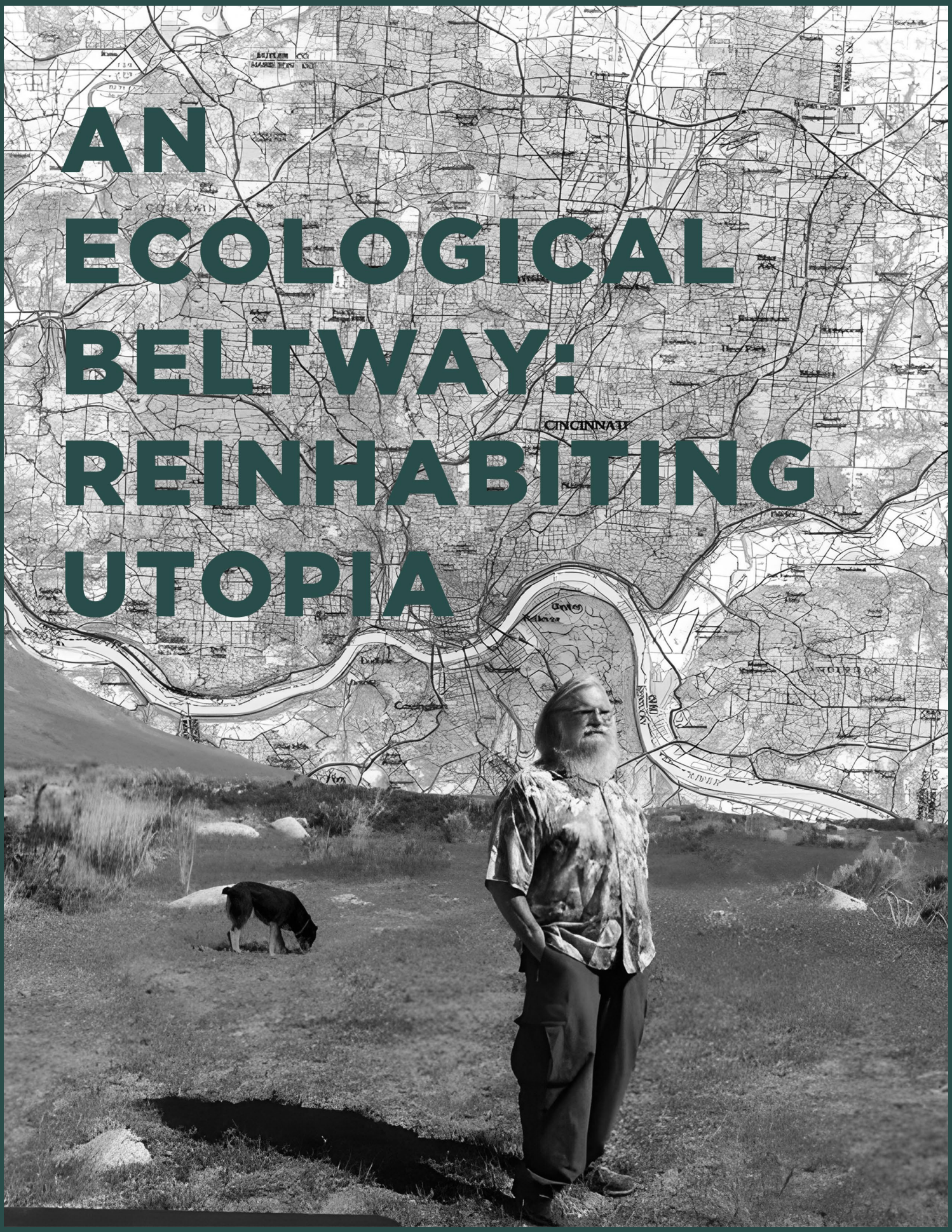
AN ECOLOGICAL BELTWAY: REINHABITING UTOPIA



01
Introduction

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Every day I walk into Alumni Hall and feel inspired by my professors, fellow graduate classmates, and undergraduate students. This thesis project is a reflection on those inspirations as well as what I strive to be as a future architect.

A special thanks for the help:

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This thesis would not be the same if it were not for these three. Their build off of one another during committee meetings, amazing advice both in group and individual meetings, and overall positivity all have greatly shaped my journey this semester.

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I cannot thank all of these people enough. This project is truly something I am proud to have worked on and without them it would not be possible.

Forward

Architectural pedagogy is undergoing a significant transition in how the profession should be taught and practiced. Many leading voices within architectural academia, such as Jorge Ortero-Pailos of Harvard GSD or Mireille Roddier of University of Michigan, are calling for schools to focus on notions of degrowth, adaptation, and energy sobriety over continued new construction or even that of "green infrastructure." As graduating members of the 2025 Master of Architecture cohort, we are more conscious of the planet's limited resources than previous generations. Yet, we often focus in classes on how green energy can "solve" climate change, despite its limited impact. While these new technologies are undoubtedly a step in the right direction, its overall impact on the planet is far from sufficient (ourworldindata.org). By no means is this a call to halt new construction. Instead, it urges architectural education to refocus its core teachings on shaping new ways of living in response to the ongoing and evolving challenges of climate change. Architecture can no longer be considered solely at the scale of individual buildings. Instead, we must design holistically at larger scales—such as metropolises, regions, and beyond—to fundamentally shift how society operates. How can architecture shape new forms of living that celebrates values of moderation, interconnectedness, and low-tech? What form of governance does this need? These are questions that all interest me and inform my thesis.

I began this thesis process in ARC636 Design and Research Methods during the 2024 spring semester. During it, I gained a strong interest in these pedagogical questions that intersect with current climate change issues I deeply care about.

In ARC636, I wrote a paper that spoke to these intersections along with topics related to the urban environment, abandonment, and water focused climate change issues. Although my thesis has evolved since then, key points from this paper have formed its foundation. The most important takeaway was: architecture can begin to remediate anthropogenic climate change by using tactics that are interwoven with nature, fostering multi-species coexistence, and remaining conscious of a place's history, memories of it, and traces of life it holds.

This year as I examined where people might go as climate change worsens while also questioning the societal notion of permanence. To understand what life would look like as climate change continues to complicate the idea of permanence, I studied the increasing population of the nomadic lifestyle. Influenced by films like Nomadland and van-dwelling vlogs by Bob Wells (both featured within this document,) I recognized that the nomads embody the very values I pointed to in the opening: moderation, interconnectedness, and low-tech.

Of course the lifestyle is extremely challenging and not always one of choice, as my influences tend to show. Understanding that the lifestyle is continuously growing, either by those who are forcibly displaced or those who choose to live this way, I decided for my thesis to design a support system for the nomadic lifestyle that includes

programs of temporary stay and necessary means of maintenance.

In order to decide where this support system should reside, I looked at the intersections between climate havens, human movement, and non-human species migration. After studying various cities that hold these intersections, I kept coming back to the city that happens to be my hometown, Cincinnati, Ohio. Even though I have lived there for over 10 years of my life, I was extremely moved by the Cincinnati metropolis' current trajectories, varying demographics, and complicated pasts.

These suburbs of Cincinnati often were founded on 20th century utopian ideals that called for community engagement, standardization of living, and connection to nature. However, its exclusiveness often led to its own demise and many of its suburbs today struggle to maintain a tax base and reimagine their high rates of vacancy. An area in particular that I was fascinated with is the few suburbs surrounding the Winton Woods Park, specifically, the village of Greenhills. This village is one of three greenbelt towns that was created by the federal government of the New Deal Era as an attempt to form a Post-World War II utopia. However, due to lack of funding, small scale, and its racist exclusivity, it is now the struggling suburb it is today.

This area, along with its neighboring and similarly vacated suburbs, are locations architect Paola Viganò and urban theorist Alan Berger call for as they describe how to remediate nature within leftover spaces of the horizontal metropolis. These leftover spaces are what this thesis uses in order to provide this support system for the nomadic lifestyle.

They provide safety for all species while also shaping a new form of dwelling through a cooperative system that has core values of moderation, interconnectedness, and low-tech.

Following this introduction (section 1,) the document presents the ARC636 paper (section 2,) which laid the foundation for my research, shows the thesis topic's full introduction, the discourse that informed the project, site history and analysis, the final design proposal (section 3,) and finally concludes with a reflection on both the presentation and the year's journey within the addendum (section 4.)

02

ARC636 PAPER

Aquatic Abandonment: Repairing Humans' Relationship with Water in Abandoned Urban Space

Andrew Warman
Miami University

Abstract

With 2023 being the warmest year since pre-industrial times and cities making up over 70% of the world's carbon emissions, the built urban environment must be immediately transformed. In this urban environment the location this thesis will investigate is abandoned urban spaces affected by climate change due to severe water issues. This abandonment procreates lack of care, crime, littering, and other antisocial behaviors that need to be solved while looking through the lens of adaptive architecture and mending the human relationship to water. Using deconstructivist theoretical framework along with several case study analyses that focuses on movement, collision of events, and adaptability this thesis not only works towards providing tactics towards the carbon emission issues of the city but also provides space for diverse interactions between people, water, and the built realm.

Introduction

Climate Change is an issue architects, along with those in other disciplines, must not just plan for, but rather recognize that its consequences are now part of everyday life. One of the largest effects coming from climate change is the broken relationship between humans and water. This effect occurs from climate change results such as billions of people without access to clean water, the increasing frequency of flood and drought, and rising water levels. These effects compounded with various issues from urbanization lead to humans and non-humans being forced to leave certain spaces, which can be defined as urban abandonment. This decay of space then allows for anti-social behavior, crime, littering, and other problems for a city and overall health of the world. While this issue may not be solved alone by architects, due to majority of climate change's contextual setting being in the urban environment, along with almost a third of carbon emissions coming from the construction industry, the practice must be called upon in a major way to provide design tactics that allow for repair of broken relationships.

This thesis speculates on where architects can contribute towards adaptation for the climate change consequences. With both carbon emissions and water having a deep history within the urban environment, this thesis offers tactics for this process of repair to occur in a decayed urban space where its relationship with water has been damaged severely. Decay in this contextual setting can be defined as "aquatic abandonment." This issue of aquatic abandonment then begs the question of: how can architecture adapt and bring people back into abandoned urban spaces that are taken over by the issues of water?

To answer this question design tactics must be driven by movement, just as water is, inclusivity of all life, human or not, and indigenous methods with supplement of modern technology. A theoretical framework will be set through analysis of architectural practitioners Bernard Tschumi, Jorge Ortero-Pailos, and Kate Orff along with design tactics gathered from analysis of the projects *Makoko Floating Systems*, *This Land is Your Land*, and *Rescue Lines*.

Issue Relevance and Thesis Argument

For reference, many sustainable design strategies and public policies revolve around deadlines and 17 sustainable development goals set by 2015 Paris Agreement at the 21st Conference of Parties (COP) put on by the United Nations (UN). The agreement stresses the importance of limiting the increase of global temperatures this century to less than 1.5°C above pre-industrial levels, which is the limit before major consequences. However, even with 100% implementation of nations' current policies, the world is on pace to raise 2.7°C by the end of this century.[1] One of the major

reasons these policies may be not enough is the absence in discourse during these COPs about rising water scarcity and defining the role of the urban environment until recent years.[2] This major threat of increased temperature due to climate change would endanger 3 billion people to water along with displace billions of people due to inhabitable land.[3] So the question lies, how can architecture address this endangerment of climate change, water problems, and urbanization consequences?

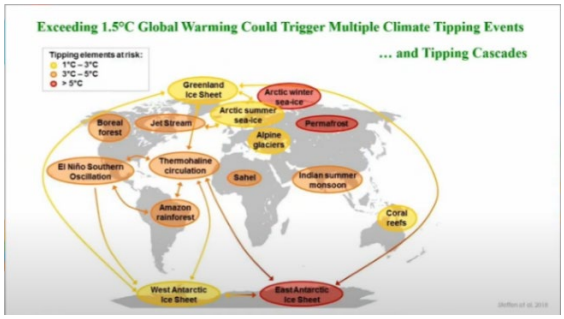


Figure 1: Risks of Rising Temperatures

With the limited time this issue allows for, architects must go to a main source of climate change, which in this case is the urban environment.[4] While government officials are attempting to slow this emission issue, urbanization continues to grow at an exponential rate in which 7 billion people will live in the urban area by 2050.[5] In cities that experience major climate change consequences the urban environment often become abandoned due to recognition that the area has degraded to the point of major loss in quality of life, economic value, and overall demand.[6] In order to prevent continued urban abandonment, architects must enter these preexisting struggling spaces and tend to the space rather than build around them.

When looking at an abandoned space, it is important to understand three strong words in order to connect to the space and its surroundings: *history, trace, and memory.* The definitions are as follows:

History: the connection of past events through the relations of the events themselves, the places they occurred, and the people who were involved.
Trace: Objects, feelings, spaces, and people left behind often to decay away, that can be tied to previous events or people.
Memory: The ideas/feelings attached with a certain space for past and current users and non-users.

When looking at the history of cities themselves, the contextual setting of this thesis can be narrowed further by what is most often the lifeline of the urban environment: water. However, this relationship has been recently strained.[7] Not only is the use of water being threatened, but its chances to demolish and threaten life through means of flood, rising water levels, and drought increase with every single degree of temperature. Urbanization is consequentially tied with these water issues as its growth often equates to more impervious covers and drainage systems within the city. These allow for water pollution while also intensifying erosion and sediment transport from landscape into the water. This causes major runoff issues that lead to higher flood rates, lesser quality water, and lessened bank stability.[8] As urbanization continues to grow at exponential rates, its effect on the hydrological cycle must be accounted for and water must be protected to mend this broken relationship.

Practitioner Case Study Analysis

The three practitioners were chosen to allow for implications which provides three means of theoretical framework for the actions of repair and restore within an aquatic abandoned space.

Bernard Tschumi

Bernard Tschumi is a world-renowned architect who not only continues to practice his philosophy of architecture does not exist without event, action, or movement in today's current time, but has been doing so since the 1970s. This combination of an event-based design tactic with influence from the emerging field of psychoanalysis can best be shown within his two most famous works, *The Manhattan Transcripts* and Parc De La Villette.

To broadly summarize the storytelling within *The Manhattan Transcripts*, Tschumi argues through four fictional episodes within the context of Manhattan through unconventional drawings that architecture must be designed through three different forms of action: space, movement, and event.[9]

In 1982 Tschumi then won the Parc De La Villette Competition that calls for a 21st century urban park in Paris, France within an abandoned national meat market. His design takes the messages of *The Manhattan Transcripts* and physically forms a 55.5-hectare park. While it is worth noting the psychoanalytical references within the folies, its emphasis and collision of space, event, and movement, and the park's point, line, and surface organization strategies, the most important theoretical framework that can be taken from Tschumi and his park is the allowance of unprogrammed space within the

green surfaces and point follies. The choice to design with the trust that people will use the space to create new events through various actions allows for constant redefinition of the space itself not only the people's needs change, but also as the 21st century continues to change at a rapid pace.



Figure 2: Unprogrammed Green Space at Parc De La Villette

This theoretical framework of trust to the users within the context of an aquatic abandoned space makes similar implications to Parc De La Villette, it allows for architects to frame spaces but its definition to change over time not only as the people's needs do, but also as the climate changes with it.

In the context of aquatic abandoned spaces the importance of spatial definition from current users is equally important as future users. Current users of this problematic, lonely space, such as slum residents or the unhoused, at times are just as if not more informed about protecting the environment compared to anyone else.[10] This recognition of current users also goes to show that event still is occurring in these abandoned spaces even in their lonely state. This left behind trace as urbanity continues to grow begs questions of: why did the events change? What is the history of the space in which it changed from one to another? How can architecture provide new and interesting spaces while connecting to previous memories of the surrounding area?

Jorge Ortero-Pailos

The second practitioner to be drawn from is Jorge Ortero-Pailos, the current Director of Historic Preservation at Columbia University's Graduate School of Architecture, Planning, and Preservation.

He expresses how the public in today's current age are very conscious of earth's current limited resources, but the education system has not caught up with this.[11] Its ideals are still in a manner that teaches that architects are "builders" but if the call for new, short-lived infrastructure is continued, carbon emissions will rise further, and fatal climate consequences will follow. Architects must become protectors of the environment by investigating existing spaces through a multi-disciplinary lens rather than always for new construction or solely relying on "greener" sustainable construction methods.[12]

When looking at how he argues architecture should be taught, one strong quote creates a key theoretical framework for this thesis "We are not teaching architects how to recognize intersecting root causes leading to a building's demise… which might include ideological, social, financial, political, or environmental toxicity, among other systemic factors."[13] Aquatic abandoned spaces must be looked at not only from a design standpoint, but rather a multi-faceted and intersecting approach which includes socioeconomics, sociology, climatology, and other various professions. When exploring the history of a space's demise, not only is the physical decay of the structure important, but in a multi-disciplinary fashion from a social, economic, cultural, or political manner why is it even decaying at all?

Kate Orff

Finally, Kate Orff is the founding partner of the landscape architecture firm SCAPE and professor at Columbia's Graduate School of Architecture, Planning, and Preservation. Orff in her firm attempts to design and advocate for "ecologically restorative and socially engaged landscapes, urban environments, and natural infrastructure of the future."[14]

Orff and her firm's ideology revolve around four key concepts: "Cohabit," "design for climate change," "revive site systems," and "social infrastructure." While all four are relevant, the main addition to this thesis is in the idea of "social infrastructure." This idea can be encapsulated by another word: engagement. This idea of engagement can be seen in SCAPE's projects and their outcomes such as "Living Breakwaters" in Staten Island, NY when the firm paired with a local coalition to create a curriculum to protect the project's land and human/non-human life along with how it can grow in the future; or in "Gowanus CSO Tank Facility & Salt Lot" in Brooklyn, NY where SCAPE actually held public design workshops with the community so their needs can be met during design. As Orff says in her book *Toward an Urban Ecology*, "Engagement itself is a process, a project, and a product. Community events — following either conventional or unexpected formats — must be woven into the DNA of the design process itself."[15] Engagement allows not

only for the current users to be heard but allows for the possibility of the history of the site, the trace it has left, and the memories attached to it to be woven deeply within design. This priority in the action of engagement throughout the design process is the final piece of the theoretical framework set by these three practitioners.

Project Case Study Analysis

These case studies were all chosen due to their design methods of intervening into a preexisting struggling space that is somehow connected to water while all three are at various scales ranging from small, regional, and country.

Makoko Floating System

The Makoko Floating System provides a simple design method to allow for life on water. This project was designed by Kunlé Adeyemi after examination of the aquatic community Makoko in Lagos, Nigeria which is currently being threatened by rising water levels along with extreme urbanization.[16] Within this struggling context, Adeyemi designed a simple, locally sourced timber prefabricated A-frame structure on top of a system of recycled water barrels. This initially was programmed as a school but also allows for program adaptability for other various communal events as well.

This building can quickly be assembled and disassembled with its simplistic design to move to another area, as shown in its various modified prototypes in Venice, Bruges, Chengdu, and Mindelo. It allows for various programs within these contexts such as education, fishing, music halls, or other public amenities. This scaler adaptation shows how this project is not limited to site but rather can be adapted to any aquatic environment for any program at multiple scales.[17]



Figure 3: MFS III x3 Chengdu, China

The main design tactic taken from this project is a focus on using nature-based solutions of bio-based materials for that allow for adaptation and expansion. Its use of recycled and timber members in construction is transformation in cities necessary for any success in decarbonization and deindustrialization.[18]

This Land Is Your Land

This Land is Your Land is a conceptual project from The Open Workshop within the Tennessee Valley Area (TVA). The TVA is currently experiencing urbanization due to job growth while still struggling with its energy systems. This project hosts actions that create unity, collaboration, and user definition by dividing a standard TVA parcel into a 3 layered hierarchical syndicate of private to collective ownership. Through analysis of an energy cooperative system, they address hyper-urbanization by designing a coexisting community that allows for ownership, governance, and maintenance of shared land to create several forms of resources all while connecting two struggling groups of people together.[19]

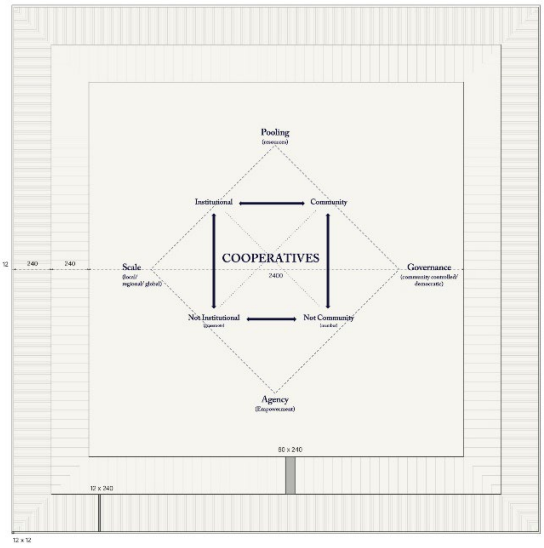


Figure 4: Collaboration within the site

While this project can feel utopian in many ways, it offers a wide range of design tactics that this thesis will take which all revolve around a theme of "coexisting urbanity." Through collaborative living and land ownership that respects the history of the current struggling people along with majority of the parcel being public but still allowing for moments of privacy, this space succeeds in an energy transformation that can be adopted into a struggling urban area.

Rescue Lines

Rescue Lines is a speculative project by Smout Allen and Geoff Manaugh which explores how to repair, reconnect, and grow the United Kingdom's living ecology in parallel to its economy in the setting of its forest regions. It uses a similar design philosophy to Charles Waldheim's *Landscape as Urbanism* in which it allows landscape to drive the organization of all structure, circulation, and ecology.[20] It uses 4 different programs of forest, house, landscape zoos, and the proving grounds in which it provides spaces of scientific exploration, housing for human and non-humans, and circulation paths for migration of the entire ecosystem, human or non-human.[21]



Figure 5: Physical Map of Overlaying 4 Programs

Rescue lines' incorporation of small-scale urbanity within forests also goes to show how the urban environment is solely a habitat within a larger worldly ecosystem.[22] Cities are not a separate entity that solely has implications for urban areas and its surroundings but instead can affect the entire world. Not only are humans affected by cities and their residents' carbon footprint, but nonhumans are as well, such as animals have had to adapt through evolution for better or worse.[23]

The design tactic taken from this project is its choice to heal through nature, specifically its prioritization of non-human life throughout each program. It accounts not only for the history of the forest but heals through nature for its growth in the future.

Potential Contextual Settings for Thesis Inquiry

The three current potential areas of speculation are a River City, Coastal City, and Lake City.

A River often provides a city life not only through event and activity but most importantly through its freshwater system that accounts for 60% of the United States' drinking water along with strong currents for hydroelectricity.[24] However, it often creates socioeconomic divide through its linear axis along with poor current treatment with heavy infrastructure along these rivers.[25]

A Coastal City similarly provides life to a city, but mostly through commercial and residential life, in which there currently are MAJOR issues in rising water levels are the inhabitants of the urban environment's ability to adapt with them.[26]

Lastly, The Great Lakes have provided cities with vast amounts of tourism, drinking water, hydroelectricity, however, they are dealing with issues such as pollution to the point of being deemed "dead" in the past in Lake Erie, privatized to create water scarcity issues such as in Detroit or Flint, and its water levels steadily rising.[27]

Conclusion

Through careful case study analysis with the criteria of history, trace, and memory this thesis has developed a theoretical framework and design tactics to address how aquatic abandonment can be addressed within the potential contextual settings of a river, coastal, or great lake city. These design tactics must follow an event-based methodology that investigates preexisting, struggling spaces with supplemental nature-based and technological solutions. This investigation must constantly engage with historical background of the site along with its past and current users so that it may dive into the problems architecture along with other disciplines has caused along with current and past successes and failures in attempting to provide solutions towards climate change and/or abandonment. While the urban setting may often feel isolated or its own entity, in relation to the health of the world, it is merely a habitat part of the Earth's connected ecosystem. Along with humans, non-human life is equally as important in investigation of space and revitalization of life. Non-humans use water just as much as humans do as well as provide often unnoticed help towards solving climate issues. With these design tactics in mind, this

thesis will make claims as to how to provide spaces that allow for revival of space and repair in relationship not in the sense of reviving the old, but instead in remembrance of what was and adapting to the new climate challenged world life resides in.

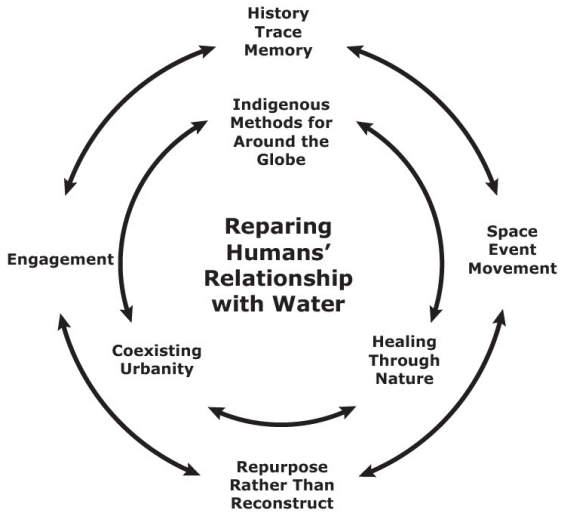


Figure 6: Theoretical Framework, Design Tactics, and Issue

Endnotes

[1] University of Exeter, and Stanford Doerr School of Sustainability. "Global Carbon Emissions from Fossil Fuels Reached Record High in 2023." Stanford Doerr School of Sustainability, December 5, 2023. https://sustainability.stanford.edu/news/global-carbon-emissions-fossil-fuels-reached-record-high-2023#:~:text=5%20by%20the%20Global%20Carbon,billion%20tons%20from%20fossil%20fuels.

To come close to this goal nations' carbon emissions must cut by over 50% by 2030 and must be net zero by 2050, yet the UN states that on our current projections we will already be above 1.5°C by 2030

[2] UNFCCC "COP 28: What Was Achieved and What Happens Next?" Unfccc.int. Accessed April 9, 2024. https://unfccc.int/cop28/5-key-takeaways#:~:text=COP%2028%20closed%20with%20an,As%20COP%2028%20President%20Dr.

These inclusions are the formation of Sharm el-Sheikh Implementation Plan in 2022 and the Coalition for High Ambition Multilevel Partnerships in 2023.

[3] Michel, David. "Water and Global Climate Action at COP28." CSIS, December 20, 2023. https://www.csis.org/analysis/water-and-global-climate-action-cop28.

[4] Schreiber, Franziska, Westermann, Johanna, Misselwitz, Philipp (Bauhaus Erde), *"How to Fix the Built Environment System, Building for the Future A Knowledge Product Collection by Bauhaus Earth."*

Cities produce over 70% of the world's carbon emissions through means such as construction and maintenance of buildings along with transportation services that rely heavily on fossil fuels. These facts are based off the direct quote from page 3 "'operational emissions' (28% of global carbon emissions), that is emissions resulting from the use of a building, such as lighting, heating, and cooling. 'Embodied emissions' (11% of global carbon emissions), however, have received little attention. Embodied emissions refer to all non-operational emissions that occur throughout the entire life cycle of a building. This includes emissions released before the building is even in use, such as during extraction, production, and transportation of building materials as well as emissions that occur during the construction and demolition process."

[5] CDP "Cities at Risk: Dealing with the Pressures of Climate Change." https://www.cdp.net/en/research/global-reports/cities-at-risk.

[6] Adeyemi, Kunlé, and Hans Joachim Schellnhuber. "Keynote Dialogue with Kunlé Adeyemi: Climate Adaptation - Building for an Unpredictable Future." UIA WORLD CONGRESS OF ARCHITECTS CPH 2023 at Bella Center Copenhagen, Copenhagen, Denmark, July 6, 2023.

If these current climate change trends continue, over 1/3 of the world's population will be displaced and areas will be abandoned due to water scarcity, natural disasters, and increased temperatures.

[7] United Nations "Climate Change - United Nations Sustainable Development." Accessed December 10, 2023. https://www.un.org/sustainabledevelopment/climate-change/.

While the relationship is on an upwards trajectory, progression must rise "sixfold for drinking water, fivefold for sanitation, and threefold for hygiene" to meet the sixth goal of the UN, which is to ensure access to water and sanitation to all by 2030.

[8] Swann, Christopher, Center for Watershed Protection. "Impacts of Impervious Cover on Aquatic Systems", Ellicott City, MD, 2003.

[9] Tschumi, Bernard. The Manhattan Transcripts. London Academy Editions, 1981.

In further detail, Tschumi uses non-traditional languages of architectural discourse, such as photography, film, and drawing, to explore the spatial relationships between movement, action, event, and humans. This thesis uses *The Manhattan Transcripts* not only to show how architecture does not occur without space, movement, and event, but also to show that even in current architecture, while not as exaggerated as murder, humans' spatial relationship with the built environment is still at times one of violence that causes uneasiness (In this case, Tschumi is referring to Modernism, however in this thesis' case it is referring to the lack of care with water in cities that causes a violent relationship with humans).

[10] Dove, Michael R., et.al. "The Global Mobilization of Environmental Concepts: Re-Thinking the Western-Non-Western Divide." In *Nature Across Cultures. Views of Nature and the Environment in Non-Western Cultures,* ed. Helaine Selin. Boston: Kluwer Academic Publishers, 2003. [pp.25-27]

This can be seen in examples such as the Sukumbaasi in Kathmandu, Nepal who protected their local Bagmati River against local government officials. The Sukumbaasi are local slum dwellers who lived along the Bagmati River. As Kathmandu was experiencing extreme urbanization, the city's government officials attempted continuous dumping into the river while also trying to push these slum dwellers away for tourism and urbanization. In failure of these officials and river protection from the Sukumbaasi, this example shows how indigenous and migrant communities are not the problem in urban planning of polluted areas in the city, but instead it is really those in power are those who are causing the pollution and the poorer communities (in this case the Sukumbaasi) have protected the area, helped it grow, and deserve the respect of proper urban housing development.

[11]Levison, Nancy, Richard, Frances "Jorge Otero-Pailos in Conversation with Nancy Levinson and Frances Richard, Repairing Architecture Schools," Places

Journal, March 2024. Accessed 08 Apr 2024. https://placesjournal.org/article/repairing-architecture-schools/

[12] Levison, Nancy, Richard, Frances, "Jorge Otero-Pailos in Conversation with Nancy Levinson, and Frances Richard, Repairing Architecture Schools."

This information is based off of the quote: "It is interesting to observe how the architects in charge of running schools are responding to this tension: they are promoting research into using "greener" materials and introducing courses and curricula to teach students to build "sustainably." All these initiatives are ways of rationalizing the existing ideal that architects must continue to design for new construction, only with "better" materials and processes."

While these sustainable, green construction methods are still worth researching, teaching, and practicing the argument of architects needing to investigate and tend to preexisting, struggling spaces is a philosophy that Ortero-Pailos argues must be accentuated in education and one that this thesis frames its theory around.

[13]Levison, Nancy, Richard, Frances, "Jorge Otero-Pailos in Conversation with Nancy Levinson, and Frances Richard, Repairing Architecture Schools."

[14] "About our Studio." SCAPE, December 19, 2023. https://www.scapestudio.com/about/

[15] Orff, Kate. *Toward an Urban Ecology.* New York, NY: The Monacelli Press, 2016.

[16] Adeyemi, Kunle, and Hans Joachim Schellnhuber. "Keynote Dialogue with Kunle Adeyemi: Climate Adaptation - Building for an Unpredictable Future."

Along with water issues, the city of Lagos is experiencing extreme urbanization and is on pace to become one of the largest cities in Africa. Its current building structures, which are built upon stilts on the Lagos Lagoon, cannot handle the pace of population growth when compounded with threats from climate change.

[17] Adeyemi, Kunlé; Lettieri, Suzanne, Strijland, Berend (Editors); Eziakonwa, Ahunna (Foreword), *African Water Cities* (Marcel Witvoet, nai010 publishers, 2023)

In relation to comparing Global North (GN) and Global South (GS) areas, Adeyemi argues that this modulation considers that one cannot just copy and paste design methods into any site, but by developing nature-based tactics one can adopt these with use of any localized materials in each context. Something from the GN may not work in the GS and vice versa, however what architects can do is provide a design methodology that allows for adaptation in a multi-disciplinary manner for differences in socioeconomics, culture, and climate.

[18] Schreiber, Franziska, Westermann, Johanna, Misselwitz, Philipp (Bauhaus Erde), *"How to Fix the Built Environment System, Building for the Future A Knowledge Product Collection by Bauhaus Earth."*

This movement for decarbonization and deindustrialization is referred from Bauhaus Earth calls for in their publication earlier referenced "Building for the Future."

One of the key takeaways on page 13 is as follows: "Switching to bio-based building materials can help transform buildings and cities from carbon sources into carbon sinks. Sustainable land and forest management, along with reforestation and afforestation, is necessary for this transformation."

[19] The Open Workshop. 2023. "*Regional Globalism in the Tennessee Valley: This Land is Your Land*, *Knoxville, Tennessee November 3, 2023."* University of Tennessee

For Reference, energy cooperatives, created by the Rural Electrification Act of 1936, are not-for profit, member owned utility service that provides service solely to its members. They provide power to over 42 million people in the United States, 92 percent of which live in counties with persistent poverty.

The struggling groups mentioned are two specific precariats: the original residents, who lost material and social security due to transformations in labor that often perpetuates beliefs that foster nationalistic, xenophobic, and racist agendas; the second being a new younger generation of educated people who are unable to achieve financial or social security. Even though these young people are struggling, they tend to aspire to live in a society based on equality, freedom, and sustainability.

The division is a first ring of private ownership (individual autonomy), a second ring of co-ownership between 5 households, and finally to the middle of the plot that contains a collectively owned, governed, and maintained surface for energy and lumber production.

[20] Waldheim, Charles. Landscape as Urbanism: A General Theory. Princeton University Press, 2016. https://doi.org/10.2307/j.ctvcszzn2.

Waldheim's main argument is that throughout history landscape is what truly has organized the city rather than the buildings, roads, or other circulation paths. This is present within the Rescue Lines project as landscape is what organizes and drives design for Smout Allen rather than the buildings themselves.

[21] Manaugh, Geoff, Smout Allen, 2021. "*17th annual Venice Architecture Biennale, titled How will we live together? Rescue Lines, The Central Pavilion, Giardini*," 22 May to 21 November 2021. Hashim Sarkis

[22] Spirn, A. W. (2012) Ecological Urbanism: A Framework for the Design of Resilient Cities, Resilience in Ecology and Urban Design, edited by Steward Pickett, Mary Cadenasso, and Brian McGrath (unpublished)

[23] Ditchkoff, S.S., Saalfeld, S.T. & Gibson, C.J. Animal behavior in urban ecosystems: Modifications due to

human-induced stress. *Urban Ecosyst* 9, 5–12 (2006). https://doi.org/10.1007/s11252-006-3262-3

Ditchkoff, Saalfeld, and Gibson all refer in this text to change in behavior, diet/nutrition, reproduction, pollution, and survival rates due to urban stress along with adaptations that has come with this. To reference one of the reproduction issues, "urban stresses can have a multitude of unexpected influences on reproduction. Stresses associated with human disturbance, heat, noise, pollution, and other stimuli can influence reproductive characteristics such as timing of breeding, litter size, and mate acquisition."

[24] "River Habitat." NOAA fisheries, February 4, 2022. https://www.fisheries.noaa.gov/national/habitat-conservation/river-habitat#more-information

[25] Deweerdt, Sarah. "As a City Grows, Its Impact on Rivers Doesn't Have To." Anthropocene, August 22, 2017. https://www.anthropocenemagazine.org/2017/08/urban-effects-on-rivers-have-long-reach/.

[26] Fleming, E., et al. (2018). Ch. 8: Coastal effects. In: "Impacts, risks, and adaptation in the United States: Fourth national climate assessment, volume II." U.S. Global Change Research Program, Washington, DC.

"Collectively, these threats present significant direct costs related to infrastructure. The more than 60,000 miles of U.S. roads and bridges in coastal floodplains are already demonstrably vulnerable to extreme storms and hurricanes that cost billions in repairs. The national average increase in the Special Flood Hazard Area by the year 2100 may approach 40% for riverine and coastal areas if shoreline recession is assumed, and 45% for riverine and coastal areas if fixed coastlines are assumed. Additionally, indirect economic costs (such as lost business) and adverse sociopsychological impacts have the potential to negatively affect citizens and their communities."

[27] Gaber, N. (2021). Blue lines and blues infrastructures: Notes on water, race, and space. Environment and Planning D: Society and Space, 39(6), 1073 - 1091. https://doi.org/10.1177/02637758211 065451

Gaber in this Paper shows the extreme issues within the context of the Great Lake areas, specifically in Detroit, and how these water scarcity issues are not solely a climate change issue, but even more so a socioeconomic, race, and political issue as well. This goes hand-in-hand with Ortero-Pailos theoretical framework of these issues must be handled from a multidisciplinary manner rather than just from one of design.

Illustration Credits

Figure 1: Risks of Rising Temperatures

Adeyemi, Kunle, and Hans Joachim Schellnhuber. "Keynote Dialogue with Kunle Adeyemi: Climate Adaptation - Building for an Unpredictable Future." UIA WORLD CONGRESS OF ARCHITECTS CPH 2023 at Bella Center Copenhagen, Copenhagen, Denmark, July 6, 2023.

Figure 2: Unprogrammed Green Space at Parc De La Villette

Bernard, Tschumi. "Parc de La Villette." Bernard Tschumi Architects. Accessed May 1, 2024. https://www.tschumi.com/projects/3.

Figure 3: MFS III x3 Chengdu, China

Adeyemi, Kunle, and Hans Joachim Schellnhuber. "Keynote Dialogue with Kunle Adeyemi: Climate Adaptation - Building for an Unpredictable Future." UIA WORLD CONGRESS OF ARCHITECTS CPH 2023 at Bella Center Copenhagen, Copenhagen, Denmark, July 6, 2023.

Figure 4: Collaboration within the site

The Open Workshop. 2023. "Regional Globalism in the Tennessee Valley: This Land is Your Land, Knoxville, Tennessee November 3, 2023." University of Tennessee

Figure 5: Physical Map of Overlaying 4 Programs

Smout Allen and Geoff Manaugh, 2021. "17th annual Venice Architecture Biennale, titled How will we live together? Rescue Lines, The Central Pavilion, Giardini," 22 May to 21 November 2021. Hashim Sarkis

Figure 6: Theoretical Framework, Design Tactics, and Issue

Warman, Andrew.

Annotated Bibliography

1. Adeyemi, Kunlé, Joachim Schellnhuber, Hans. "Keynote Dialogue with Kunlé Adeyemi and Hans Joachim Schellnhuber: Climate Adaptation - Building for an Unpredictable Future." UIA WORLD CONGRESS OF ARCHITECTS CPH 2023 at Bella Center Copenhagen, Copenhagen, Denmark, July 6, 2023.

   Kunlé Adeyemi and Hans Joachim Schellnhuber were invited to the 2023 UIA World Congress of Architecture panel on July 6 to speak of climate adaptation in order to build for an unpredictable future. Adeyemi speaks to his actual architecture practice which includes the case study of Makoko Floating Systems with various data collection on African Cities in tandem with his book African Water Cities. Schellnhuber is a leader in the Bauhaus Earth group which discusses the severity of climate change and truly how

dire this situation is with graphics that show how much the earth will change with temperature increase along with possible construction solutions that can prevent/adapt to this consequence.

2. Adeyemi, Kunlé; Lettieri, Suzanne, Strijland, Berend (Editors); Eziakonwa, Ahunna (Foreword), African Water Cities (Marcel Witvoet, nai010 publishers, 2023)

   African Water Cities is written by Kunlé Adeyemi, architect and founder of and his firm NLÉ, to show the relevance of the historical relationship between water and humans in African cities that is currently being massively threatened through photography, drawing, mapping, and diagram. This book will be used in this thesis in order to show the Makoko Floating System along with its successes in nature-based solutions and adaptability in various areas.

3. CDP "Cities at Risk: Dealing with the Pressures of Climate Change." https://www.cdp.net/en/research/globalreports/cities-at-risk.

   CDP is a not-for-profit charity that runs the global disclosure system for investors, companies, cities, states, and regions to manage their environmental impacts. In their article Cities at Risk: Dealing with the Pressures of Climate Change" they explore the reasoning behind why cities are such a large contributor in this climate change issue along with their capabilities of becoming a major healer of the environment.

4. 4. Ditchkoff, S.S., Saalfeld, S.T. & Gibson, C.J. Animal behavior in urban ecosystems: Modifications due to human-induced stress. Urban Ecosyst 9, 5–12 (2006). https://doi.org/10.1007/s11252-006-3262-3

   Stephen S. Ditchkoff, Sarah T Saalfeld, and Charles J. Gibson, all ecology professors at Auburn University, write the paper "Animal Behavior in Urban Ecosystems: Modifications Due to Human-Induced Stress" to show the evolution and consequences of human produced carbon emissions that has greatly affected animal populations. These consequences discussed within the paper are behavior, diet/nutrition, reproduction, pollution, and survival rates due to urban stress along with adaptations that have come with this.

5. Dove, Michael R., et.al. "The Global Mobilization of Environmental Concepts: ReThinking the Western-Non-Western Divide." In Nature Across Cultures. Views of Nature and the Environment in Non-Western Cultures, ed. Helaine Selin. Boston: Kluwer Academic Publishers, 2003. [pp.25-27]

   Michael Dove, an environmental anthropologist teaching at Yale University, whose work focuses on the environmental relations of local communities, especially in South and Southeast Asia, writes on the topic redefining urban ecology in the city of Kathmandu, Nepal. This excerpt is taken from a paper part of a collection of 25 essays dealing with the environmental knowledge and beliefs of cultures outside of the United States and Europe edited by Helaine Selin, editor of over 15 books, several which have given the honor of bestselling. This excerpt from Dove's paper helps the paper understand how indigenous and migrant communities the problem in urban planning of polluted areas in the city are not, but instead it is really those in power are those who are causing the pollution and the poorer communities (in this case the Sukumbaasi) have protected the area, helped it grow, and deserve the respect of proper urban housing development.

6. Deweerdt, Sarah. "As a City Grows, Its Impact on Rivers Doesn't Have To." Anthropocene, August 22, 2017. https://www.anthropocenemagazine.org/2017/08/urban-effects-on-rivers-have-longreach/.

   Sarah Deweerdt is a Seattle-based freelance science journalist specializing in biology, medicine, and the environment. In addition to Anthropocene, her work has appeared in Nature, Newsweek, Nautilus, Spectrum, and many other publications. In this article "As a City Grows, Its Impact on Rivers Doesn't Have To" she explores how rivers have been Aquatic Abandonment 14 negatively affected by the urbanization of the city while speculating how rivers can be positively impacted as well. This paper takes both negative and positive aspects of urbanization on rivers into account and is used for data collection in a potential site context.

7. Fleming, E., et al. (2018). Ch. 8: Coastal effects. In: "Impacts, risks, and adaptation in the United States: Fourth national climate assessment, volume II." U.S. Global Change Research Program, Washington, DC.

   Fleming in "Impacts, risks, and adaptation in the United States: Fourth national climate assessment, volume II." shows how worldly coastal cities economies and properties, coastal environments, and intensified social challenges are all already at risk. This paper's data collection shows a potential context in site for coastal cities.

8. Gaber, N. (2021). Blue lines and blues infrastructures: Notes on water, race, and space. Environment and Planning D: Society and Space, 39(6), 1073 - 1091. https://doi.org/10.1177/02637758211065451

   Blue lines and blues infrastructures: Notes on

water, race, and space by Nadia Gaber, a distinguished writer and proud member of We the People of Detroit's Community Research Collective, explores how water materializes and mediates uneven landscapes of livability, as well as new modes of living in common among those excluded from the urban commons. This paper will serve as a socioeconomic and racial background for the potential contextual analysis of sites in which its research can be adapted to many areas within the world with the issue of water privatization, segregation, water shutoffs, and more.

9. Levison, Nancy, Richard, Frances "Jorge Otero-Pailos in Conversation with Nancy Levinson and Frances Richard, Repairing Architecture Schools," Places Journal, March 2024. Accessed 08 Apr 2024. https://placesjournal.org/article/repairingarchitecture-schools/

   Nancy Levison and Frances Richard in Places Journal write about their interview with Jorge Ortero-Pailos and his call for change in the architectural education system. Otero-Pailos is the director of historic preservation at Columbia University and teaches on how architects can change the field through the idealistic change from "building" to one of "tending and protecting" the challenged world we currently live in along with its already struggling built environment. Otero Pailos' design philosophy is used massively in this thesis, and he is used as a practitioner case study.

10. Orff, Kate. *Toward an Urban Ecology.* New York, NY: The Monacelli Press, 2016.

    Kate Orff, founding partner of Landscape Architecture firm SCAPE and professor at Columbia's Graduate School of Architecture, Planning, and Preservation, writes in her "part monograph, part manual, part manifesto" *Toward an Urban Ecology* about how urban landscape can move forward with tactics that are design driven, participatory, and science based. It uses its chapters as overall themes of the book which include: "Revive," "Cohabit," "Engage," and "Scale." This thesis views Kate Orff as a practitioner case study and takes many of her ideas as inspiration, but the main source of theoretical framework is community engagement. With community engagement, she attempts to spur activism within groups through design and connecting the people with each other, architecture, the land's history, and the natural world.

11. "River Habitat." NOAA fisheries, February 4, 2022. https://www.fisheries.noaa.gov/national/habitat-conservation/river-habitat#moreinformation

    NOAA Fisheries, the trusted government authority on the science and management of fish, other marine life, and their habitats, writes in this article what the river habitat means to not only the urban environment but also the entire earth's system, in specific analysis they study the United States. This article is used to show why rivers are so important to cities while providing statistics for negative impacts from urbanization.

12. Manaugh, Geoff, Smout Allen, 2021. "17th annual Venice Architecture Biennale, titled How will we live together? Rescue Lines, The Central Pavilion, Giardini," 22 May to 21 November 2021. Hashim Sarkis.

    Smout Allen, a U.K based architecture firm led by professors from Bartlett School of Architecture Mike Smout and Laura Allen, in collaboration with Geoff Manaugh, designed a speculative architecture that explores how to repair, reconnect, and grow a forest habitat for the greater good of its ecology. Major design tactics of inclusion of vegetation and animal life in all areas of design, respect of forest and other life's history along with their future growth, and intervention in preexisting struggling space are all design tactics taken from this project.

13. Schreiber, Franziska, Westermann, Johanna, Misselwitz, Philipp (Bauhaus Erde), "How to Fix the Built Environment System, Building for Aquatic Abandonment 15 the Future A Knowledge Product Collection by Bauhaus Earth." "How to Fix the Built Environment System" is the second knowledge part of the larger collection named "Building for the Future: A Knowledge Product Collection" by members of Bauhaus Earth.

    Bauhaus Earth is an organization consisting of a range of disciplines including architects, designers, doctors, engineers, sociologists, ecologists, urban planners, and many more. This specific part of the collection dives into how the construction business along with design tactics can be changed in order to reach the UN's current goals of limiting temperature increase, which are currently far off from reach. This paper uses its gathered data about current failures along with examples such as bio-based construction methods that can change the construction industry into one that becomes a carbon sink rather than producer.

14. Spirn, A. W. (2012) Ecological Urbanism: A Framework for the Design of Resilient Cities, Resilience in Ecology and Urban Design, edited by Steward Pickett, Mary Cadenasso, and Brian McGrath (unpublished)

    Anne Whiston Spirn, an award-winning author, landscape architect, photographer, teacher, and scholar. Her work is devoted to promoting life-sustaining communities. In her article "Ecological Urbanism: A Framework for The Design Of Resilient Cities, Resilience in Ecology and Urban Design" she explores how

this social construct that cities their own entity when actually they are solely habitats in a larger ecosystem. Cities' ecological and environmental issues need to be addressed not in an individual manner but instead in tandem with other disciplines and other parts of the singular ecosystem. Nature is not a place; it is not a thing but rather a set of ideas that has collected into one in many cultures that constitutes to a single notion.

15. Swann, Christopher, Center for Watershed Protection. "Impacts of Impervious Cover on Aquatic Systems", Ellicott City, MD, 2003.

    Christopher Swann is a bestselling novelist and teacher. He is a member of the Atlanta Writers Club and International Thriller Writers, who has his Ph.D. in creative writing from Georgia State University. In this writing "Impacts of Impervious Cover on Aquatic Systems" he explores how urbanization, and its massive concrete and steel covers disseminate the hydrological cycle through means of pollution, erosion, and sediment pollution that causes issues of flood, drought, and rising water levels.

16. Tschumi, Bernard. The Manhattan Transcripts. London Academy Editions, 1981.

    The Manhattan Transcripts by Bernard Tschumi, a well-known architect and writer most famous for his progressions of architecture in the design philosophy of deconstructivism, uses non-traditional languages of architectural discourse, such as photography, film, and drawing, to explore the spatial relationships between movement, action, event, and humans. This paper uses The Manhattan Transcripts to show that even in current architecture, while not as exaggerated as murder, humans' spatial relationship with architecture is still at times one of violence that causes uneasiness.

17. The Open Workshop. 2023. "Regional Globalism in the Tennessee Valley: This Land is Your Land, Knoxville, Tennessee November 3, 2023." University of Tennessee.

    "Regional Globalism" is a new annual symposium put on by the University of Tennessee that explores ways that gather various firms and architects to catalyze sustained scholarship on the infrastructural and ecological conditions that underpin crosscurrents of regionalism and globalism in the Tennessee Valley. The project that is used from this specific second symposium is "This Land is Your Land" by The Open Workshop which explores a reimagination of energy cooperatives and living styles for current struggling groups of the TVA.

18. UNFCCC "COP 28: What Was Achieved and What Happens Next?" Unfccc.int. Accessed April 9, 2024. https://unfccc.int/cop28/5-keytakeaways#:~:text=COP%2028%20closed%20with%20an,As%20COP%2028%20President%20Dr.

    UNFCC writes this article of "What Was Achieved and What Happens Next" after the 2023 COP28 in the UAE. This annual conference of 197 nations had its most progressive summit in the year of 2023, however, there still was many issues and begs the question of is it too little too late. This paper uses the UNFCC's criticism of the conference in order to shed light on how far we truly are from the sustainable development goals.

19. United Nations "Climate Change - United Nations Sustainable Development." Accessed December 10, 2023. https://www.un.org/sustainabledevelopment/climate-change/.

    The United Nations in 2015 during the 21st Conference of Parties created 17 sustainable development goals in order to achieve peaceful objectives that include limitation of Aquatic Abandonment 16 temperature increase. While this paper takes all of the goals into consideration, in particular it looks at goals number 6, Ensure availability and sustainable management of water and sanitation for all, and number 11, Make cities and human settlements inclusive, safe, resilient, and sustainable." While these goals are at times vague, they provide ideals for designers to aspire to and real tactics to allow for global improvements.

20. University of Exeter, and Stanford Doerr School of Sustainability. "Global Carbon Emissions from Fossil Fuels Reached Record High in 2023." Stanford Doerr School of Sustainability, December 5, 2023. https://sustainability.stanford.edu/news/global-carbon-emissions-fossil-fuels-reachedrecord-high2023#:~:text=5%20by%20the%20Global%20Carbon,billion%20tons%20from%20fossil%2 0fuels.

    University of Exeter and Stanford Doerr School of Sustainability is based in Exeter, United Kingdom whose Stanford Doerr School of Sustainability offers research in hopes to break down traditional barriers between academic disciplines so the bigger problems of the 21st Century can be considered from human as well as physical perspectives. This team within the school wrote an article named "Global Carbon Emissions from Fossil Fuels Reached Record High in 2023." that explores how in 2023 the trends of carbon emissions are not going on the downward trend that it needs to in order to achieve the sustainability goals of the United Nations. It goes to show that these issues need to be addressed by an extreme change in the architecture practice that focuses on protecting the environment.

21. Waldheim, Charles. Landscape as Urbanism: A General Theory. Princeton University Press, 2016. https://doi.org/10.2307/j.ctvcszzn2.

    Landscape as Urbanism by Charles Waldheim, Professor of Landscape Architecture and Codirector of the Master's in Design Studies Program at Harvard Graduate School of Design, argues for the rethinking of how a city is truly organized in the 21st century. Rather than buildings or roads organizing the city, Waldheim through analysis of what landscape architecture is, its history, and the future of the profession argues that landscape currently and will continue to define a city's organization as the call for environmentalism moves forward. This paper uses Landscape as Urbanism in its reference to the notion of deindustrialization and how this idea of returning to nature-based solutions and allowing landscape rather than building is a very plausible answer to climate change issues in urban environments.

03

FINAL THESIS

With current societal norms, the nomadic lifestyle is often one to be thought of in the past, one that we as humans will never go back to. The thought is that most people want to buy a house, settle down from the hustle of urban life, and gain permanence in place. But what if the future complicates this notion of permanence?

In the planet's current climate crisis, people are being forced out from their homes regularly. According to the Internal Displacement Monitoring Centre, in 2023 over 26 million people around the world were displaced due to natural disasters. (Image 3) By 2100, it is possible that this number could rise to an unbelievably alarming number of 2 billion people. The question that came from this data and started this thesis in general is: where are these people supposed to go if they can no longer can call a place home?

This question is extremely loaded, and in order to offer design tactics for a support system, it must be broken down. To start with, who are these "people" this thesis aims to work for?

First and foremost, a new urban support system is being designed for the urgent needs of those who are being displaced by climate change, such as those affected in situations like recent hurricanes Helene and Milton along with the LA wildfires.

Secondly, along with these displaced individuals come those who choose to live this nomadic style, including retirees and gig workers. A study by MBO Partners, named "Nomading Normalizes in 2024," showed that currently in America there are over 18 million people who are being defined as "digital nomads," or mobile professionals within the United States.

While the demographics of nomads are very diverse, the culture remains the same. Usually stopping in places within nomadic communities, they live in a condition of "in betweenness." (see stills from the Film *Nomadland* in images 4 & 5)

Nomadism can be freeing, flexible, and full of self-growth, but there is an immense amount of challenges that comes with it. People often lack privacy, stability, and a flow of income, among other things. It is not an easy lifestyle to live, but the population continues to increase.

Even with these challenges however, a nomad's greatest resource is their mobility, and as climate change continues to worsen, there is no place it doesn't touch.

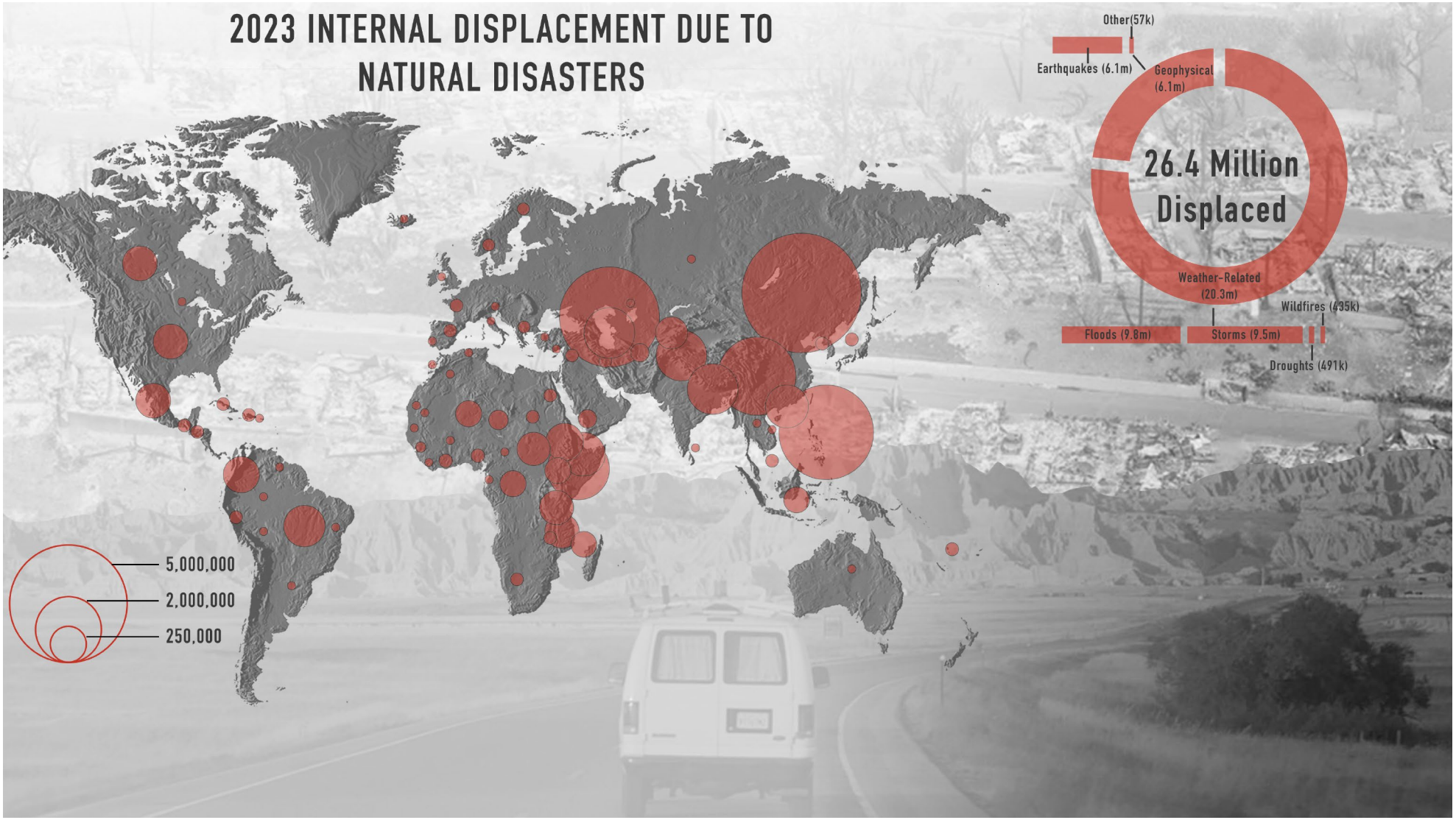


Image 1:
Hurricane Helene Aftermath, Photo by Chandan Khanna



Image 2:
LA Wildfires Aftermath, Photo by Justin Sullivan

Image 3:
Global 2022 Internal Displacement Due to Natural Disasters

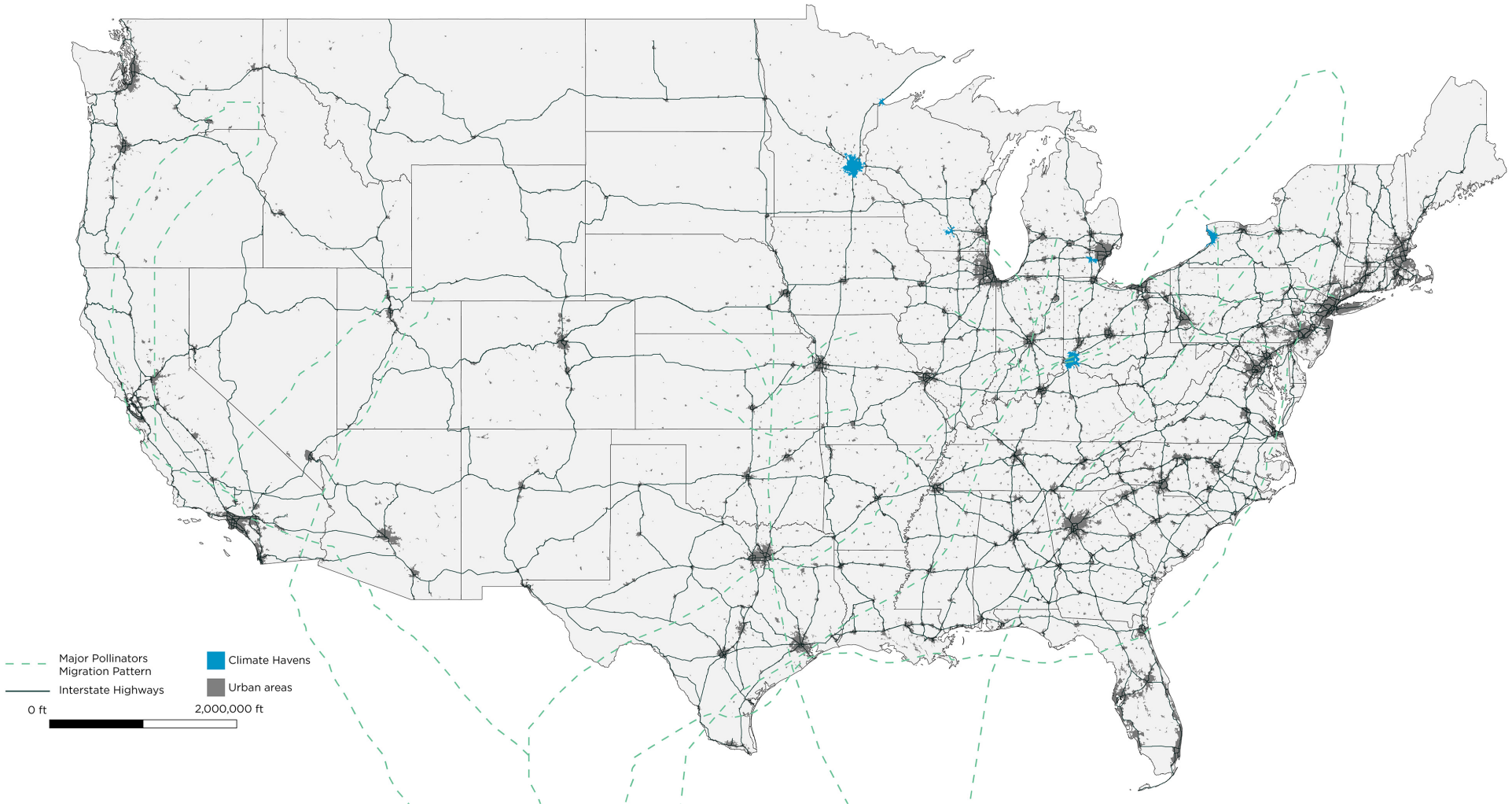


Images 4 & 5:
Stills taken from the film Nomadland showing the Nomadic Culture





Image 6:
Intersections of Highways, FEMA Lowest Risk Cities, and Animal Migration



The next piece of this question is: where are these nomads going? Th thesis chooses to not only look at where humans are moving, but where other species are migrating as well. Here it examines the intersections between: migration patterns of specific pollinators, transportation highways, and FEMA-designated "Low Risk Cities" in order to determine where the project can reside. (Image 6)

This thought process draws from the ideas of Donna J. Haraway in which she critiques the current capitalist, anthropocentric attempts towards "solving" climate change. Instead of relying on just human self-improvement technologies to address climate change, the thesis aligns with Haraway's idea of chthulucene - which advocates for remediation through embracement of complex, multi-species worlds. One of these intersections is the nearby city of Cincinnati, OH.

This thesis shows how Cincinnati, a city defined by itself and FEMA as a climate haven, can reimagine its beltway of I-275 and its pockets of failed suburban utopia into an ecological beltway. Designed for both those who are forcibly displaced or those who choose the nomadic lifestyle, this reimagination of space provides hubs of temporary stay and necessary means of maintenance.

When looking at where specifically this architecture should reside, this thesis takes inspiration from architect Paola Viganò's The Horizontal Metropolis and urban theorist Alan Berger's Drosscape, as they both show how a city can transform their leftover spaces to be restorative rather than wasteful.

Viganò argues how the future metropolis will adopt a denser, and more porous linear edge as architects intervene within the leftover industrial and commercial infrastructures. She goes on further to describe how this edge can become restorative by recycling existing structures, and transform them to be woven within nature rather than separated from it.

Berger similarly observes that over the past century, the definition of a "city" has shifted toward a horizontal, suburban metropolis. With this expansion, the emergence of "dross," or waste landscapes that are abandoned, leftover, or in between human developments, becomes inevitable. Shaped by systems of logistics, infrastructure, displacement, and consumption, these residual spaces reflect the real forces driving contemporary urban sprawl. Berger argues that these landscapes are not merely dead zones, but sites of possibility—places where new social, ecological, and urban experiments can emerge.

Image 7:
Horizontal Metropolis, Paola Viganò

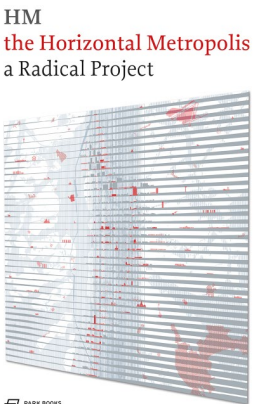
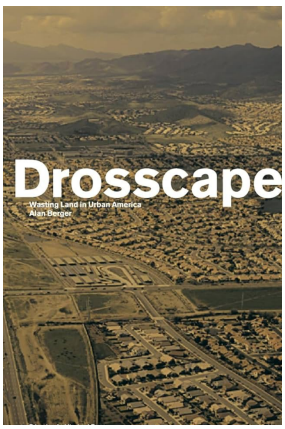


Image 8:
Drosscape, Alan Berger



With this in mind, the question becomes: is Cincinnati ready for the definition of being a "climate haven?" Evidence suggests it is not. The city has only recently implemented the 2023 Cincinnati Green Plan, which utilizes a brownfield revitalization grant to revisit contaminated landscapes and abandoned buildings. (Image 9) However, these efforts are concentrated primarily in the urban core and oriented toward producing capitalist, anthropocentric benefits. Even within the city's own climate migration response document, it is explicitly stated that a migration response plan will still need to be created.

This thesis proposes a transformation of waste landscapes along the metro area's porous edge of the 275 beltway. This restorative transformation allows for nomads to reside in spaces that are connected to transportation, necessary resources, and surrounding nature. Specifically it looks at recycling existing infrastructures directly falling off the highway and bleeding into the corridors running through its many pockets of failed suburban utopias. (image 10)

Image 9:
2023 Cincinnati Green Plan
Analysis

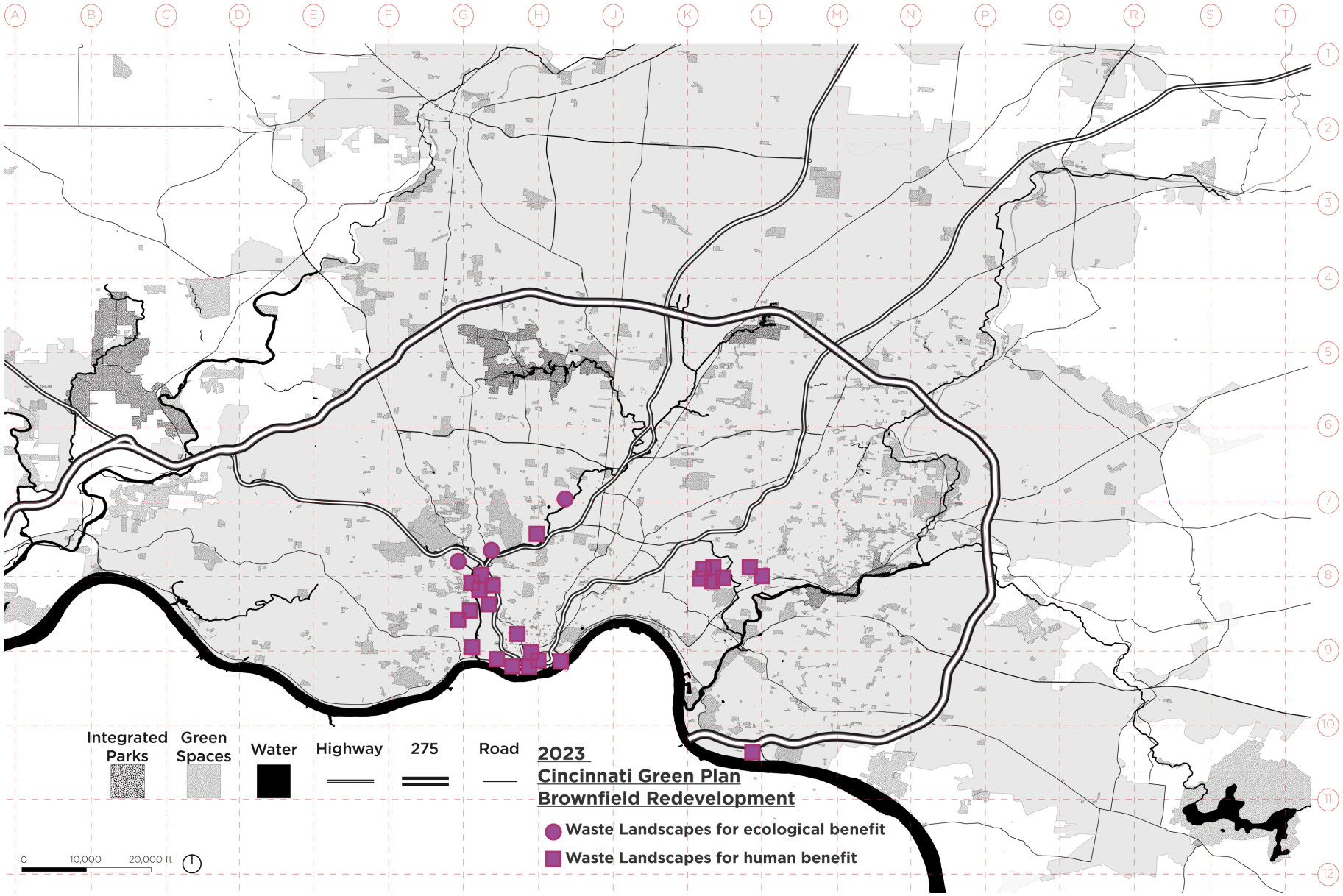


Image 10:
Ecological Beltway

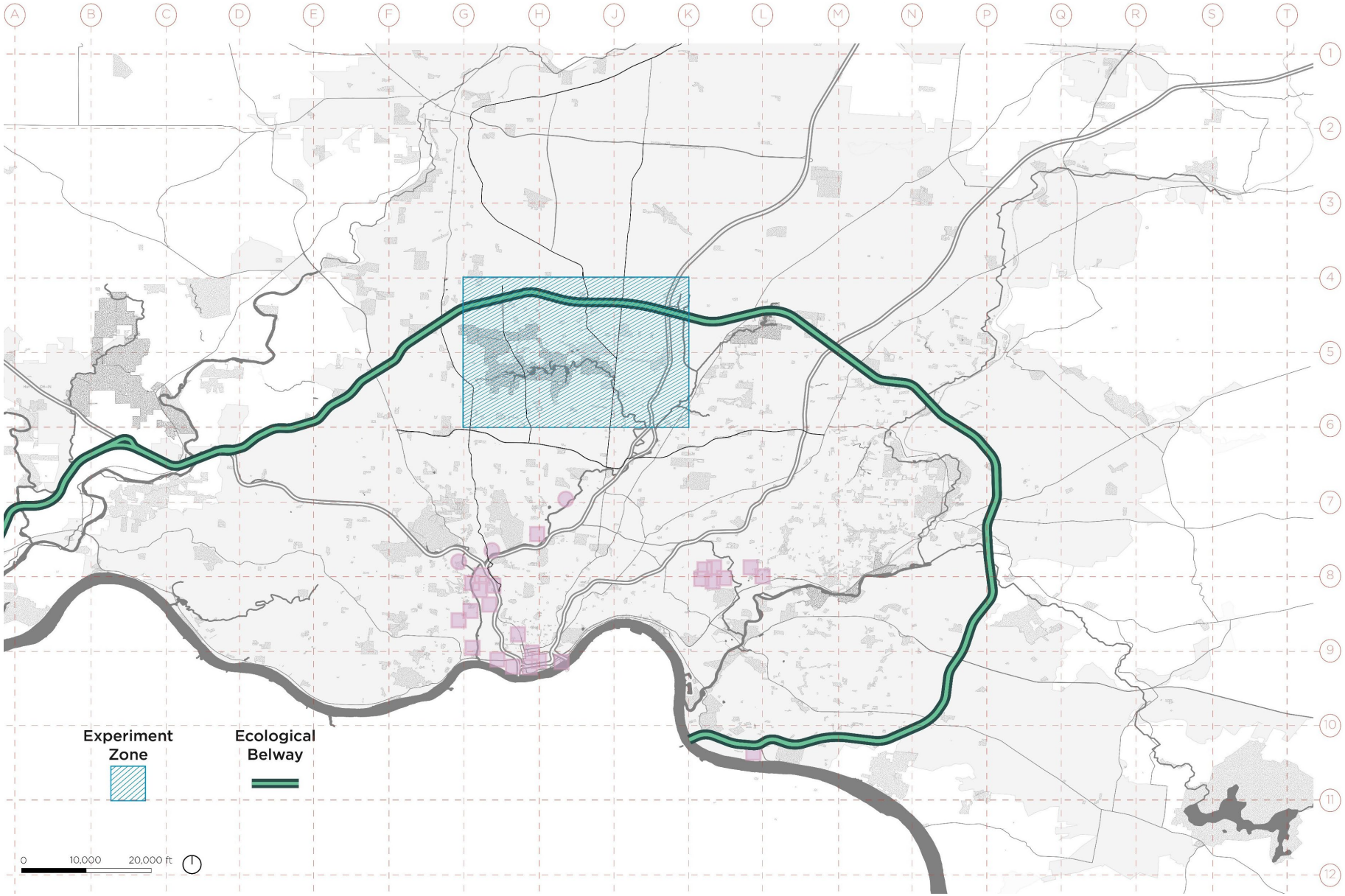


Image 11:
Suburban Standardization Photo by Alex S. MacLean/ Landslides Aerial Photograph



Image 12:
Aerial Photo of Greenhills, Unknown Photographer/ Library of Congress



These suburbs along the fringes of the beltway, mostly having a predominantly white population, were often founded on 20th century Utopian principles of standardization of living, community engagement, and connection to nature. These principles henceforth allowed for its public land use to mostly be for outdoor recreation, shopping, and transportation of automobiles. However, the small scale of these towns led to an exclusive culture that eventually became economically privatized and much less socially cohesive, therefore being opposite in what Thomas More defines as a utopia. The uniformity of uses and quick construction of many of these suburban spaces built within a single generation, results in an ongoing struggle to maintain a tax base, and to re-imagine high rates of vacancy.

Looking closer at where these wasteful places actually are, this thesis' specific area of investigation is along 2 corridors of Winton Road and Congress Avenue through the Winton Woods area. (Image 13) These corridors run through the second largest park in Cincinnati, Winton Woods, Mill Creek, which at one point was the most polluted river in North America, and one of the most significant attempts at creating a utopia in America, the Village of Greenhills.

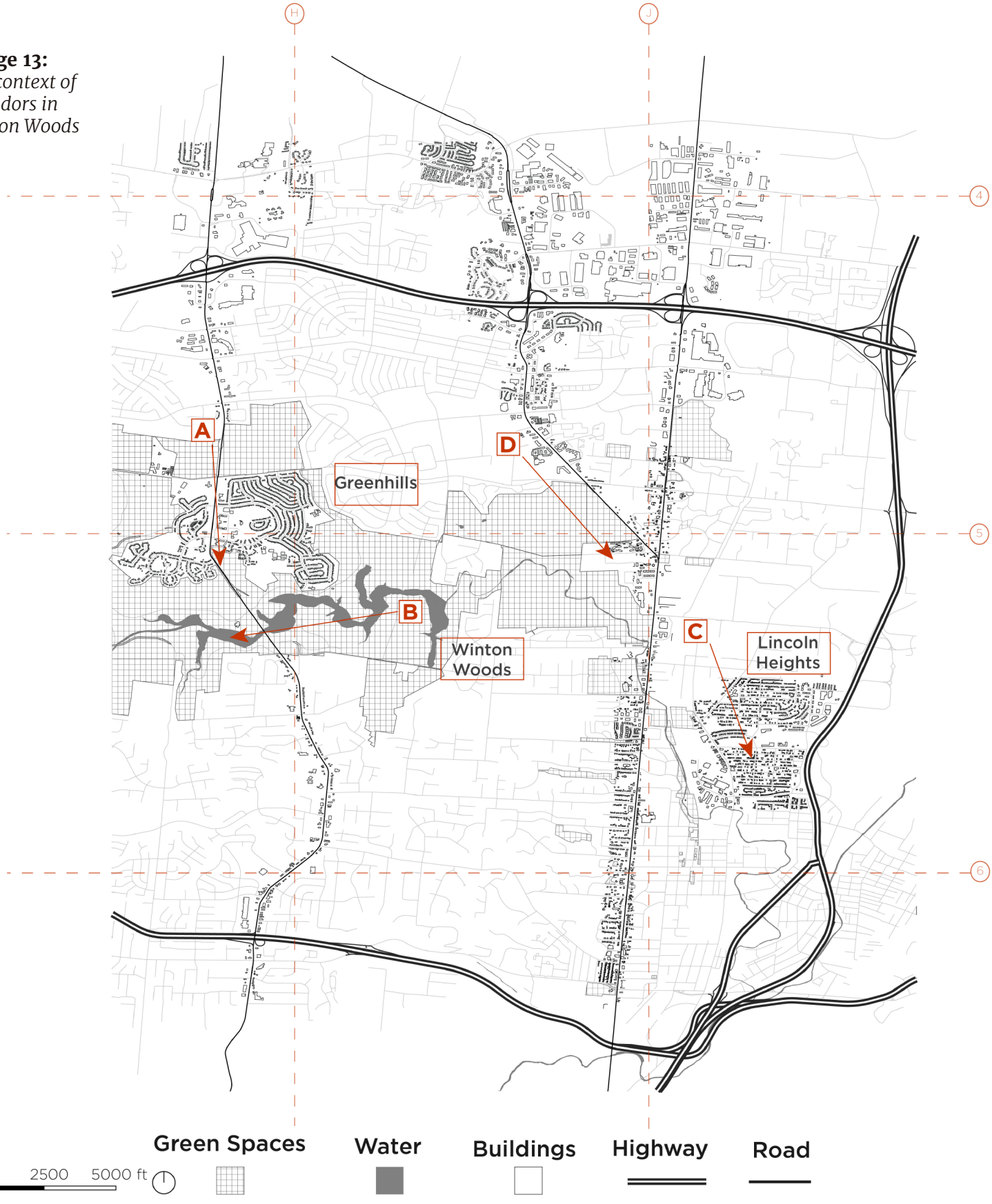
The New Deal era's Resettlement Administration chose a "rurban" site of Greenhills, 20 minutes from downtown Cincinnati, to create a village based on ideals of social cohesion and affordable living, with hopes of mass expansion. While its ideals may have been good in thought, its exclusion of minority populations, lack of large scale planning, and diminish of federal funding all led it to be the struggling suburb it is today.

This area is home to a vast collection of waste landscapes—spaces that have been overlooked, underutilized, and left to linger in a state of ambiguity. Scattered throughout are aging shopping centers, vacant or abandoned parcels, and neglected riverfront sites. These undetermined zones, while often dismissed as voids, hold immense potential to be reimagined as part of a larger ecological and social network.

With an increase of population displacement caused by digital gig work, broad economic precarity, and increasingly frequent severe weather events caused by anthropogenic climate change, various forms of migration will shape the coming generations of social, economic, and ecological urbanization.

This thesis' question asks: how can architecture respond to the waste of the sprawling 20th century industrial city, and the increasing nomadism of populations, to foster desirable forms of inhabitance for multi-species collaboration?

Image 13:
Site context of Corridors in Winton Woods area



Analysis

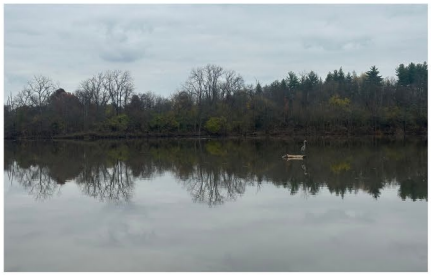
A







B







C







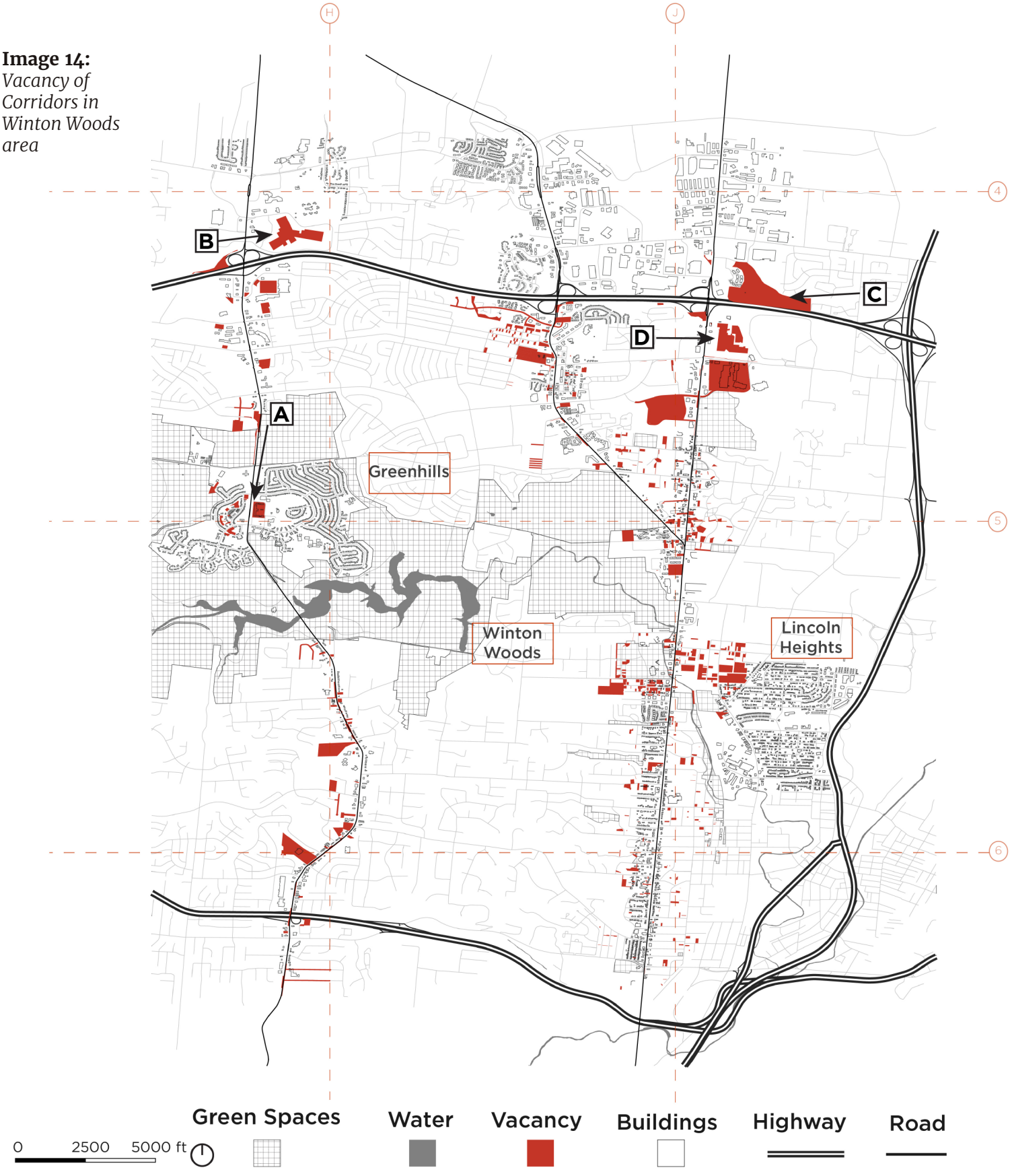
D







Image 14: *Vacancy of Corridors in Winton Woods area*



Analysis

A





B





C





D





In order to respond to this question, first we must define what this newly formed ecological beltway is. It's a city owned project that uses recycled waste landscapes along its porous edge in order to provide spaces for communities of temporary housing and small-scale maintenance. It allows for its users to stay in ranges of overnight, 2 weeks, or 6 months. In recognition of the economic instability of these individuals, a timebank system is put in place within the sites, meaning if you are unable to pay monetarily, you may use a sweat equity system through various programs at a given site. The needs that are being addressed within this system are as follows:

1. Access to clean sanitation: Essential for dignity and public health, especially for transient populations who are often excluded from reliable infrastructure.

2. Shelter beyond the car: Offers a place to rest, recover, and exist safely outside of a vehicle, creating more stable and humane living conditions without relying on traditional housing models.

3. Small-scale maintenance and economic reciprocity: Supports autonomy by creating spaces for repair, upkeep, and informal exchange—activities vital to sustaining nomadic life.

4. Interaction with nature and other species: Encourages ecological awareness and mutual reliance by embedding human presence within multi-species environments, rather than isolating it.

5. Meaningful interactions within a community: Fosters opportunities for communal rituals, cultural exchange, and shared care practices, even within a dispersed or transitional population.

A kit of parts (image 16) is used at the sites to provide 4 specific categories: play, allowing for relaxation through repurposed materials to provide new spatial moments, living, creating huts for temporary shelters and clean sanitation, community, giving space for expression of individuality within a diverse community, and ecology, to interact with other species and give back within these sites.

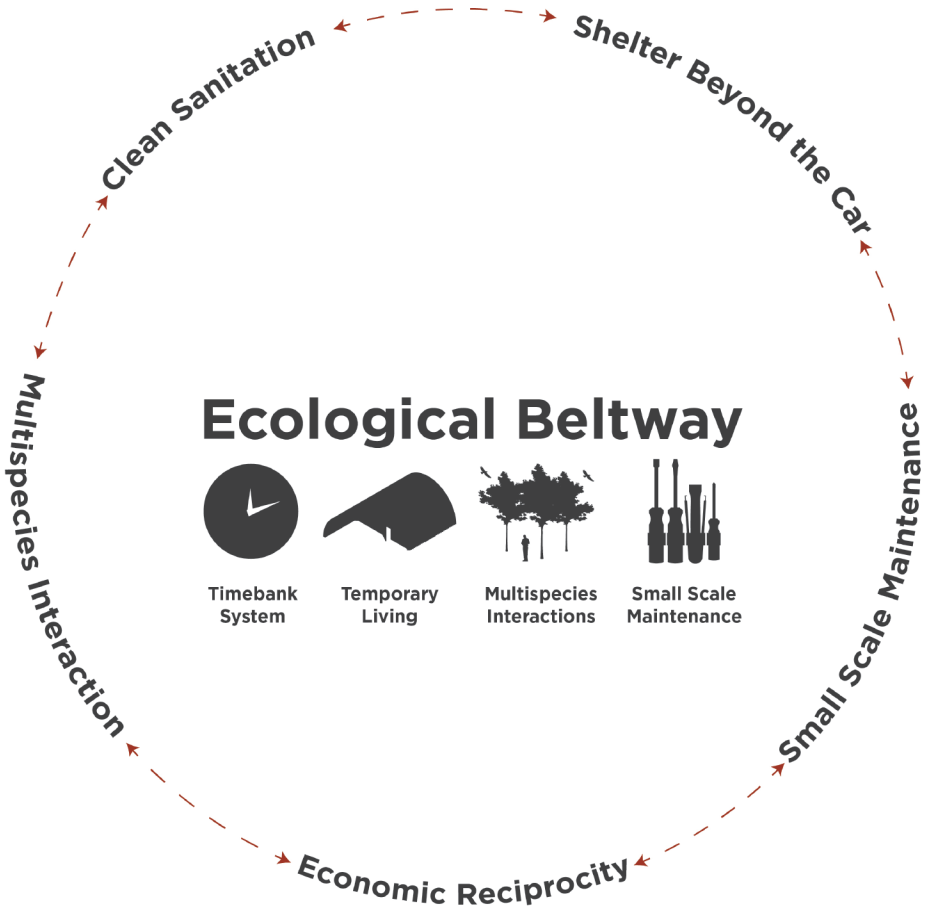


Image 15: *Ecological Beltway Definition diagram*

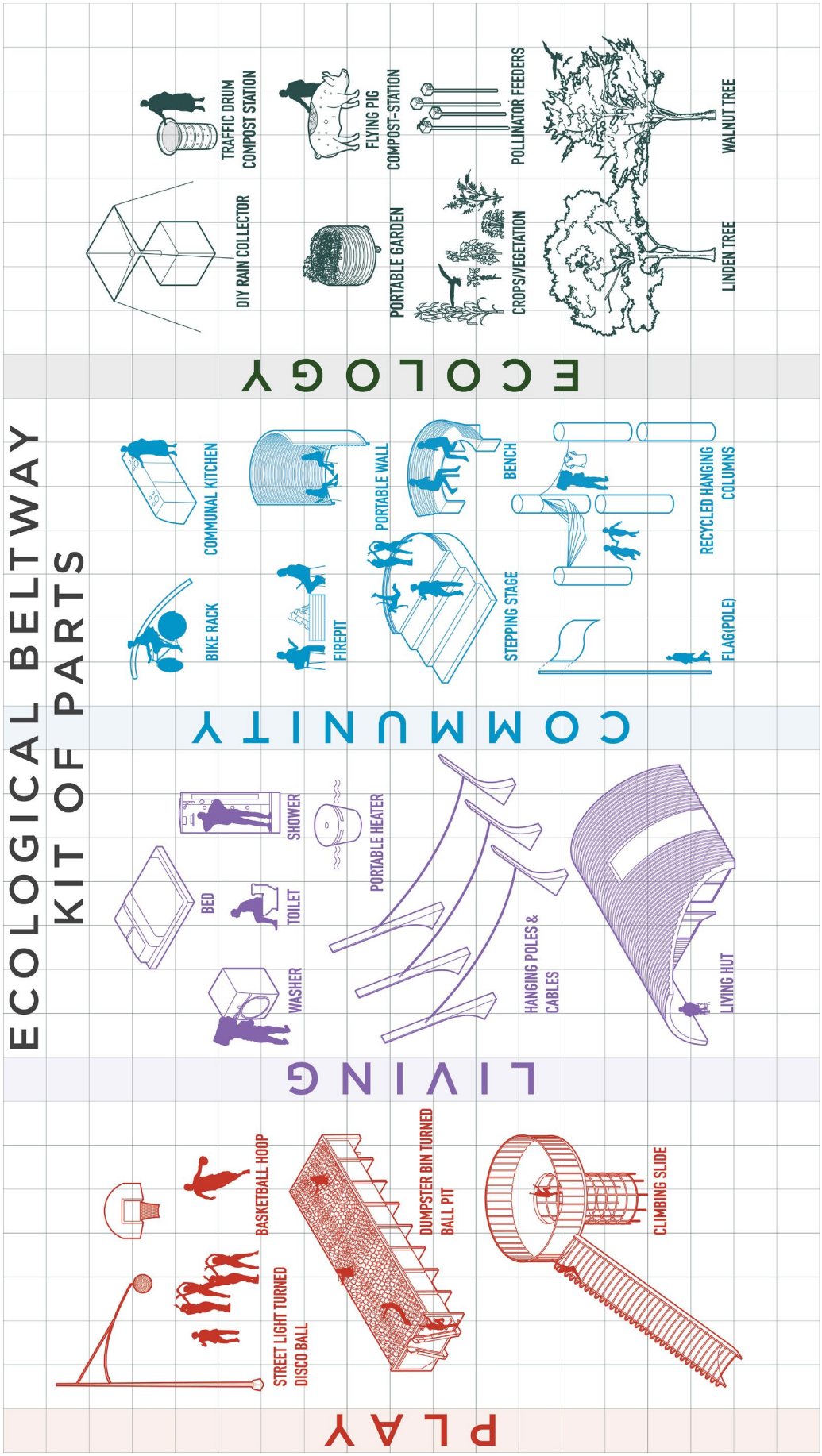


Image 16: *Kit of Parts*



Image 17: *Site Forces Diagram*

This thesis experiments the newly formed *Camp Utopia*, the redefined space where nomads dwell, at the currently abandoned Chamberlin Park and its adjacent vacant parcel. This site sits between two bounding infrastructures: the encroachment of massive warehouses from the north and the permanent transportation infrastructure of I-275 to the south. What remains is a residual, undetermined landscape ready for experimentation that Berger calls for and also lies directly off of the highway in order to give proximity to transportation.

Within this site are 3 key existing forces: first, the multiple layers of trees that create natural zones within the area, second, Beaver Run, the prominent tributary waterway of Mill Creek, and finally a compositing infrastructure embedded within the park. (Image 17)

While the city will digitally make these sites known to all through various apps and websites, on the actual highway these nomads are greeted by recycled malls and billboard signs to acknowledge where the camps may reside. (Image 18)

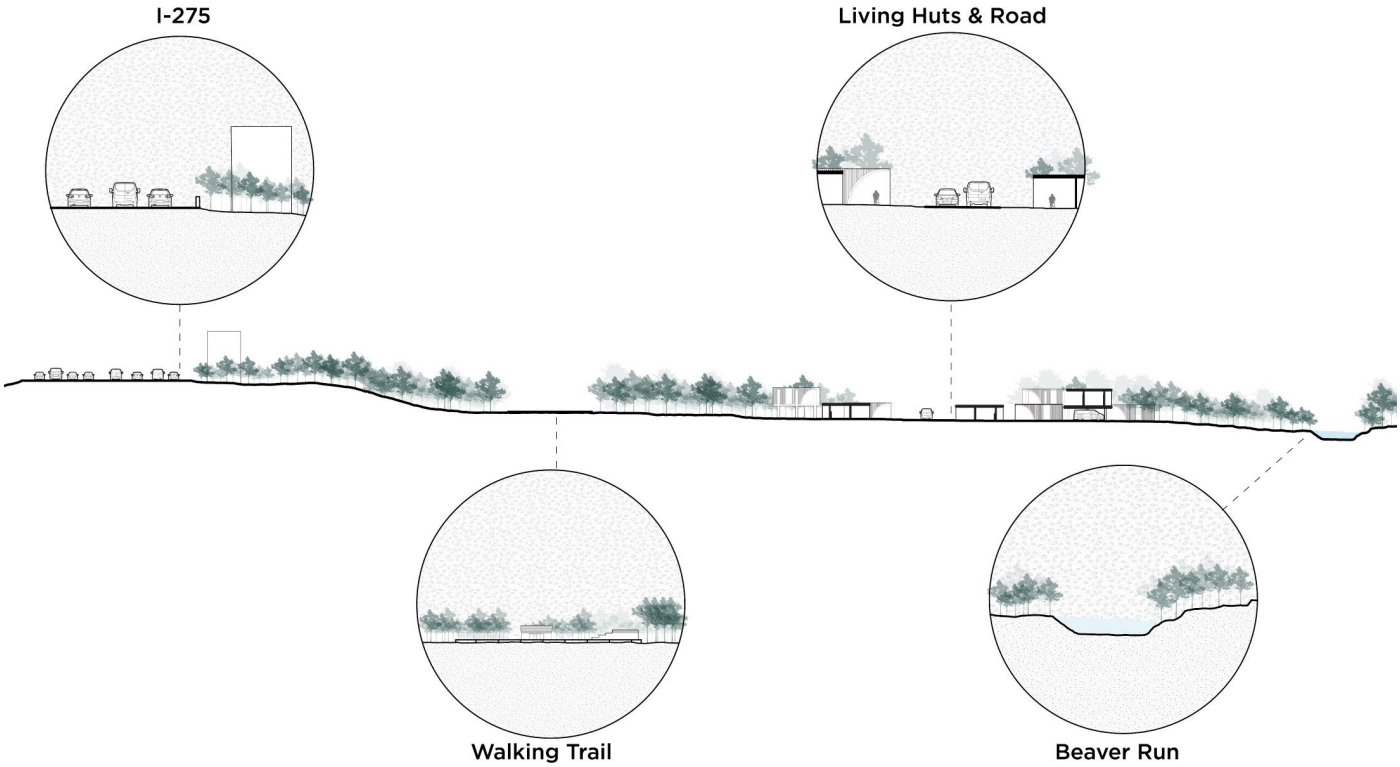
Image 18:
Highway Collage



Image 19:
Site Plan with processional moments



Image 20: *Site Section*



After two right turns directly off the highway, these nomads enter the newly constructed road that leads to the first point within the site, which is: a check in station occupied by the caretakers of the site, who are those working within the timebank system or those staying for 6 months. You then park your car within the unit zone, have the ability to receive small scale maintenance near the existing infrastructure, and finally get out of your car and walk the new half mile walking trail that contains multiple community gathering nodes and is surrounded by native vegetation for habitats of pollinators. (image 19)

As mentioned previously, current infrastructure and nature is the main spatial organization force. The zones are created by the tree lines and the units are placed towards the north in order to avoid highway noise and to allow for an interesting interaction between the living area and Beaver Run. (image 20)

Within the living zone is a constellation of cells—each one a micro-community composed of a shared kitchen, a communal bathroom, and four individual housing units. One unit is expanded in footprint to accommodate larger groups or families traveling together while another is vertically suspended, hanging among the trees. These huts in combination are not just a shelter, but an experiential offering—a moment of immersion in the tree canopy, where the boundary between dwelling and ecology is blurred, and where cohabitation with birds, branches, and filtered light becomes part of daily life.

Each hut is designed with a spliced section or carved notch that allows vehicles to be parked within arm's reach, visually and physically tied to the shelter. These nomads' vehicles are more than just transportation; they are vessels of identity, memory, and continuity. By allowing vehicles to sit adjacent to or partially under the huts, the design acknowledges their emotional and practical centrality. Rather than removing or replacing the vehicle, the architecture embraces it, folding it into the domestic arrangement with care.

Together, these elements construct a domestic ecology that supports not just survival but dignity, flexibility, and a nuanced coexistence with the landscape. (Image 21)

The cells form a central communal area that provides spaces to foster community and allow for expression of self. The shared kitchen space allows for moments such as these where people can do such a simple act such as eating together and turn it into a moment that reduces the isolation these nomads are similarly feeling. (Image 22)

The communal nodes along the walking trail serve as more than just points of rest; they are spaces that demonstrate that nomadism is not solely about survival, but about cultural exchange, identity, and community.

These nodes create opportunities for social interaction, personal expression, and shared experiences, allowing nomads to come together in moments of connection. Simple, low-tech architectural strategies like elevated wooden walking paths or small gathering areas with the kit of parts become the vessels for these interactions. (Image 23)

The preservation lab and composting stations are infrastructures of care that provide essential support to the nomadic population.

The preservation lab, specifically, serves as a place of repair and maintenance for the vehicles and tools that nomads rely on for their mobility and daily survival. In this sense, the lab isn't just a space for physical repair, but a vital component of the larger system that ensures the continued movement and functionality of nomadic life. Whether it's a flat tire or malfunctioning technology, the lab is equipped to provide hands-on care that allows nomads to keep their way of life intact. (Image 24)

The composting stations, on the other hand, provide ecological care, facilitating the sustainable management of organic waste and contributing to the regeneration of the landscape itself. These two systems work in tandem, offering a holistic approach to both human and environmental well-being.
Both the preservation lab and composting stations are also integral to the timebank system, which allows nomads to exchange labor for the resources and support they need. This system not only fosters economic reciprocity, but also strengthens the social fabric of these nomadic communities, as they collaborate to maintain the very systems that sustain them. (Image 25)

Image 21: *Cell Section, Elevation, and Plan*

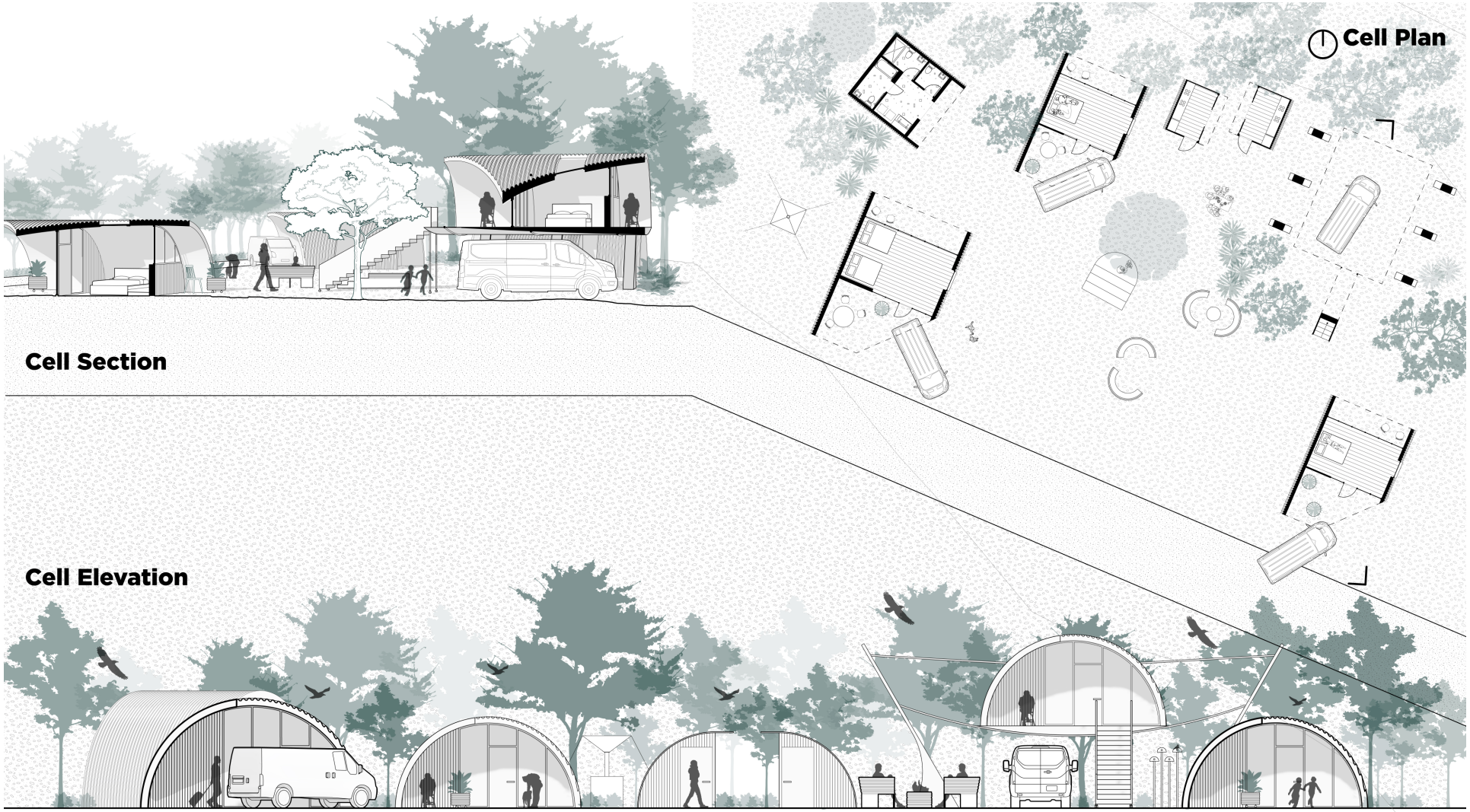


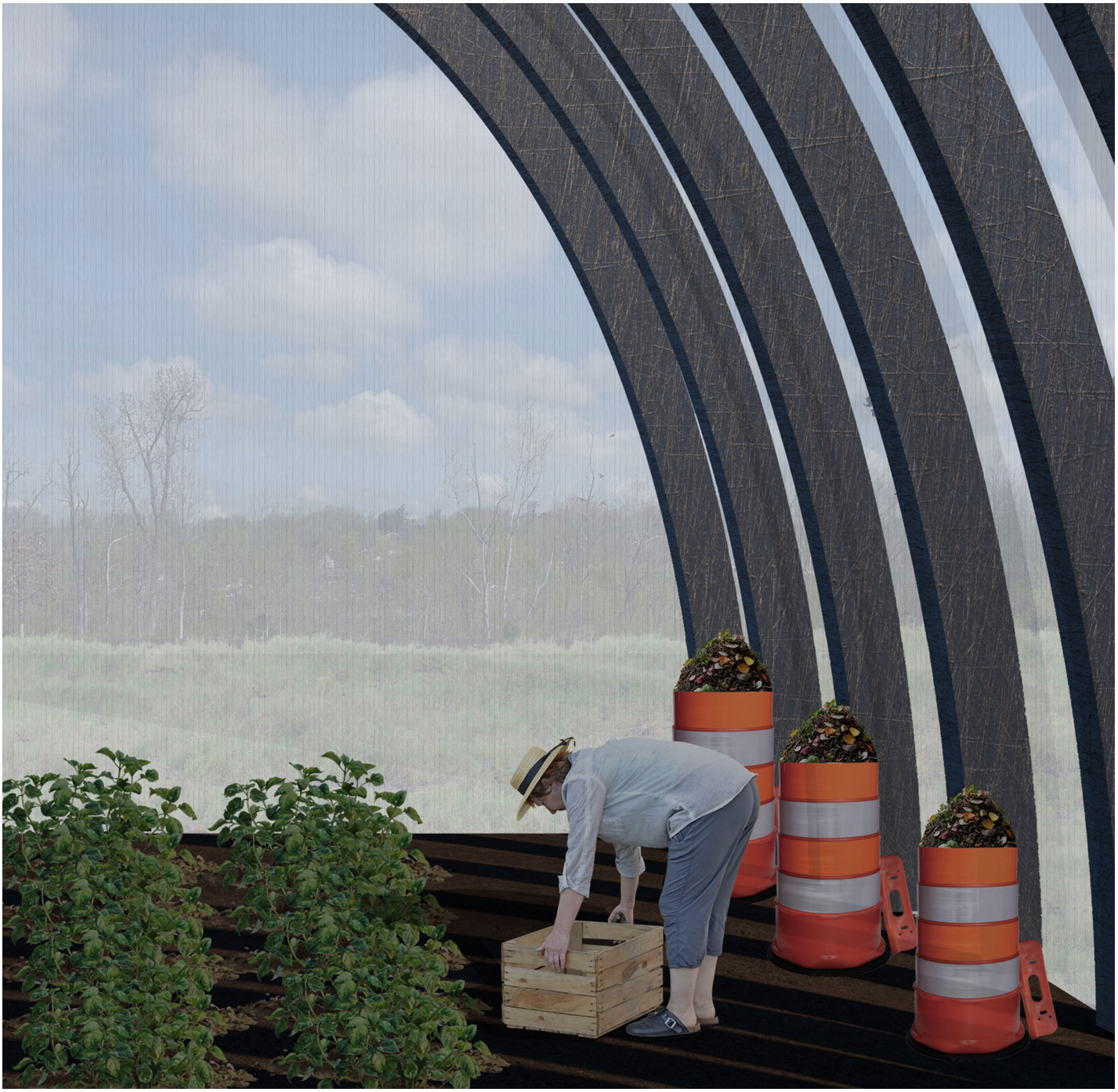
Image 22: *Cell Interactions*

Image 23: *Walking Trail*

Image 24:
Preservation Lab



Image 25:
Greenhouse /
Composting Stations



Camp Utopia is just one experiment within the larger reimagining of the ecological beltway. By occupying a residual site, it demonstrates how existing waste landscapes—too often ignored or privatized—can instead become spatial frameworks for communal care, multi-species habitation, and flexible permanence. This experiment does not propose a singular solution, but rather opens up a method of engagement: one that recycles infrastructure, centers ecological reciprocity, and understands architecture as something nomadic in itself.

The porous edge of Cincinnati is home to a plethora of these waste landscapes that can be connected within this system in order to form the Ecological Beltway. This edge—too often dismissed as leftover or inaccessible—is precisely where the city's climate future must take root. (Image 27)

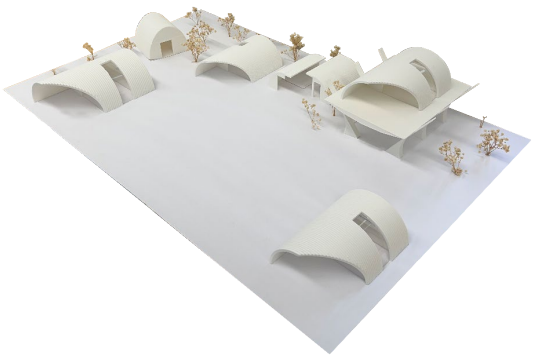
Rather than expanding inward or upward in the name of resilience, this thesis argues for an outward, ecological urbanism that engages the realities of displacement.

Viganò calls for linear, porous infrastructures that are restorative rather than extractive; Berger sees drosscapes not as failure, but as unfinished. Here, both come together through a network of soft interventions that reuse what has been cast off—not just spatially, but socially.

If Cincinnati is to become a climate haven, it cannot rely on centralized plans or market-driven revitalization alone. It must adopt a logic of care at its edges - working with what's already here, and with those who are already moving. The Ecological Beltway proposes a way forward: an urbanism rooted in care, mobility, reciprocity, and regeneration.

Image 26-28: *Cell Model Photos*





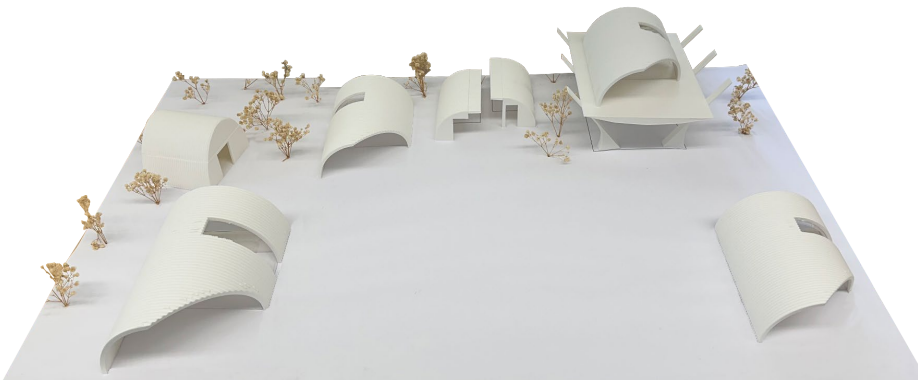
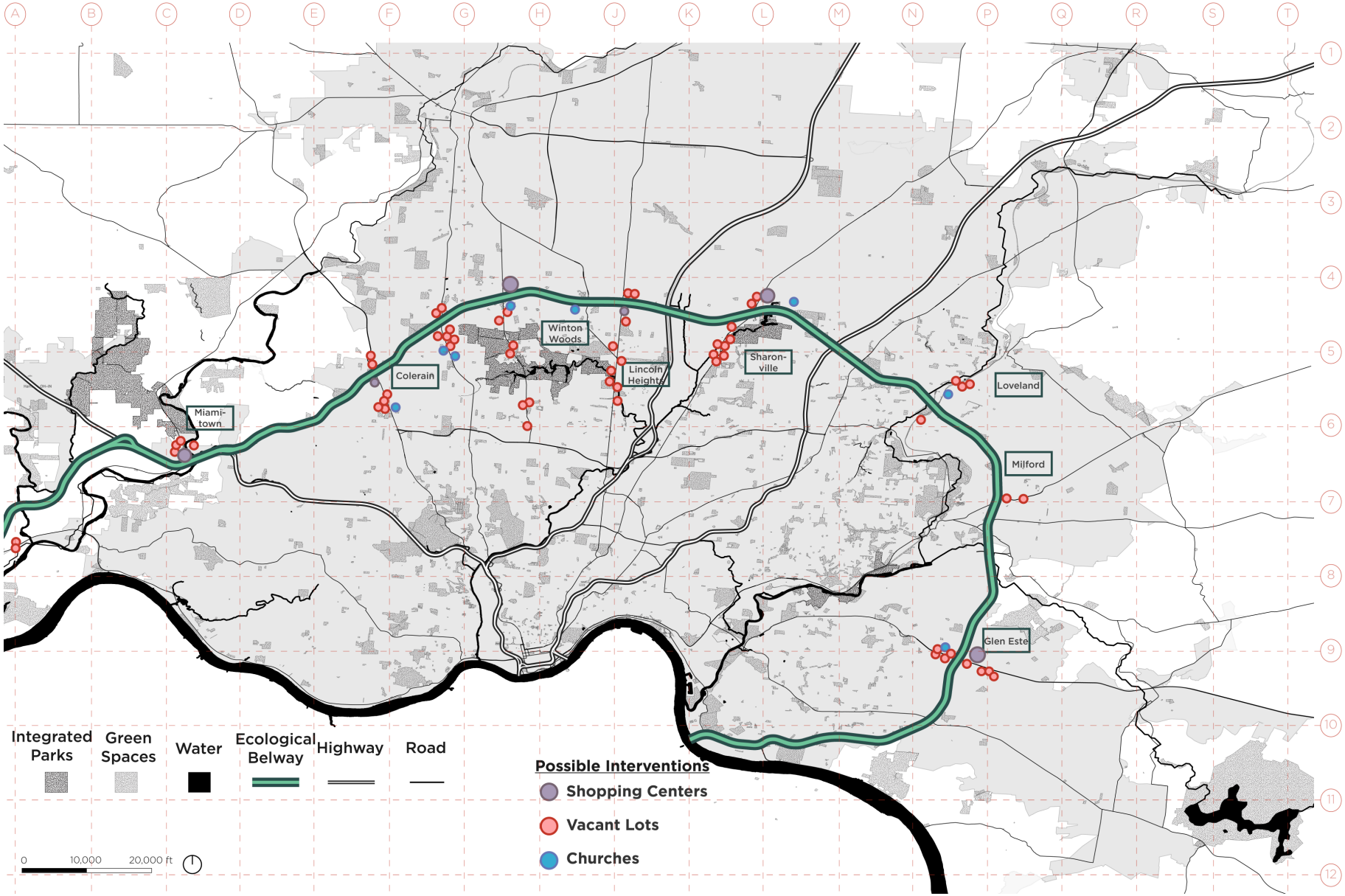


Image 29: *Ecological Beltway Locations*



04

ADDENDUM

Reflection

Over the course of this entire year the research that has come from this thesis has transformed the way I will practice as a future architect. Rather than simply designing structures whose construction and building systems aim to contribute to a more sustainable world, I will aim to foster a slightly varied form of living within them. So what does sustainability even mean to me after this year long thesis?

As mentioned in the forward of this document, when beginning this research I was fascinated by the call from leading voices in architectural pedagogy to question what this word "sustainability" means, or its similar phrase tagged to architecture of being "green." Rather than simply studying building or construction techniques which are more environmentally conscious, I chose to research how instead we as architects can create architecture that supports new societal forms and encourages a lifestyle embodying moderation, stewardship, and interconnectedness. That being said, I must point out that these construction techniques are imperative in this adaptation with climate change, but the research of this thesis, which ranged from those mentioned within this document such as Donna J. Haraway, Paola Viganò, and Alan Berger, along with others such as Jason Hickel in his book "*Less is More How Degrowth Will Save the World,"* shows that we as architects must task ourselves with more than just how we design for buildings to be constructed, but also with what kinds of lifestyles and systems we are fostering within them. This is where my interest in nomadism lies. Without attempting to glorify the extreme challenges faced by nomadic populations - especially those displaced from their own livelihoods as I address in my design - I am fascinated with the lifestyle put on display by nomad expert Bob Wells and the ecological foundation of moderation this lifestyle promotes. This, in combination with the concerns of climate change forcing movement at an alarming rate, makes it increasingly important for us as architects to understand how we can help shape future societies and support those who need it most.

This thesis has consistently reminded me of an exercise from the fall 2024 semester ARC535A class taught by Mary Rogero, where we were asked to write a manifesto containing a "Declaration of Intentions." Within this document, I wrote "the profession of architecture has first and foremost a social responsibility more so than anything else." This is precisely why this thesis has so much meaning to me. More than the architecture itself, I view this thesis mainly as a concept that has the ability to truly change the social constructs within the existing urban fabric of Cincinnati along with other climate havens in order to produce a place for those who need it desperately.

I view the Department of Architecture and Interior Design's choice in making this thesis a full 3 semester journey one that aims to produce an immense amount of growth within its students in hopes to show them what type of architect they aspire to become. I can confidently say that this journey has profoundly changed how I view the power of architects to shape society, and I look forward to the way this thesis continues to grow and how it will be weaved into my future practice.

AN ECOLOGICAL BELTWAY: REINHABITING UTOPIA

