upon the context of a given project, but they are always present, reflecting the reality of a design and putting on display what works for the people interacting with it. If we are to create designs that uplift our communities, it must be done with a thorough understanding of what those communities need and how the built environment can address those needs.

Through the design process of this project, I attempted to use the available time to first gain as complete an understanding of its physical, political, and economic context as I could before considering the physical manifestation that it would hold. While this process reduced the time and focus on the design itself, it was instrumental in developing a planning process that would be able to respond to its context and provide a project that is not only interesting in its formal approach, but grounded in its reality. I viewed the project not as a pass through transit station that would seek to view transportation as a commodity and its spatial context as retail, but instead imagine what it might look like to view transportation through the lens of mobility and public access. This project is not a reflection of something that is likely to be completed in the coming years, but a hope of what might be possible through a different understanding of political policy and urban planning policies.

Given more time with the project, I would like to further understand the details of the design and better conceptualize how the programmed interior spaces interact with the exterior of the site. It would also be crucial, if this project were to be proposed in reality, to understand the potential economic impacts of such a design, how it could potentially be funded, and what types of advocacy groups would be able to push for a more human focused approach to transportation design.

While planning and transportation will likely not be the long term focus of my career, I believe that this project has provided me with a much greater understanding of how to position architecture within its context, and how to apply key planning principals into the reality of a design itself. Without planning, architecture means nothing. Without architecture, planning does nothing.

**“RECOGNIZING THE NEED IS THE
PRIMARY CONDITION FOR DESIGN.”**

-charles eames

ENDNOTES

Preface

0.1 - *Urban Mass Transportation Planning* provides the primary base for the sociological context of the study, while *Urban Mass Transportation Planning* is an indepth study of the history of planning and approaches to transportation.

0.2 - *Mobility Justice* focuses on a more broad scale of transportation planning, viewing the context of national policies and their relationships to transportation planning. *Right of Way* narrows its focus to the specific phenomenon of how pedestrians interact with current transportation infrastructure, but still views a largely national scale. *Rights in Transit* is a specific case study in the San Francisco bay area, showing the microscale of how planning practices can effect everyday people.

0.3 - *The Color of Law* is a study of specific urban planning practices, primarilty focusing on how redlining created the context for current segregation in american cities, while *The Aesthetics of Equity* looks at the physical design of architecture itself and how exclusionary practices can be utilized to limit access to equal resources.

0.4 - *Expanding Architecture* is a collection of design projects, many of which would not historically be considered "architecture," as a method of displaying how understanding community need can be reflected in design projects. *The Image of the City* is a reflection on how the design of cities can impact the lives of the people that live within it, and how we can use physical designs to create a better city. *Soft City* is a design guideline book that provides methods for how to design urban spaces so that they interact with their surroundings and promote specifically pedestrian access to designs.

0.5 - *The New Transit Town* is a synthesis of many of the concepts discussed in other texts, viewing the political and economic context of modern transportation infrastructure first, before then placing those contexts into a grounded reality and discussing design directly effects these contexts.

Part I: Research & Mapping Analysis

1.1 - Data provided by the EPA.

1.2 - Data provided by the EPA. Mapping originally synthesized by Texas A&M University students under Marcelo Lopez-Dinardi for the project BCS Agenda.

1.3 - Data provided by TxDOT & Google Maps. State maps also originally synthesized for BCS Agenda.

1.4 - Data provided by the City of San Antonio & Google Maps.

1.5 - Data provided by US Census Data and the EPA.

1.6 - Claims of "more sustainible transportation methods, such as rail," supported by study published by Fan, Perry, Klemes, and Lee. 2018

1.7 - Travel density provided per TxDOT.

1.8 - Data provided by City of San Antonio.

BIBLIOGRAPHY

- Attoh, K. A. (2019). *Rights in transit: Public transportation and the right to the city in California's East Bay*. The University of Georgia Press.
- Black, A. (1995). *Urban Mass Transportation Planning*. McGraw-Hill.
- Dittmar, H., & Ohland, G. (2004). *The new transit town: Best practices in transit-oriented development*. Island Press.
- Jones, D. W. (2010). *Mass motorization + mass transit: An american history and policy analysis*. Indiana University Press.
- Loo, B. P. Y., Chen, C., & Chan, E. T. H. (2010). Rail-based transit-oriented development: Lessons from New York City and Hong Kong. *Landscape and Urban Planning*, 97(3), 202-212. <https://doi.org/10.1016/j.landurbplan.2010.06.002>
- Newman, P., Beatley, T., & Boyer, H. M. (2013). *Resilient cities responding to peak oil and climate change*. Island Press.
- Pucher, J. (1982). Discrimination in mass transit. *Journal of the American Planning Association*, 48(3), 315-326. <https://doi.org/10.1080/01944368208976181>
- Schmitt, A., & Brown, C. T. (2020). *Right of way: Race, class, and the silent epidemic of pedestrian deaths in America*. Island Press.
- Sheller, M. (2018). *Mobility justice the politics of movement in an age of extremes*. Verso.
- Suzuki, H., Cervero, R., & Iuchi, K. (2013). *Transforming cities with transit*. The World Bank. <https://doi.org/10.1596/978-0-8213-9745-9>
- Tang, S., & Lo, H. K. (2008). The impact of public transport policy on the viability and sustainability of Mass Railway Transit - the Hong Kong experience. *Transportation Research Part A: Policy and Practice*, 42(4), 563-576. <https://doi.org/10.1016/j.tra.2008.01.022>

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MAKING TRANSIT PUBLIC

is a collection of the work completed by john k. willis for consideration for graduation from the master of architecture program in the texas a&m university college of architecture in the arch 607 & 608 courses during the 2021-2022 academic year.